Bachelor of Medicine & Bachelor of Surgery (MBBS) Curriculum in Bangladesh

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Preface

Medical science is constantly advancing with the advancement of science and technology. Global changes are happening in medical education in accordance and conformity of these advancements and changes. With the application of these knowledge and skills of medical science, future doctors should satisfy their patients with the changing needs of the community. Much changes are happening in teaching methods and teaching sites or learning environment. It is now an established fact that best learning is achieved through utilizing the learning environment in factual situation. A doctor can better learn by dealing with patients. Slogan of today is the unity of education and practice. The undergraduate curriculum for future doctor is expected to be so designed that it should focus more on real life situation and of learning i.e. more community oriented, community based as well as competency based. To achieve the competency to serve the people community campus partnership is very much appropriate and essential.

The undergraduate medical curriculum followed in the medical colleges was developed in 1988 through UNDP and WHO support by the Centre for Medical Education with an aim to produce community oriented doctors who will be able to provide essential primary health care to the community. That was the first documented curriculum ever developed in the country. But evaluation by UNDP (1990) and Godfrey et al (1996) revealed that it is neither community oriented nor competency based and there is room for much improvement. The need to develop a community- oriented and competency-based curriculum was felt by all concerned. For that series of workshops with specialists and experts from every discipline took place to develop a curriculum, which would reflect institutional, departmental objectives as well as subject wise learning objectives. As a whole the components of the curriculum such as, course contents, teaching method, strategy for teaching, materials or media used and the assessment system within the available timeframe were to be identified scientifically to provide the medical graduates with proper knowledge, skills and attitude. Thus the Undergraduate Medical Curriculum 2002 was developed and implemented. After a decade, with a view to the include the national goal, objectives, learning outcomes, competencies curriculum was updated as MBBS Curriculum 2012 which was implemented from session 2012-2013. After passing out of first batch of MBBS Curriculum 2012 in 2019 initiatives was taken to review and update the curriculum by the combined efforts of the Centre for Medical Education (CME), Directorate General of Health Services (DGHS) and Bangladesh Medical & Dental Council (BM&DC), MOH&FW and different Dean offices with the support from WHO Bangladesh. This enormous task has been efficiently completed with the most sincere and heartiest effort of the teachers of both public and private medical colleges and also delegates of concerned authorities and faculty members of CME. The activities in regards to technical support, compilation and editing were done by Centre for Medical Education (CME) as per its terms of reference.

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Preamble

The quality of health care is under scrutiny all over the world because of increasing public expectation of their health care services. Therefore a positive change is always expected in the role of doctors. The role of teachers and students in teaching learning can bring positive changes in medical education, its strategy and process also needs to be reviewed and developed.

This reviewed MBBS curriculum 2020 has been developed and scientifically designed, which is responsive to the needs of the learners and of the community. The present curriculum, its assessment method is expected to effectively judge competencies acquired that are required to meet the health need of our people. It is gratifying to note that all concerned in the promotion of medical education in the country have involved themselves in the planning and formulation of this need-based and competency based curriculum which has been initiated under the auspices of the Centre for Medical Education (CME).

Though curriculum is not the sole determinant of the outcome, yet, it is very important as it guides the faculty in preparing their instruction and tells the students what knowledge, skills and attitude they have to achieve through the teaching learning process. The ultimate indicators of assessing curriculum in medical education is the quality of health services provided by its graduates with required competencies.

In conclusion, I would like to mention that the curriculum planning process is continuous, dynamic and never-ending. If it is to serve best, the needs of the individual students, educational institutions and the community to whom we are ultimately accountable, must be assessed.

I congratulate all who were involved in reviewing, redesigning, updating and developing the MBBS curriculum, particularly the Centre for Medical Education. They contributed to complete this activity a commendable job and deserve special appreciation.

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Background and Rationale

Curriculum planning, scheming and updating is not a stationary process, rather a nonstop course of action done on a regular basis through a scheme. It has been long since the Centre for Medical Education (CME) updated the "Curriculum for Under-graduate Medical Education in Bangladesh 2012".

Now this MBBS curriculum 2012 is being reviewed and updated for coping with the changing needs of the society to achieve UHC & SDGs. Centre for Medical Education (CME) in association with BM&DC, Deans Offices, DGHS, MOH&FW under took the whole process. Need assessment for updating the 2012 MBBS curriculum in Bangladesh was conducted by CME after passing out of first batch in 2019. Findings of need assessment were disseminated among the principals, Deans, policy peoples from BM&DC, MOH&FW, DGHS and subject experts by CME with the support from WHO Bangladesh on 24th October 2019. Latter on the decisions were also shared and validated on 8th August 2020 with the concerned persons through Zoom meeting & through a stakeholders meeting on 26th August 2020. Several workshops were held through active participation of different subject experts professional groups, faculty members. Accordingly, first, second, third and fourth phase group meetings were held in September, October & November 2020 with support from WHO. Later on, in order to give a final shape of the recommendations a central core committee and technical working group meeting was held in November 2020 to sent the curriculum to BM&DC for further action. A taskforce group examined the revised undergraduate medical curriculum.

The revised undergraduate medical curriculum is expected to be implemented with the newly admitted students of 2021-2022 session. Performance of these; students as graduates will articulate about the achievement of this "Curriculum for Under-graduate Medical Education in Bangladesh–Updated 2020" with the reflection of integrated, need-based, core & optional, problem based, community oriented, community based & competency based though the curriculum is mainly discipline based.

I hope this curriculum will continue to serve as guiding principle for the students and faculty members. It is readily understood that in order to further improve, update this Curriculum for Under-graduate Medical Education in Bangladesh–Updated 2020 needs constant review, revision and updating to achieve UHC & SDGs.

Last but not least, I would like to extend my deep gratefulness to all faculty members of Centre For Medical Education and others who shared their expertise and insights and worked hard to generate this precious document.

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Acknowledgement

Factors contributing to an effective medical education system are quality of students, quality of teaching staff, and their effective delivery of need based scientific curriculum. Although the best students are admitted in the medical colleges every year yet the medical graduates are not always of the desired quality for providing health services to the community. The answer then should be sought in other factors of which the most important is the curriculum. A curriculum is generally regarded as a programme of instruction for an educational institution and its plan takes the form of a descriptive outline of courses, their arrangement and sequence, the time assigned to them, the contents to be covered in them, the instructional methods to be employed and finally evaluation.

The enormous task of reviewing and updating of the MBBS curriculum 2012 was assigned to Centre for Medical Education (CME) as per it's TOR. The curriculum was reviewed and updated with a scientific approach of Delphi Technique in national workshops. The participants of these meetings/workshops were the Professors of the concerned departments/subjects, principals of the medical colleges, medical educationists, faculty members of CME and a good number of resource persons including the President & members of the Bangladesh Medical & Dental Council (BM&DC) and Deans of the Faculty of Medicine of Dhaka/Chattogram/Rajshahi/Sylhet Medical Universities, Shah Jalal University and concerned persons from DGME, DGHS and MOH&FW. The other supplementary approach was to make it evidence based through need assessments where 102 academic councils out of 112 different medical colleges submitted their views, teachers and intern doctors participated in focus group discussions. The overwhelming response of all categories of teachers for reviewing & updating of this curriculum is indeed praiseworthy. They have worked hard to identify and discard the superfluous elements from the course contents and added new elements to make teaching-learning process more relevant, meaningful and up-to date. Congratulations to them, they have done a commendable job. Efforts given by the principals, members of academic councils, teachers, students and intern doctor providing their valuable opinions during the need assessment in 2019 at the beginning of reviewing and updating of this MBBS curriculum are duly acknowledged. As director, CME I express my gratitude to all the members of National Core Committee (NCC) for their all cordial co-operation, guidance all the ways since beginning up to the completion of reviewing and updating of MBBS curriculum. I would like to acknowledge Professor Dr. Md. Humayun Kabir Talukder, Professor (Curriculum Development & Evaluation), CME for his efforts in co-coordinating this activity without which it would be difficult to complete this work. I acknowledge the technical and financial support from WHO Bangladesh.

The composition of the planners of this curriculum is unique. The authorities responsible for approving, implementing and functioning of this curriculum have worked together and involved themselves in its reviewing & updating. It is only natural that they left no stone unturned to get a need based updated curriculum.

I am grateful to all, who actively participated in this great job, specially the faculty members and staffs of Centre for Medical Education who worked very hard and efficiently to develop this MBBS Curriculum 2020 which is mainly discipline based with the reflection of integrated, core & optional, problem based, community oriented, community based in nature.

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Vision, Mission, Goal and Objectives of MBBS Course, Learning Outcomes/Competences of Fresh Graduates

Vision:
Ensuring a learning environment in undergraduate medical programme that encourages and promotes development of clinically, socially and culturally competent professionals motivated to serve the community with compassion and dedication

Mission:

- To provide quality education with basic principles, methods and knowledge adequate to practice preventive, curative and promotive healthcare in the community
- To prepare professionals competent to deal with ethical and professional issues, having communication and decision making skills and attitudes, and capable of providing leadership and conducting research for future progression as a change agent.

Goal:

To produce competent, compassionate, reflective and dedicated health care professionals who:

- consider the care and safety of their patients their first concern
- establish and maintain good relationship with patients, their attendants and colleagues
- are honest, trustworthy and act with integrity
- are capable of dealing with common diseases and health problems of the country and are willing to serve the community particularly the rural community;
- but at the same time acquire firm basis for future training, service and research at both national and international level.
- are committed to keep their knowledge and skill up-to-date through 'Continuous Professional Development' all through their professional life.

Objectives of MBBS Course:

At the end of the MBBS Course students shall:

1. Acquire knowledge and understanding of
   a) the sciences upon which Medicine depends and the scientific and experimental methods;
   b) the structure, function and normal growth and development of the human body and the workings of the mind and their interaction, the factors which may disturb these, and the disorders of structure and function which may result;
   c) the etiology, natural history and prognosis of the common mental and physical ailments. Students must have experience of emergencies and a good knowledge of the common diseases of the community and of ageing processes;
   d) normal pregnancy and childbirth, the common obstetric emergencies, the principles of ante-natal and post natal care, and medical aspects of family planning and psycho-sexual counseling;

e) the principles of prevention and of therapy, including health education, the amelioration of suffering and disability, rehabilitation, the maintenance of health in old age, and the care of the dying;
f) human relationships, both personal and social and the interaction between man and his physical, biological and social environment;
g) the organization and provision of health care in the community and in hospital, the identification of the need for it, and the economic, ethical and practical constraints within which it operates; and
h) the ethical standards and legal responsibilities of the medical profession.

2. Develop the professional skills necessary to

a) elicit, record and interpret the relevant medical history, symptoms and physical signs, and to identify the problems and how these may be managed;
b) carry out simple practical clinical procedures;
c) deal with common medical emergencies;
d) communicate effectively and sensitively with patients and their relatives;
e) communicate clinical information accurately and concisely, both by word of mouth and in writing, to medical colleagues and to other professionals involved in the care of the patient; and
f) use laboratory and other diagnostic and therapeutic services effectively and economically, and in the best interests of his patients.

3. Develop appropriate attitudes to the practice of medicine, which include

a) recognition that a blend of scientific and humanitarian approaches is needed in medicine;
b) a capacity for self education, so that he may continue to develop and extend his knowledge and skills throughout his professional life, and recognize his obligation to contribute if he can to the progress of medicine and to new knowledge;
c) the ability to assess the reliability of evidence and the relevance of scientific knowledge, to reach conclusions by logical deduction or by experiment, and to evaluate critically methods and standards of medical practice;
d) a continuing concern for the interests and dignity of his patients;
e) an ability to appreciate the limitations of his own knowledge, combined with a willingness, when necessary, to seek further help; and
f) the achievement of good working relationships with members of the other health care professions.

Learning Outcomes of MBBS course:

To achieve the National goal and course objectives, a set of "Essential learning outcomes / competences" which students of the medical colleges/institutes on completion of MBBS course and at the point of graduation must be able to demonstrate has been defined.
These "essential learning outcomes / competences" are grouped under three board headings:

I The graduate with knowledge of scientific basis of Medical Practice

II The graduate as a practitioner

III The graduate as a professional

I. The graduate with knowledge of scientific basis of Medical Practice:

The graduate will understand and be able to apply basic bio-medical (anatomy, cell biology, genetics, physiology, biochemistry, nutrition, pathology, molecular biology, immunology, microbiology, pharmacology and community medicine) principles, methods and knowledge to

1.1 understand the normal processes governing homeostasis, and the mechanisms underlying the common diseases and health problems of the country.

1.2 understand the psychological and sociological concepts of health, illness and disease and explain psychological and sociological factors that contribute to illness, course of disease and success of treatment.

1.3 select appropriate investigations necessary for diagnosis of common clinical cases and explain the fundamental principles underlying such investigative procedures.

1.4 select appropriate treatment (including rational prescribing of drugs), management and referral (if in the patient's best interest) plan for common clinical cases, acute medical emergencies and minor surgical procedures.

1.5 understand biochemical, pharmacological, surgical, psychological, social and other interventions in acute and chronic illness, in rehabilitation, and end-of-life care.

1.6 understand disease surveillance and prevention, health promotion including wider determinants of health, health inequalities, health risks.

1.7 understand communicable disease control in health care facility and community settings.

1.8 understand international health status, including global trends in morbidity and mortality of chronic diseases of social significance, the impact of trade and migration on health and the role of international health organizations.

1.9 undertake critical appraisal of diagnostic, therapeutic and prognostic trials and other quantitative and qualitative studies as reported in medical and scientific literature.

1.10 understand simple research questions in biomedical and population science and the design of relevant studies.

II. The Doctor as a practitioner

2.1. The graduate will have the ability to carry out a consultation with a patient *(Appendix-III):*

2.1.1. Obtain and record an accurate medical history, including such related issues as age, gender, and socioeconomic status.

2.1.2. Perform a both comprehensive and organ system specific examinations, including a mental status examination.

2.1.3. Elicit patients' questions, understanding of their condition and treatment options, and their views, values and preferences.

2.1.4. Provide explanation, advice, reassurance and support.

2.2. The graduate will have the ability to diagnose and manage clinical cases or will refer when necessary. *(Appendix I & II):*

2.2.1. Interpret findings from the history, physical examination and mental-state examination and make an initial assessment of a patient's problems and a differential diagnosis appreciating the processes by which such diagnosis is tested scientifically.

2.2.2. Construct a plan of investigation in partnership with the patient, obtaining informed consent as an essential part of this process appreciating patient's right to refuse or limit the investigation.

2.2.3. Interpret the results of investigations, including growth charts, x-rays and the results of diagnostic procedures in *Appendix III.*

2.2.4. Synthesize a full assessment of the patient's problems and define the likely diagnosis or diagnoses.

2.2.5. Formulate a plan for management and discharge including referrals to the right professional, according to the established principles and best evidence, in partnership with the patient, their careers and other health professional as appropriate.

2.2.6. Respond to patients' concerns and preferences, obtain informed consent, recognize and respect patients' right to reach decisions about their treatment and care and to refuse or limit treatment.

2.3. **The graduate will have the ability to provide immediate care in medical emergencies in *Appendix IV:***

2.3.1. Assess and recognize the severity of a clinical presentation and need for immediate emergency care.

2.3.2. Provide basic first-aid and immediate life support.

2.3.3. Provide cardio-pulmonary resuscitation or direct other team members to carry out resuscitation.

2.4. **The graduate will have the ability to prescribe drugs safely, effectively and economically. *Appendix III:***

2.4.1. Obtain an accurate drug history, covering both prescription and non-prescription OTC drugs including complementary and alternative medications and demonstrate awareness of the existence and range of these therapies and how this might affect other types of treatment that patient are receiving.

2.4.2. Formulate appropriate drug therapy and record the outcome accurately.

2.4.3. Recognize and respect patients' right to information about their medicines.

2.4.4. Detect, mange and report adverse drug reactions.

2.5. **The graduate will have the ability to carry out practical procedures safely and effectively. *Appendix III*:**

2.5.1. Perform, measure and record the findings of diagnostic procedures.

2.5.2. Perform therapeutic procedures.

2.5.3. Demonstrate correct practice in general aspects of practical procedures.

2.6. **The graduate will have the ability to apply principles, method and knowledge of health informatics to medical practice:**

2.6.1. Keep accurate, legible and complete medical records.

2.6.2. Use effectively computers and other information systems, including storing and retrieving information.

2.6.3. Stick to the requirements of confidentiality and data protection legislation in all dealings with information.

2.6.4. Access and use effectively information sources in relation to patient care, health promotion, research and education.

2.7. **The graduate will have the ability to communicate effectively in a medical context. *(Appendix III):***

2.7.1. Communicate clearly and sensitively with patients, their relatives or other careers, and colleagues from medical and other professions by listening, sharing and responding.

2.7.2. Communicate by spoken, written and electronic methods and recognize and respect significance of non-verbal communication in medical consultation.

2.7.3. Communicate appropriately in difficult circumstances, such as in times of disclosing bad news and discussing sensitive issues, i.e. alcohol consumption, smoking or obesity.

2.7.4. Communicate appropriately with difficult, violent patients and with mentally ill people.

2.7.5. Communicate effectively in various roles, i.e. as patient advocate, teacher, manager or improvement leader.

III. The Doctor as a professional

3.1. **The graduate will apply to medical practice ethical, moral and legal principles and will be able to :**

3.1.1. Recognize and respect BM&DC's ethical guidance and standards and supplementary ethical guidance that describe what is expected of all doctors registered with BM&DC.

3.1.2. Demonstrate awareness of professional values which include excellence, altruism, responsibility, compassion, empathy, accountability, honesty and integrity, and a commitment to scientific methods.

3.1.3. Make the care of the patient the first concern and maintain confidentiality, respect patients' dignity and privacy and act with appropriate consent.

3.1.4. Respect all patients, colleagues and others regardless of their age, color, culture, disability, ethnic or national origin, gender, lifestyle, marital or parental status, race, religion or beliefs, sexual orientation or social or economic status.

3.1.5. Recognize patients' right to hold religious or other beliefs, and respect these when relevant to treatment options.

3.1.6. Know about laws and systems of professional regulation through BM & DC and others, relevant to medical practice and complete relevant certificates and legal documents and liaise with the coroner and others as appropriate

3.1.7. Use moral reasoning and decision-making to conflicts within and between ethical, legal and professional issues including those raised by economic constrains, commercialization of health care, and scientific advances.

3.2. **The graduate will be able to reflect, learn and teach:**

3.2.1. Establish the foundations for lifelong learning and continuing professional development, including a professional development portfolio containing reflections, achievements and learning needs.

3.2.2. Acquire, assess, apply and integrate new knowledge, learn to adapt to changing circumstances and ensure highest level of professional care to the patients.

3.2.3. Recognize own personal and professional limits and seek help from colleagues and supervisors as necessary.

3.2.4. Work with colleagues in ways that best serve the interests of patients, pass on information and hand over care, demonstrate flexibility, adaptability and a problem-solving approach.

3.2.5. Function effectively as a mentor and teacher, contribute to the appraisal, assessment and review of colleagues and give effective feedback.

3.3. **The graduate will be able to learn and work effectively within a multi-professional team:**

3.3.1. Recognize and respect the roles and expertise of health and social care professionals in the context of working and learning as a multi-professional team.

3.3.2. Build team capacity and positive working relationships and undertake leadership and membership roles in a multi-professional team.

3.4. **The graduate will have the ability to protect patient and improve care:**

3.4.1. Place patients' needs and safety at the center of the care process and deal effectively with uncertainty and change.

3.4.2. Know about the framework of medical practice in Bangladesh including the organization, management and regulation of healthcare provision; the structures, functions and priorities of the National Health Policy; and the roles of, and relationships between the agencies and services involved in protecting and promoting individual and population health.

3.4.3. Apply the principles of risk management and quality assurance to medical practice including clinical audit, adverse incident reporting and how to use the results of audit to improve practice.

3.4.4. Understand own personal health needs, consult and follow the advice of a qualified professional and protect patients from any risk posed by own health.

3.4.5. Recognize the duty to take action if a colleague's health, performance or conduct is putting patients at risk.

Basic Information about MBBS Course

1. **Name of the course:** Bachelor of Medicine & Bachelor of Surgery (MBBS)

2. **Basic qualifications & prerequisite for entrance in MBBS Course:**
   (i) HSC or equivalent with Science.(Biology, Physics, Chemistry)
   (ii) Candidate has to secure required grade point in the SSC and HSC examinations.

3. **Students selection procedure for MBBS course:** According to decision by the proper competent authority as per merit.

4. **Medium of Instruction:** English

5. **Duration:** MBBS course comprises of 5 Years, followed by mandatory logbook based rotatory internship for one year

6. Course structure, subject with duration and professional examination

The MBBS course is divided into four phases.

Phase	Duration	Subjects	Examination
1st phase	1½ years	• Anatomy • Physiology • Biochemistry	First Professional MBBS
2nd phase	1 year	• Pharmacology & Therapeutics • Forensic Medicine & Toxicology *Only lecture, small group teaching (practical, tutorial etc.), clinical teaching (as applicable) & formative assessment will be conducted in following subjects- General Pathology part of Pathology, General Microbiology part of Microbiology, Medicine & Allied subjects, Surgery & Allied subjects*	Second Professional MBBS
3rd phase	1 year	• Community Medicine & Public Health • Pathology • Microbiology *Only lecture, small group teaching (practical, tutorial etc.), clinical teaching (as applicable) & formative assessment be conducted in following subjects- Medicine & Allied subjects, Surgery & Allied subjects, Obstetrics and Gynaecology.*	Third Professional MBBS
4th phase	1½ years	• Medicine & Allied subjects • Surgery & Allied subjects • Obstetrics and Gynaecology	Final Professional MBBS

NB: All academic activities including professional examination of each phase must be completed within the specified time of the phase.

Special note: After taking admission into the first year of MBBS course, a student must complete the whole MBBS course (pass the final professional MBBS examination) within 12 years timeline.

7. Phase wise hours distribution for teaching-learning and assessment:

1st Phase: Hour Distribution											
Subject		**Lecture *(in hours)***	**Tutorial *(in hours)***	**Practical *(in hours)***	**Dissection and others *(in hours)***	**Integrated teaching**	**Formative Exam**		**Summative exam**		**Total *(in hours)***
							Preparatory leave	**Exam time**	**Preparatory leave**	**Exam time**	
Teaching-learning, both formative and summative assessment	Anatomy	115	53	52	307	36 hrs	35 days	42 days	30 days	30 days	527
	Physiology	120	120	97	-						337
	Biochemistry	117	100	100	-						317
	Total	352	273	249	307	36	77 days		60 days		1181+36 (IT) =**1217**
Generic Topics on Medical Humanities :(i) Behavioral science, (ii) Medical Sociology, (iii) Etiquette in using of Social Medias, (iv) Self- directed learning including team learning & (v) Medical ethics will be taught within 1st phase.											**8**
Grand Total											**1225**
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase											
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions											

2nd Phase: Hour Distribution											
Subject		**Lecture *(in hours)***	**Tutorial *(in hours)***	**Practical/ Demonstration (in hours)**	**Others *(in hours)***	**Integrated teaching (IT) (in hours)**	**Clinical bedside teaching (in weeks)**	**Formative Exam**		**Summative exam**		**Total *(in hours)***
								Preparatory leave	**Exam time**	**Preparatory leave**	**Exam time**	
Teaching-learning, both formative & summative assessment	Pharmacology & Therapeutics	100	30	50	Clinical Pharmacology 15	17	-	10 days	15 days	10 days	15 days	195
	Forensic Medicine & Toxicology	100	45	40 hrs Visit to Morgue, Thana & court = 12 days	-		-					185+12days
Teaching,- learning and only formative assessment	General Pathology	35	40	07	-	-	-	-	-	-	-	82
	General Microbiology	13	07	15	-	-	-	-	-	-	-	35
	Medicine & Allied subjects	28	-	-	-	-	21 weeks	-	-	-	-	28
	Surgery & Allied subjects	35	-	-	-	-	20 weeks	-	-	-	-	35
Total		311 hrs	122 hrs	112 hrs + 12 days	15 hours	17 hours	41 weeks	25 days		25 days		**560 hrs + 12 days**
Grand Total		**577 hrs + 12 days**					42 weeks	45 days				**560 +17 (IT) = 577 hrs + 12 days**
Generic Topics on Medical Humanities: (i) Communication skill, (ii) Doctor–patient relationship (DPR) & (iii) Physicians'*/bedside manner,* etiquette and rapport building with patients will be taught within 2nd phase.												**5 hrs**
Time for integrated teaching, examination preparatory leave and formative and summative assessment is common for all subjects of the phase												
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.												
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions												

3rd Phase: Hour Distribution

Subject		Lecture *(in hours)*	Tutorial *(in hours)*	Practical/ Demonstration *(in hours)*	Integrated teaching *(in hours)*	Clinical bedside teaching (in weeks)	Formative Exam		Summative exam		Total *(in hours)*
							Preparatory leave	Exam time	Preparatory leave	Exam time	
Teaching-learning, both formative & summative assessment	Community Medicine & Public Health	110	155	COME (community based medical education): 30 days (10 days day visit + 10 days RFST +10 days study tour)= **30 days** (10+10+10)	18	-	07 days	12 days	07 days	12 days	265 + 30 days
	Pathology	60	54	27		-					141
	Microbiology	87	38	30		-					155
Teaching-learning and only formative assessment	Medicine & Allied subjects	48	-	-	-	14	-	-	-	-	**48**
	Surgery & Allied subjects	103	-	-	-	15	-	-	-	-	**103**
	Obstetrics and Gynaecology	30	-	-	-	8	-	-	-	-	**30**
Total		438	247	57 hours + 30 days	18 hrs	37 weeks	19 days		19 days		**631**
Grand Total		760 hrs + **30 days**				37 weeks	38 days				742+18(IT) **=760 hrs +30 days**
Generic Topics on Medical Humanities: (i) Integrity and accountability of medical professionals (ii) Aspects of a good doctor will be taught within 3rd phase.											3 hrs
Time for integrated teaching, examination preparatory leave and formative and summative assessment is common for all subjects of the phase											
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.											
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions											

4th Phase : Hour Distribution

Subject		Lecture *(in hours)*	Small group teaching (in hours) PBL, Practical demonstration, Instrumental demonstration, Skill lab, Demonstration on equipment, Demonstration on common clinical procedure, Tutorial & etc.	Departmental integrated teaching (in hours)	Common hours for phase integrated teaching	Clinical teaching (in weeks)	Block posting (in weeks)	Formative Exam		Summative exam		Total *(in hours)*
								Preparatory leave	Exam time	Preparatory leave	Exam time	
Teaching-learning, both formative & summative assessment	Medicine & Allied subjects	153	199	20	126	24	4	Preparatory leave 10 days	Exam time 15days	Preparatory leave 10 days	Exam time 30days	372
	Surgery & Allied subjects	186	134	22		24	4					342
	Obstetrics and Gynaecology	60	58	20		08	4					138
Total		399	391	62	126	56wks	12 wks	25 days		40 days		852
Grand Total		978 hours				68 wks		65 days				852+126 (IT)=978
Generic Topics on Medical Humanities: (i) Medical professionalism, (ii) Inter-professionalism & (iii) Patient Safety & Medical Error will be taught within 4th phase.												5 hrs
Time for integrated teaching, examination preparatory leave and formative and summative assessment is common for all subjects of the phase												
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.												
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions												

Generic Topics on Medical Humanities for Internship Period: (i) White coat ceremony, (ii) Career planning & (iii) Continuing Medical Education (CME), Continuing Professional Development (CPD) & Infection Control Practice (ICP)	10 hrs

Medicine & Allied Subjects: hour distribution in 2nd, 3rd & 4th phases in details

Subject	Lecture (in hours)				Small group teaching (in hours)	Departmental integrated teaching (in hours)	Phase integrated teaching (in hours)	Clinical/Bedside teaching (in weeks)			Total weeks	Block posting (in weeks)	Formative examination (in days)		Summative examination (in days)	
	2nd Phase	3rd Phase	4th Phase	Total	PBL, Practical demonstration , Instrumental demonstration, Skill lab, Tutorial & etc.			2nd Phase	3rd Phase	4th Phase						
Internal medicine	22	25	90	137	199 hours	(10 topics ×2 hours) = 20 hours	(42 topics × 3 hours) = 126 hours	14	06+ 2 (OPD)	12	34	04 wks	Preparatory leave-10 days	Exam time-15days	Preparatory leave-10 days	Exam time-30days
Psychiatry	02	-	18	20				-	02	03	05					
Dermatology	-	-	17	17				-	02	03	05					
Pediatrics	04	20	22	46				04	-	06	10					
Transfusion medicine	-	03	-	03				01	-	-	01					
Physical Medicine	-	-	04	04				02	-	-	02					
Nuclear Medicine	-	-	02	02				-	-	-	-					
Emergency	-	-	-	-				-	02	-	02					
Total	28	48	153	229	199	20	126 hours	21	14	24	59	04 wks	25 days		40 days	
Grand Total	**448 hours**						**126 hours**	**63 weeks**					**65 days**			
Time for integrated teaching, examination preparatory leave and formative & summative assessment is common for all subjects of the phase																
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.																
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions																

Medicine & Allied Subjects: hour distribution for Clinical/Bedside teaching in 2nd, 3rd & 4th phases in details

Subject	Clinical/Bedside & Ambulatory care teaching (in hours)						Total hours (in three phases)	Total weeks {(2nd phase wks + 3rd phase wks + 4th phase wks = Total three phases wks) × (6 days × 4 or 2 hours)}
	2nd Phase		3rd Phase		4th Phase			
	Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching			
	Morning	Evening	Morning	Evening	Morning	Evening		
	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency		
	21 weeks		14 weeks		28 weeks			
Internal medicine	168 h (14w)	168 h (14w)	96 h (8w)	96 h (8w)	144 h (12w)	144 h (12w)	816 h	{14+(6+2)+12}= **34 w**× (6 days × 4 hrs)
Psychiatry	-	-	24 h (2w)	24 h (2w)	36 h (3w)	36 h (3w)	120 h	(0+2+3)= **05 w**× (6 days × 4 hrs)
Dermatology	-	-	24 h (2w)	24 h (2w)	36 h (3w)	36 h (3w)	120 h	(0+2+3)= **05 w**× (6 days × 4 hrs)
Pediatrics	48 h (4w)	48 h (4w)	-	-	72 h (6w)	72 h (6w)	240 h	(4+0+6)= **10 w** × (6 days × 4 hrs)
Transfusion medicine	12 h (1w)	-	-	-	-	-	12 h	(1+0+0) = **01 w**× (6 days × 2 hrs)
Physical Medicine	24 h (2w)	-	-	-	-	-	24 h	(2+0+0)= **02 w** × (6days × 2hrs)
Emergency	-	-	24 h (2w)	24 h (2w)	-	-	48 h	(0+2+0)= **02 w** × (6days × 4hrs)
Block posting	-	-	-	-	48 h (4w)	48 h (4w)	96 h	(0+0+4)= **04 w** × (6days × 4hrs)
Total	**252 hrs**	**216 hrs**	**168 hrs**	**168 hrs**	**336 hrs**	**336 hrs**	**1476 hrs**	**63 weeks**

Surgery & Allied Subjects: Hour distribution in 2nd, 3rd & 4th phases in details

Subject	Lecture (in hours)				Small group teaching (in hours)	Departmental integrated teaching (in hours)	Phase integrated teaching (in hours)	Clinical/Bedside teaching (in weeks)			Total weeks	Block posting (in weeks)	Formative examination (in days)		Summative examination (in days)	
	2nd Phase	3rd Phase	4th Phase	Total	PBL, Practical demonstration , Instrumental demonstration, Skill lab, Tutorial & etc.			2nd Phase	3rd Phase	4th Phase						
General surgery	35	30	60	125	134 hours	(11 topics × 2 hours) = 22 hours	(42 topics × 3 hours) = 126 hours	15	01	07	23	04 wks	Preparatory leave-10 days	Exam time-15days	Preparatory leave-10 days	Exam time-30days
Orthopaedic surgery	-	15	45	60				02	04	04	10					
Radiology	-	-	05	05				01	-	-	01					
Radiotherapy	-	-	08	08				-	01	-	01					
Anesthesia	-	10	-	10				01	-	-	01					
Neurosurgery	-	-	05	05				-	01	-	01					
Pediatric surgery	-	05	10	15				-	-	02	02					
Urology	-	05	10	15				-	-	02	02					
Burn & Plastic surgery/ Emergency & Casualty	-	-	05	05				-	-	01	01					
Dentistry	-	-	-	-				01			01					
Ophthalmology	-	38		38				-	04	04	08					
Otolaryngology	-	38		38				-	04	04	08					
Total	324				134	22	126 hrs	20	15	24	59 wks	04 wks	25 days		40 days	
Grand Total	**480 hours**						**126 hrs**	**63 weeks**					**65 days**			
Time for integrated teaching, examination preparatory leave and formative & summative assessment is common for all subjects of the phase																
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.																
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions																

Surgery & Allied Subjects: Hours distribution for Clinical/Bedside teaching in 2nd, 3rd & 4th phases in details

Subject	Clinical/Bedside & Ambulatory care teaching (in hours)						Total hours (in three phases)	Total weeks {(2nd phase wks + 3rd phase wks + 4th phase wks = Total three phases wks) × (6 days × 4 or 2 hours)}
	2nd Phase		3rd Phase		4th Phase			
	Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching			
	Morning	Evening	Morning	Evening	Morning	Evening		
	Indoor/ OPD/ Emergency & Casualty	Indoor/ Emergency & Casualty	Indoor/ OPD/ Emergency & Casualty	Indoor/ Emergency & Casualty	Indoor/ OPD/ Emergency & Casualty	Indoor/ Emergency & Casualty		
	20 weeks		15 weeks		28 weeks			
General surgery	180 h (15w)	180 h (15w)	12 h (1w)	12 h (1w)	84 h (7w)	84 h (7w)	552 h	(15+01+07) = **23 w**× (6 days × 4 hrs)
Orthopaedic surgery	24 h (2w)	24 h (2w)	48 h (4w)	48 h (4w)	48 h (4w)	48 h (4w)	240 h	(2+4+4) = **10 w**× (6 days × 4 hrs)
Radiology	12 h (1w)	-	-	-	-	-	12 h	(1+0+0) = **01 w**× (6 days × 2 hrs)
Radiotherapy	-	-	12 h (1w)	-	-	-	12 h	(0+1+0) = **01 w**× (6 days × 2 hrs)
Anesthesia	12 h (1w)	12 h (1w)	-	-	-	-	24 h	(1+0+0) = **01 w**× (6 days × 4 hrs)
Neurosurgery	-	-	12 h (1w)	12 h (1w)	-	-	24 h	(0+1+0) = **01 w**× (6 days × 4 hrs)
Pediatric surgery	-	-	-	-	24 h (2w)	24 h (2w)	48 h	(0+0+2) = **02 w**× (6 days × 4 hrs)
Urology	-	-	-	-	24 h (2w)	24 h (2w)	48 h	(0+0+2) = **02 w**× (6 days × 4 hrs)
Burn & Plastic surgery/ Emergency & Casualty	-	-	-	-	12 h (1w)	12 h (1w)	24 h	(0+0+1) = **01 w**× (6 days × 4 hrs)
Dentistry	12 h (1w)	-	-	-	-	-	12 h	(1+0+0) = **01 w**× (6 days × 2 hrs)
Ophthalmology	-	-	48 h (4w)	48 h (4w)	48 h (4w)	48 h (4w)	192 h	(0+4+4) = **08 w**× (6 days × 4 hrs)
Otolaryngology	-	-	48 h (4w)	48 h (4w)	48 h (4w)	48 h (4w)	192 h	(0+4+4) = **08 w**× (6 days × 4 hrs)
Block posting	-	-	-	-	48 h (4w)	48 h (4w)	96 h	(0+0+4)= **04 w** × (6days × 4hrs)
Total	**240 hrs**	**216 hrs**	**180 hrs**	**168 hrs**	**336 hrs**	**336 hrs**	**1476 hrs**	**63 weeks**

Obstetrics & Gynaecology: Hours distribution in 3rd & 4th phases in details

Lecture (in hours)				Small group teaching (in hours)	Departmental integrated teaching (in hours)	Phase integrated teaching (in hours)	Clinical/Bedside teaching (in weeks)		Block posting (in weeks)	Formative examination (in days)		Summative examination (in days)	
	3rd Phase	4th Phase	Total	PBL, Practical demonstration , Instrumental demonstration, Skill lab, Tutorial & etc.			3rd Phase	4th Phase		Preparatory leave 10 days	Exam time 15 days	Preparatory leave 10 days	Exam time 15 days
							8wks	8wks					
Total	30	60	90	58 hours	(10 topics × 2 hours) = 20 hours	(42 topics × 3 hours) = 126 hours	16 weeks		04 wks	25 days		40 days	
Grand Total	**168 hours**					**126 hours**	**20 weeks**			**65 days**			
Time for integrated teaching, examination preparatory leave and formative & summative assessment is common for all subjects of the phase													
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.													
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions													

Obstetrics & Gynaecology: Hours distribution for Clinical/Bedside teaching in 3rd & 4th phases in details

Subject	Clinical/Bedside & Ambulatory care teaching (in hours)						Total hours (in three phases)	Total weeks {(2nd phase wks + 3rd phase wks + 4th phase wks = Total three phases wks) ×(6 days× 4 or 7 hours)}
	2nd Phase		3rd Phase		4th Phase			
	Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching			
	Morning	Evening	Morning	Evening	Morning	Evening		
	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency		
			8 weeks		12 weeks			
Basic Clinical Skills (in-patient)	-	-	48 h (4w)	48 h (4w)	-	-	96 h	(0+4+0)= **04 w** × (6 days × 4 hrs)
Family Planning Clinic	-	-	24 h (2w)	24 h (2w)	-	-	48 h	(0+2+0)= **02 w**× (6 days × 4 hrs)
Gynae & Antenatal Out-patient Clinic	-	-	24 h (2w)	24 h (2w)	-	-	48 h	(0+2+0)= **02 w**× (6 days × 4 hrs)
Routine Obstetrics	-	-	-	-	36 h (3w)	36 h (3w)	72 h	(0+0+3)= **03 w**× (6 days × 4 hrs)
Routine Gynaecology	-	-	-	-	36 h (3w)	36 h (3w)	72 h	(0+0+3)= **03 w**× (6 days × 4 hrs)
Emergency Obstetric Care E.O.C (Labour Room)	-	-	-	-	24 h (2w)	60 h (2w)	84 h	(0+0+2)= **02 w**× (6 days × **7** hrs)
Block posting	-	-	-	-	48 h (4w)	48 h (4w)	96 h	(0+0+4)= **04 w** × (6days × 4hrs)
Total	-	-	**96 hrs**	**96 hrs**	**144 hrs**	**180 hrs**	**516 hrs**	**24 weeks**

8. **Teaching & learning methods**

The following teaching and learning methods will be followed:

Large Group Teaching:

- Lecture
- Seminar

Integrated teaching : 102 topics

- Phase I : 12 topics
- Phase II: 7 topics
- Phase III: 10 topics
- Phase IV: Common 42 topics + Departmental 31 topics = 73 topics
    - *(Departmental topics Medicine 10 topics + Surgery 11 topics + Gynae & Obs 10 topics)*

Small Group Teaching:

- Problem Based Learning (PBL)
- Tutorial
- Demonstration
- Students interaction

Practical session:

- Use of practical manual
- Performing the task/examination by the student
- Writing the practical note book

Field Placement (Community based medical education):

- In small groups for performing activities by the student themselves

Clinical teaching:

- In ward, OPD, ED, ambulatory care teaching, OT, POW, ICU, etc.
- By concerned persons

NB: Ambulatory care teaching, there should be a ratio of 1:4 (25% ambulatory care teaching and 75% indoor teaching).

Encourage to learn ICT through computer lab of the college.

9. **Assessment:**

A. There will be in-course/formative (item/card/term) and end-course/summative (professional) assessment for the students in each phase (1st, 2nd, 3rd & 4th phase) of the course i.e. formative and professional examination.

B. Formative assessment will be done through results of items, card and term ending examination, weightage from integrated teaching & class attendance.

C. For formative assessment, 10% marks of written examination of each paper of each subject is allocated

D. In written examination for MCQ of each paper, 20% marks are allocated. Out of that Single based answer (SBA) type of MCQ will be 50% and Multiple true false (MTF) type of MCQ 50% in formative and summative assessment of all subjects of MBBS course. There will be separate answer script for MCQ part of examination. Total number of MCQ will be 20 for 20 marks out of which 10marks for SBA and 10marks for MTF.

E. Short Answer Question (SAQ) and Structured Essay Question (SEQ) will be in written examination of each paper, 70% marks are allocated. Out of 70 marks Structured essay question (SEQ) will be around 25% along with short answer question (SAQ) around 75% in formative and summative assessment of all subjects of MBBS course

F. Oral part of the examination will be Structured Oral examination (SOE)

G. OSPE/OSCE will be used for assessing skills/competencies. Traditional long & short cases will be also used for clinical assessment

H. There will be phase final professional examination within the each academic phase.

I. Results will be published as per following GPA system with the provision of reflection of marks in the academic transcript

Numerical Grade	Letter Grade	Grade Point
80% and above	A^+	4.00
75% to less than 80%	A	3.75
70% to less than 75%	A^-	3.50
65% to less than 70%	B^+	3.25
60% to less than 65%	B	3.00
Less than 60%	F	0.00

J. <u>Eligibility for appearing in the professional examination</u>:

- Certificate from the respective head of departments regarding students obtaining at least 75% attendance in all classes (theory, practical, tutorial, residential field practice, clinical placement etc.) during the phase.
- Obtaining at least 60% marks in formative examinations.
- No student shall be allowed to appear in the professional examinations unless the student passes in all the subjects of the previous professional examinations

K. Pass Marks:

Pass marks is 60%. Student shall have to pass written (SBA & MTF-MCQ +SEQ+ SAQ + formative), oral, practical and clinical examination separately.

L. Examinations & distribution of marks:

First Professional Examination

Subjects	Written Exam marks	Structured Oral Exam marks	Practical Exam marks	Formative Exam marks	Total Marks
Anatomy	180	150	150	20	500
Physiology	180	100	100	20	400
Biochemistry	180	100	100	20	400
Total					1300

Second Professional Examination

Subjects	Written Exam marks	Structured Oral Exam marks	Practical Exam marks	Formative Exam marks	Total Marks
Pharmacology & Therapeutics	90	100	100	10	300
Forensic Medicine & Toxicology	90	100	100	10	300
Total					600

Third Professional Examination

Subjects	Written Exam marks	Structured Oral Exam marks	Practical Exam marks	Formative Exam marks	Total Marks
Community Medicine & Public Health	90	100	100	10	300
Pathology	90	100	100	10	300
Microbiology	90	100	100	10	300
Total					900

Fourth Professional Examination

Subjects	Written Exam marks	Structured Oral Exam marks	Clinical	Practical	Formative Exam marks	Total Marks
Medicine & Allied Subject	180	100	100	100	20	500
Surgery & Allied Subject	180	100	100	100	20	500
Obstetrics & Gynecology	180	100	100	100	20	500
Total						1500

M. Common Rules for Examinations

a) University professional MBBS examination will be started from May and November.

b) University professional MBBS examinations will be completed within the specified time of the concerned phase

c) No carry on system before passing 1st professional examination. Students who will appear first professional examination can attend the clinical class before publishing results of first professional examination. If any student fail any subject of first phase in the first professional examination he/she will not be able to continue clinical and other classes of second phase before passing first professional examination.

d) After passing all the subjects of first professional MBBS examination, students can appear in Second professional MBBS examination if all other prerequisites for appearing in second professional examination are fulfilled as per curriculum.

e) To appear in third professional MBBS examination students will have to pass all the subjects of the second professional MBBS examination and all other prerequisites for appearing in Third Professional MBBS examination must be fulfilled as per curriculum.

f) To appear in 4th (final) professional MBBS examination students have to pass all the subjects of previous 3rd professional MBBS examination if all other prerequisites are fulfilled. In the mean time students can attend clinical ward placement, teaching learning.

N. Few directives and consensus about the following issues of assessment:

i. Incase of OSPE/OSCE- Instruments/equipment's to be taken to oral boards to ask open questions to the students apart form Structured Oral Examination (SOE). There will be scope of instruments related viva, specially in clinical subjects and where applicable. Central OSPE/OSCE from Dean Office after moderation will be encouraged.

ii. Incase of Structured Oral Examination (SOE), instead of preparing specific structured question, topics will be fixed considering wide range of contents coverage. Rating scale will be used for marking the students concurrently. Each student will be asked questions from all topics of the set. Equal or average duration of time will be set for every student.

10. Internship :

I. After passing final professional MBBS examination students have to enroll for one year log book based mandatory rotatory internship programme. Internship programme will be more structured and supervised. It is compulsory to complete MBBS course & one year supervised internship programme to get permanent registration for doing independent practice.

II. MBBS graduates must join internship within one month after passing the final professional MBBS examination. Exception can be considered based on the only valid personal medical ground upon approval of the Director of the Medical College Hospital;

III. Within one year (12 months) of internship period 11 months at respective medical college hospital and one month at Upazila Health Complex (UHC)/field level.

IV. Timeline of completion of internship will be two years once after joining internship. i.e. it must be completed within two years from the starting date. Exception can be considered based on the only valid personal medical ground upon approval of the Principal of respective Medical College and Director of Medical College Hospital;

Generic Topics on Medical Humanities to be Taught in MBBS Course

The following sixteen generic topics on medical humanities will be taught within 1st, 2nd, 3rd & 4th Phase of MBBS course & Internship period under supervision of the concerned Phase coordination committee in collaboration with medical education unit (MEU). The sessions will be under the guidance of Principal & Vice-principal, coordinated by concerned departments and sessions will be delivered by concerned experts of the topics. Each session will be one and half hour. Attending these session will be mandatory and will be reflected in the formative & summative assessment.

Topics to be taught in Phase-I

1. Behavioral science
2. Medical Sociology
3. Etiquette in using of Social Medias
4. Self- directed learning including team learning
5. Medical ethics

Topics to be taught in Phase-II

1. Communication skill
2. Doctor–patient relationship (DPR)
3. Physicians' bedside manner, etiquette and rapport building with patients

Topics to be taught in Phase-III

1. Integrity and accountability of medical professionals
2. Aspects of good doctors

Topics to be taught in Phase-IV

1. Medical professionalism
2. Inter-professionalism
3. Patient Safety

Issues for Internship Period

1. White coat ceremony
2. Career planning
3. Continuing Medical Education (CME) & Continuing Professional Development (CPD)
4. Causes of death
5. Basic Infection Control Practice (ICP)

Integrated Teaching in Phase I

Teachers of all departments of Phase -1 (Anatomy, Physiology & Biochemistry) must be present during these integrated sessions along with the concerned faculties those are mentioned in the column four in the table below. Teachers will be the speakers/facilitators in each session. The students must actively participate in these sessions and have to submit the summary of each session to the concerned teacher/department as their assignments. This assignment will be a part of practical note book in the summative assessment. Students need to get some 'take home message' from every session. Schedule for integrated teaching session will be set at the phase I committee meeting in collaboration with medical education unit (MEU).

Total 36 hour. Each session will be for 3 hour

A) Term-I:

1. Coronary artery disease
2. Chronic obstructive pulmonary disease (COPD)
3. Anaemia

B) Term-II:

4. Diarrhea
5. Diabetes Mellitus (DM)
6. Jaundice
7. Electrolyte imbalance
8. Proteinuria

C) Term-III:

9. Thyroid disorder
10. Cerebro-vuscular disease (CVD)
11. Deafness
12. Errors of refraction

Integrated Teaching in Phase II

All the departments of Phase II (Pharmacology, Forensic Medicine & Toxicology) must be present and take part in the integrated teaching while the faculty representatives from concerned clinical & others departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase II should be ensured. Concern audiovisual aid, equipment and patient will be used. Students need to get some 'take home message' from every session. To ensure presence of the students 10 (Ten) marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule for integrated teaching session will be set at the phase II committee meeting in collaboration with medical education unit (MEU).

Total -17 hour. Each session will be for at least 2 hour

1. Electrocution and lightening
2. Burn
3. Drowning
4. Death
5. Poisoning
6. Substance abuse
7. Pulmonary Tuberculosis
8. Malaria

Integrated Teaching in Phase III

All the departments of Phase III (Community Medicine & Public Health, Pathology, Microbiology) must be present and take part in the integrated teaching while the faculty representatives from concerned clinical & others departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase III should be ensured. Students need to get some 'take home message' from every session. To ensure presence of the students Schedule for integrated

teaching session will be set at the phase III committee meeting in collaboration with medical education unit (MEU).

Total -18 hour. Each session will be for at least 2 hour

Topics:

1. Occupational and Environmental hazard
2. Snake bite
3. Transportation injuries
4. Disaster management
5. Shock
6. Glomerulonephritis
7. Rheumatoid Arthritis/ Osteomyelitis
8. Different Viral Fevers (Covid-19, Dengue, Chikungunya)
9. Carcinoma Cervix

Integrated Teaching In Phase IV

All the departments of phase iv (Medicine & Allied Topics, Surgery & Allied Topics and Gynecology & Obstetrics) must be present and take part in the integrated teaching while the faculty representatives from concerned clinical and other departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students 10 (ten) marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of integrated teaching session will be set at the phase IV committee meeting in collaboration with medical education unit (MEU).

Each session will be for at least 3 hours

Topics :

1. Hypertension
2. Tuberculosis
3. Thyroid Disorder
4. Acute Kidney Injury(AKI)
5. Fever
6. Oedema
7. Chest pain
8. Acute respiratory distress
9. DM
10. Jaundice
11. Diarrhea and vomiting
12. Nutrition
13. Pediatric Emergency
14. Headache
15. Anxiety
16. Depression
17. Psychosis
18. Drug reaction
19. Generalised pruritus
20. Purpura
21. STI
22. Low Back Pain
23. Joint Pain
24. Osteoporosis
25. Acute abdomen
26. Thrombophlebitis/Phlebothrombosis
27. Sepsis
28. Infection Prevention & Control
29. Shock
30. Fluid and Electrolytes-
31. Burn
32. Per rectal bleeding-
33. Vertigo
34. Congenital anomalies
35. Wound infection
36. Urinary Tract Infection (UTI)
37. AUB
38. Convulsion
39. Abdominal Lump
40. Anaemia
41. Unconsciousness
42. Delirium & Dementia

Medicine & Allied Subjects Departmental Integrated Teaching-Phase-IV

Medicine and Allied subjects of phase IV will organized the departmental integrated teaching on the following topics where faculty members of internal medicine and concerned allied subjects must be present and take part in the integrated teaching. While the faculty representatives from concerned clinical and other departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students few marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of the departmental integrated teaching session will be set by the department in coordination with the phase IV committee.

Each session will be for at least 2 hours

Topics :

1. Heart Failure
2. Congenital Heart Disease
3. Bronchial Asthma
4. Liver Abscess
5. Malabsorption syndrome
6. Irritable bowel syndrome(IBS)
7. Psoriasis
8. Leprosy
9. Autism spectrum disorder (ASD)
10. Somatoform disorder

Surgery & Allied Subjects: Departmental Integrated Teaching-Phase-IV

Surgery and Allied subjects of phase IV will organized the departmental integrated teaching on the following topics where faculty members of General Surgery and concerned allied subjects must be present and take part in the integrated teaching. While the faculty representatives from concerned clinical and other departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students few marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of the departmental integrated teaching session will be set by the department in coordination with the phase IV committee.

Each session will be for at least 2 hours

Topics :

1. Malignant Bone Tumour
2. Inflammatory Bowel Disease
3. Gastric Outlet Obstruction
4. Sub acute Intestinal obstruction
5. Neck Swelling
6. Epistaxis
7. Stridor in Children
8. Bladder Outflow Obstruction
9. Metabolic Bone Disease
10. Spinal Injury.
11. Proptosis

Obstetric & Gynecology : Departmental Integrated Teaching-Phase-IV

Obstetric & Gynecology of phase IV will organized the departmental integrated teaching on the following topics where faculty members of Obstetric & Gynecology and concerned other subjects must be present and take part in the integrated teaching. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students few marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of the departmental integrated teaching session will be set by the department in coordination with the phase IV committee.

Each session will be for at least 2 hours

Topics :

1. Pelvic Inflammatory Disease (PID)
2. Vaginal Discharge
3. Ovarian Tumour
4. Contraceptives
5. Pelvic tuberculosis
6. Normal labour
7. Antenatal care
8. Vital statistics (maternal & perinatal mortality)
9. Puerperium
10. Puberty

Phase I

- Generic Topics on Medical Humanities to be taught in Phase-I
- Integrated Teaching in Phase I
- Subjects of Phase I--
  - Anatomy
  - Physiology
  - Biochemistry

Generic Topics on Medical Humanities to be taught in Phase-I

The following five topics will be taught within 1st phase under supervision of Phase-I coordination committee in collaboration with medical education unit (MEU). The sessions will be under the guidance of Principal & Vice-principal, coordinated by concerned departments and sessions will be delivered by concerned experts of the topics. Each session will be one and half hour. Attending these session will be mandatory and will be reflected in the formative & summative assessment of Phase-I.

Topics:

1. Behavioral science
2. Medical Sociology
3. Etiquette in using of Social Medias
4. Self- directed learning including team learning
5. Medical ethics

Topics	Learning objective	List of Contents	Method	Time
Behavioral science	• explain the concept of behavior, personality, trait, attitude, norms , value and healthy behaviors • explain the bio psychosocial model of health • state the importance of behavioral science in clinical practice • state the effective way to change behavior • mention means of good behavior with patient	• Concept of behavior, personality, trait, attitude, norms , value and healthy behaviors • Bio psychosocial model of health • Importance of behavioral science in clinical practice • Effective way to change behavior • Means of good behavior with patient	Interactive Lecture Or Seminar	One and half hour
Medical Sociology	• explain the term sociology & medical sociology • explain the importance and use of medical sociology • relate between culture and health • mention effect of sociology on health	• The terminology: sociology & medical sociology • Importance and use of medical sociology • Relation between culture and health • Effect of sociology on health	Interactive Lecture Or Seminar	One and half hour
Etiquette in using of Social Medias	• define etiquette use of Social Medias • explain current data on abuse of Social Medias • describe the importance of Social Medias in medical education • mention the importance of etiquette in using of Social Media • explain the ways of the etiquette in using Social Media	• Definition of etiquette • Current data on abuse of Social Media • Importance of Social Media in medical education • Importance of etiquette in using of Social Medias • Ways of the etiquette in using Social Medias	Interactive Lecture Or Seminar	One and half hour
Self-directed learning including	• explain the terminology: self-directed learning and team learning	• The terminology: self-directed learning and team learning	Interactive Lecture Or Seminar	One and half hour

team learning	• mention the advantages and disadvantages of self-directed and team learning • mention the strategies for effective self-directed and team learning • describe the means of better learning and examination performance in MBBS course	• Advantages and disadvantages of self-directed and team learning • Strategies for effective self-directed and team learning • Means of better learning and examination performance in MBBS course		
Medical ethics	At the end of the session students will be able to- • explain the concept of medical ethics • explain the principles, relevance and important issues of medical ethics • state the Hippocratic oath, the International code of medical ethics, the Declaration of Geneva and Important ethical codes of BMDC for a medical doctor	• Concept of medical ethics, principles, purpose/ importance and issues /example of medical ethics • Hippocratic oath • International code of medical ethics • Declaration of Geneva • Ethical codes of BMDC for medical doctors	Interactive Lecture Or Seminar	One and half hour

Integrated Teaching in Phase I

Teachers of all departments of Phase -1 (Anatomy, Physiology & Biochemistry) must be present during these integrated sessions along with the concerned faculties those are mentioned in the column four in the table below. Teachers will be the speakers/facilitators in each session. The students must actively participate in these sessions and have to submit the summary of each session to the concerned teacher/department as their assignments. This assignment will be a part of practical note book in the summative assessment. Students need to get some 'take home message' from every session. Schedule for integrated teaching session will be set at the phase I committee meeting in collaboration with medical education unit (MEU).

Total 36 hour. Each session will be for 3 hour

A) Term-I:

i. Coronary artery disease
ii. Chronic obstructive pulmonary disease (COPD)
iii. Anaemia

B) Term-II:

iv. Diarrhea
v. Diabetes Mellitus (DM)
vi. Jaundice
vii. Electrolyte imbalance
viii. Proteinuria

C) Term-III:

ix. Thyroid disorder
x. Cerebro-vuscular disease (CVD)
xi. Deafness
xii. Errors of refraction

Term I

Subject	Learning objective	Core content	Disciplines involved
Coronary artery disease	At the end of the session the student will be able to: • explain the pattern of artery supply of heart • describe the coronary circulation and regulation • explain the appearance & disappearance of cardiac markers with oxygen supply to heart • correlate the knowledge of blood supply of heart obtained in phase I in real life situation	• Peculiarity of coronary circulation and its regulation • Balance between supply of blood and demand • Nerve supply of heart and nature of referred pain • ECG changes in ischemic disease • Enumerate appearance and disappearance of cardiac markers following ischemic change of coronary artery	Department of Anatomy/ Physiology/ Biochemistry/ Internal Medicine/ Cardiology/ Pathology Time: 3 hours
Chronic obstructive pulmonary disease (COPD)	At the end of the session the student will be able to: • explain the structure and function of respiratory tract • interpret results of spirometry in relation to COPD • differentiate obstructive lung disease from restrictive lung disease • explain the mechanism of acid-base balance, change of pH and PCO2 in COPD patient • correlate the knowledge of respiratory mechanism in COPD patient obtained in phase I in real life situation	• Different type of epithelium & its specific requirement of that location • Respiratory membrane and factors affecting transport of gases • Spirometry- Pulmonary volume and capacities • Acid-base status in COPD • Change of pH in COPD patient • Mechanism of increased PCO2 in COPD patient	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Respiratory medicine Time: 3 hours
Anaemia	At the end of the session the student will be able to: • Define and classify anaemia • Explain role of Hb and RBC in anemia • Interpret red blood cell indices	• Anaemia: Definition, classification • RBC: Erythropoiesis • Haemoglobin: Synthesis, types, functions • Red blood cell indiecis • Biochemical basis of different types of anaemia	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Haematology Time: 3 hours

Term II

Subject	Learning objective	Core content	Other discipline involved
Diarrhea	At the end of the session the student will be able to: • explain pattern and function of enteric nerve supply • explain movement of GIT with autonomic effect on it • correlate the consequences of diarrhea	• Enteric nervous system • Gastro-enteric gland distribution • Movements of GIT • Volume disorder occurs in diarrhea • Dehydration in children in diarrhea • Consequence of dehydration	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Gastro-enterology /

			Paediatrics/ Microbiology/ Pharmacology Time: 3 hours
Diabetes Mellitus (DM)	At the end of the session the student will be able to: • mention the structure and functional relation of Islet of Langerhans • describe structure, mechanism of action, regulation of secretion of insulin • explain pathophysiologic effect of insulin deficiency • explain the metabolism of glucose and changes in DM • develop skill in laboratory diagnosis of DM	• Structure and function of Islet of Langerhans • Islets of Langerhans of pancreas-hormones, functions, mechanism of action, regulation of secretion • Pathophysiology of insulin deficiency • WHO criteria of laboratory diagnosis of DM • Interpretation of OGTT • Metabolic derangement in DM	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Endocrinology / Time: 3 hours
Jaundice	At the end of the session the student will be able to: • mention structural and functional orientation of hepatocytes • state the steps of bilirubin metabolism • differentiate conjugated & unconjugated bilirubin • define & classify jaundice based on biochemical findings • correlate the knowledge of hepato-biliary system and metabolism obtained in phase I in real life situation	• Role of specific orientation of hepatocyte • Relation of intrahepatic biliary tree and hepatocyte • Steps of bilirubin metabolism • Conjugated & unconjugated bilirubin • Jaundice based on biochemical findings	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Haematology Time: 3 hours
Electrolyte imbalance	At the end of the session the student will be able to: • explain homeostatic functions of kidney for the regulation of electrolytes • correlate normal electrolyte level, its deviation & consequences of deviation	• Homeostatic function of kidney • Regulation of electrolytes by hormones acting on kidney • Laboratory result of electrolyte profile • Consequences of different types of electrolytes imbalance	Department of Physiology/ Biochemistry/ Internal medicine/ Nephrology / Anesthesiology Time: 3 hours
Proteinuria	At the end of the session the student will be able to: • describe glomerular membrane, GFR, effective filtration pressure • correlate the structure and function of filtration membrane Explain consequences of proteinuria. • explain consequences of proteinuria.	• GFR: definition, determinants and control • Normal reabsorption process in kidney • Proteinuria: Detection, pathophysiology of developing proteinuria, important causes.	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Nephrology / Paediatrics Time: 3 hours

Term III

Subject	Learning objective	Core content	Other discipline involved
Thyroid disorder	At the end of the session the student will be able to: • mention structure of thyroid gland • describe biosynthesis, storage, release, transport, mechanism of action, function and regulation of secretion of thyroid hormone • explain the importance iodine in thyroid hormone synthesis • interpret the thyroid function test	• Structure of thyroid gland • Thyroid hormone biosynthesis, storage, release, transport, mechanism of action, function and regulation of secretion of thyroid hormone • Thyroid disorders: hypo and hyperthyroidism, cretinism, myxoedema and goitre • Importance of iodine in thyroid hormone synthesis • Thyroid function tests with their interpretation	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Endocrinology Time: 3 hours
Cerebro-vuscular disease (CVD)	At the end of the session the student will be able to: • explain the blood supply of CNS • explain the pattern and functioning of blood brain barrier • explain effect of UMN & LMN lesion • interpret deep & superficial reflexes • correlate the knowledge of blood supply of CNS obtained in phase I in real life situation	• Peculiarity of artery supply of CNS • Blood brain barrier • Ascending and descending tracts: name and functions. • UMN & LMN: definition, effect of lesion • Role of dyslipidemia in developing CVD.	Department of Anatomy/ Physiology/ Biochemistry/ Internal medicine/ Neurology Time: 3 hours
Deafness	At the end of the session the student will be able to: • explain the role of different organs of hearing • explain sound wave transmission, excitation of auditory receptors, auditory pathway • interpret the result of Rinne test & Weber test.	• Role of different parts/organs in hearing • Hearing: receptor, mechanism of sound wave transmission, auditory pathway.	Department of Anatomy/ Physiology/ Biochemistry/ Otolaryngology Time: 3 hours
Errors of refraction	At the end of the session the student will be able to: • Summarise the structure of eye ball, refractive media, refractive index, diaptor, refractive power of cornea & lens, • types, causes of errors of refraction and their correction	• Structure of eye ball • Vision: image formation in the eye, visual pathway, common errors of refraction.	Department of Anatomy/ Physiology/ Biochemistry/ Ophthalmology Time: 3 hours

Anatomy

Departmental Objectives

At the end of the Anatomy course, the students should be able to:

- mention, identify, show, draw and describe the anatomical structure of the human body responsible for carrying out normal body functions.
- apply the acquired knowledge to understand and correlate the other pre-clinical, para-clinical and clinical medical subjects.
- execute the acquired knowledge of Anatomy with the knowledge of other medical subjects to provide optimum health services in the country and abroad.

List of Competencies to acquire:

- Ability to demonstrate knowledge & skill of understanding human anatomy, functions of different components of human body, cell biology and human development in clinical perspective.
- Ability to utilize knowledge and skill of understanding of spatial relationship, course & distributions of different components of human in real life situation.
- Ability to detect the deviation from normal state in the human body in relation to structure, function and development.
- Ability to identify human body components and functional pattern by using internationally accepted terminologies.

Distribution of teaching - learning hours

Lecture	Tutorial	Practical (Histology)	Demonstration +Dissection +Card exam	Total Teaching hours	Integrated teaching for phase I	Formative Exam		Summative exam	
						Preparatory leave+ post term leave	Exam time	Preparatory leave	Exam time
115 hrs	53hrs	52 hrs	307 hrs	527 hrs	36 hrs	21+14= 35 days	42 days	30 days	30 days
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase									
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions									

Teaching - learning methods, teaching aids and evaluation

Teaching Methods			Teaching aids	In course evaluation
Large group	Small group	Self learning		
Lecture Integrated teaching	Tutorial Practical Demonstration Dissection	Self-study & self-assessment	Computer / Laptop & Multimedia OHP, Transparency & Transparency marker White board & different coloured white board markers Black board & white and coloured chalks Cadavers, prosected parts, bones, viscera Histological slide, Microscope & Projection microscope Projection system and Virtual anatomy dissection table	• Item Examination • Card Examination • Term Final Examination (written, oral+ practical)

Related Equipments: Flip Chart, Photograph, Model, X-ray films (CT scan and other imaging films), View box, Diagram, Preserved specimens, Living body for surface marking, Simulator, various Projection system and Virtual anatomy dissection table.

1st Professional Examination:

Marks distribution of Assessment of Anatomy

Total marks – 500

- Written=200 (Formative 20+MCQ (SBA+MTF) 40+(SAQ + SEQ) 140)
- SOE = 150
- Practical=150

Learning Objectives and Course Contents in Anatomy

Learning Objectives	Contents	Teaching hours Total : 12 hrs
General Anatomy Student will be able to • define anatomy and explain the subdivisions of anatomy. • describe the anatomical terminology, planes & positions. • define and classify bone. Describe the composition, blood supply, functions, ossification of bones with clinical correlation. • describe the composition, characteristics, location and functions of different types of cartilages. • define & classify joints. Describe the characters, stability & movements of joints with clinical correlation. • classify muscles. Describe their properties and functions. • define & classify blood vessels. • describe the different types of circulation. • describe different types of vascular anastomosis with their functional & clinical implications. • describe components, functions & the general plan of lymphatic drainage of the whole body. • classify lymphoid organs. Describe the functions of lymphoid organs with clinical significance.	**TERM I** **CORE :** • Definition, subdivisions of anatomy and its importance in the study of medicine. • Anatomical terminologies, anatomical planes & positions. • Skeletal system**:** Bones – classification, composition, functions, parts of a developing long bone, blood supply, periosteum & endosteum. Ossification – definition, centres, processes. Factors affecting growth of bone. • Cartilages: composition, types, characters, locations and functions • Joint: classification, characteristics of each type & movements, stability of the joints. Clinical conditions associated with joints. General plan of blood supply & nerve supply of joints. • Muscular system: different ways of classification, characteristics and functions different types. Skeletal muscle – classification; Principle applied to innervation & contraction. • Blood vascular system: component parts, general plan, structure, classification. Differences between different types of vessel. Nutrition & innervations of vessels. Circulation – systemic, portal & pulmonary circulation and characteristic features of each type. Vascular anastomosis: types ,sites, characteristics ,functional and clinical importance • Lymph vascular system: components, characteristic features of lymph capillaries. Comparison with blood capillary. • Lymphoid organs: classification, distribution & functions,	01 hr 01 hr 03 hrs 01 hr 02 hrs 01 hr 02 hrs 01 hr

Learning Objectives	Contents	Teaching hours Total : 08 hrs
Cell Biology Student will be able to: • define and describe the human cell & its constituents, structure & functions of all components of cell. • describe the features of different types of cells.	**CORE:** • Human Cell – Basic organization, types of constituents, cell membrane • Nucleus – structure & functions • Cytoplasm, organelles and inclusions – structure & functions • Functional correlation of different types of cell (protein secreting, ion transporting, steroid secreting, mucus secreting, antibody producing cell) in respect of their nuclear, cytoplasmic, membrane and surface feature	Total:06 hrs. TERM I 02 hrs 01 hr 02 hrs 01hr
Human Genetics Students will be able to: • describe the different basic features of chromosomes. • define terms related to human genetics.	**CORE:** • Chromosomes: Basic structure • Terms & definitions: Gene, Gene locus, genome, genotype, phenotype, genetic trait etc.	**Total: 02 hrs** **TERM I** 01hr 01 hrs

Learning Objectives	Contents	Teaching hours Total: 14 hours
General Histology Student will be able to: • define and classify the basic tissues in the body • identify under microscope different types of: • Epithelial tissue • Connective tissue • Muscular tissue • describe microscopic components and differentiate different components of: • Epithelial tissue • Connective tissue • Muscular tissue • describe the histological structures of different types of muscle tissue. • describe the composition & functions of components of nervous tissue • correlate inter-relationship between structure and functions of each tissue	***General Histology*** **Basic tissues:** • Definition, classification, components, characters, distribution and functions of • Epithelial tissue and its subtypes • Connective tissue and its subtypes • Muscular tissue and its subtypes • Structure and functions of • Cell surface specialization • Inter cellular junction • Histological structure of • Smooth muscle tissue • Cardiac muscle tissue • Skeletal muscle tissue • Mechanism of muscle contraction • Structure and function of Nervous tissue • Neurons • Neuroglia	**TERM I** 05hrs 05 hrs **TERM II** 02 hrs **TERM III** 02 hrs

Learning Objectives	Contents	Teaching hours Total: 18 hours
Systemic Histology: Students will be able to describe the histological structures of organs of different systems of the body.	***Systemic Histology* :** histological structures of **TERM I** • Respiratory system : Respiratory tract & Lung • Vascular system : Different types of artery, capillary & vein **TERM II** • Lymphoid organs: Thymus, spleen, lymph node & tonsil • Digestive system & associated Glands : tongue, oesophagus, stomach, intestine, Liver, gall bladder, pancreas • Exocrine glands : salivary glands • Urinary system : kidney, ureter, urinary bladder • Male reproductive system : testis, epididymis, vas deferens, seminal vesicle • Female reproductive system: ovary, uterus, uterine tube, vagina **TERM III** • Endocrine glands: pituitary, thyroid, parathyroid, adrenal glands • Skin and its appendages	 **TERM I** 01 hr 01 hr **TERM II** 02 hrs 04 hrs 01 hr 03 hr 02 hrs 02 hrs **TERM III** 01 hr 01 hr

Learning Objectives	Contents	Teaching hours Total 18hrs
General Embryology Students will be able to: • define terms related to embryology • explain the significance of study of embryology • explain basic process of development • describe different processes of cell division • describe oogenesis and spermatogenesis • describe the process of fertilization • describe the events of 1st week of development. • describe the events2nd week of development. • describe the events 3rd week of development. • describe the development & derivatives of ectoderm, mesoderm & endoderm. • explain the development of foetal membranes • explain the development of twins & their types. • describe the causes & types of congenital anomalies • explain the process of human evocation • describe the Molecular regulation & cell signaling pathways	**CORE:** • Introduction: terms and definition; Significance of study of embryology. • Basic process of development: proliferation, growth, differentiation, inductors, evocators and organizer • Cell division: Types • chromosomal changes during cell division with anomalies • Gametogenesis and maturation of Germ cells. • Fertilization: Events, factors influencing the fertilization; Progress in 1st week of development • Progress in 2nd week of development. • Progress in 3rd week of development. • Derivatives of germ layers: ectoderm, mesoderm & endoderm. • Foetal membranes : Placenta, chorion, amnion, umbilical cord, yolk sac etc. • Twins • Teratology **Additional:** • Human Evolution • Concepts of medical biotechnology in relation to embryology • Molecular regulation &cell signaling	**TERM I** 01 hr 01 hr 02 hrs 02 hrs 02 hrs 02 hr 02 hrs 01 hr **TERM II** 03 hrs 01 hrs 01 hrs

Learning Objectives	Contents	Teaching hours Total: 24 hours
Systemic Developmental Anatomy Student will be able to: • describe the process of development of different systems of the body • describe the developmental anomalies of the organs of different systems of the body	**CORE:** Development and their Anomalies of • Skeletal system & vertebral column Muscular system • Upper and lower limb • Digestive system with associated glands • Respiratory system • Cardiovascular System & aortic arches • Coelomic cavity & the diaphragm • Skin & mammary gland • Urinary system • Male and female Reproduction system • Pituitary & suprarenal gland • Face & neck & their associated organs • Nervous System • Eye & Ear	**TERM II** 02 hrs 01 hr 03 hrs 01 hr 03 hrs 01 hr 01 hr 02 hrs 03 hrs **TERM III** 01 hr 03 hrs 02 hrs 01 hr
• mention general outline of development of: Thoracic duct, Cisterna chyli, Inferior Vena Cava, Superior Vena Cava, Portal Vein, Brachiocephalic veins & Renal veins.	**Additional:** Development of • Lymphatic System • Vascular System	

Learning Objectives	Contents	Teaching hours Total: 21 hours
Neuroanatomy Students will be able to: • classify nervous system and describe each type. • mention different parts of nervous system • describe composition of nervous system • describe autonomic nervous system, • describe the coverings of central nervous system • describe the ventricular system of CNS • explain blood brain & blood CSF barrier	**CORE:** • Introduction to Nervous system, • Composition of grey matter and white matter • Nerve fibers: structure classifications & functions, myelination, degeneration, regeneration • Receptors: definition, structure classifications location & functions • Synapse: definition, structure classifications & functions • Autonomic nervous system: parts, autonomic nerve plexuses & ganglia • Coverings of brain and spinal cord : Pia, arachnoid and dura mater, their extension, folds, spaces, nerve supply & blood supply • Ventricular system and Cerebrospinal fluid (CSF) : Location of different ventricles of brain the formation, composition, circulation, absorption & functions of CSF • Blood-brain and Blood-CSF barriers: Composition & function	**TERM I** 01 hr **TERM III** 01hr 01 hrs **TERM I & II** 02 hrs **TERM III** 01 hr 02 hr

Learning Objectives	Contents	Teaching hours
Neuroanatomy Students will be able to: • describe the anatomical aspects of motor and sensory parts of nervous system with their functional and clinical significance	**CORE:** **Motor system** • Cerebrum (motor areas): Gyri, sulci and important functional areas with effects of lesion; mode of blood supply • Pyramidal & extrapyramidal system & effects of their lesion • Cerebellum: parts, functional lobes, nuclei, peduncles & functions, blood supply, clinical conditions • Basal nuclei: locations, parts, functions artery supply & clinical conditions • Motor and mixed Cranial Nerves: Classification, functional components, cranial nerve nuclei and course of cranial nerves **Sensory system** • Dermatome & axial line • Cerebrum(sensory areas): Gyri, sulci and important functional areas with effects of lesion; mode of blood supply • Ascending tracts of spinal cord with effects of lesions • Diencephalon: parts & functions • Sensory cranial nerves & Smell, visual & auditory pathway • Spinal Cord: Length, extension, enlargement, blood supply, cross-sections at different level • Brain stem: blood supply, cross sections at different levels • Reticular formation • Limbic system	**TERM III** 02 hrs 01 hr 01 hr 02 hr 01hr 01 hr 01 hr 01 hr 01 hr 01 hr 01hr

Learning Objectives	Contents	Teaching hours (Total 24 hrs)
Living (surface) Anatomy Students will be able to: • locate and count ribs & costal cartilages • draw and demonstrate important anatomical points and structures of Thorax on the surface of the body	**Thorax** **CORE:** • Counting of ribs and costal cartilages • Heart- apex and borders • Lung-borders and apex, • Trachea & Bronchi • Esophagus • Triangle of auscultation • Jugular notch • Sternal angle • Area of Superficial Cardiac dullness Common carotid and subclavian artery Internal thoracic artery	**For Tutorial** 06 hrs.
Students will be able to: • draw and demonstrate important anatomical points and structures of Superior extremity on the surface of the body	**Superior extremity** **CORE** • Nerves: Radial, Ulnar, Median nerve, Axillary nerve • Arteries: Brachial, Radial, Ulnar artery, Superficial and deep palmar arch • Veins: cephalic, basilic & median cubital vein • Flexor retinaculum • Anatomical snuff box • Medial humeral epicondyle	04 hrs.

Learning Objectives	Contents	Teaching hours
Living (surface) Anatomy Students will be able to: • locate, demonstrate the different anatomical planes and land marks on the surface of the body • draw, demonstrate the nine regions of the abdomen on the surface of the body • draw and indicate inguinal canal on the surface of the body • draw and demonstrate important anatomical points, borders and parts of important organs of abdomen on the surface of the body Students will be able to: • locate and demonstrate important points and structures of inferior extremity on the surface of the body	**<u>CORE:</u>** ***Abdomen*** • Trans-pyloric plane, Trans tubercular plane, Subcostal plane, mid clavicular line • Regions of abdomen • Superficial & deep inguinal ring, Inguinal canal • Abdominal aorta & inferior vena cava • Stomach, Duodenum, Pancreas, Liver, Gall bladder, Bile duct, spleen, Kidney from back & Mac Burney's point • Transverse colon, ureter from front and back, celiac trunk, splenic artery, Root of the mesentery **Inferior extremity** • Common peroneal nerve, Tibial nerve • Popliteal artery • Anterior & posterior tibial artery • Arteria dorsalis pedis • Great Saphenous vein • Small Saphenous vein • Adductor tubercle • Lateral and Medial Malleolus • Greater trochanter of femur • Anterior superior iliac spine **<u>Additional</u>** • Femoral nerve, sural nerve, Medial and lateral plantar artery, plantar arch.	**<u>For Tutorial</u>** 6 hrs. 4 hrs.

Learning Objectives	Contents	Teaching hours
Students will be able to: • draw and demonstrate important anatomical points and structures of Head and Neck on the surface of the body	**Head and neck** • Facial artery, Facial vein • Internal jugular vein, External jugular vein • Common Carotid artery & its bifurcation • Facial Nerve & their branches • vagus nerve in the neck • Parotid gland and its duct • Frontal and maxillary air sinuses • Thyroid gland • Tip of the coracoid process • Inferior angle of scapula • Tip of the 7th cervical spine **Additional:** • Pterion, lambda • Middle meningeal artery	**For Tutorial** 04 hrs.

Learning Objectives	Contents	Teaching hours (Total 09 hrs)
Anatomy of Radiology & Images Students will be able to: • describe radio-opaque and radio-lucent structures • identify and locate the normal structures in radiograph	**CORE** Radio opaque structures Radio-lucent structures *Plain X-ray of the* -chest PA view -abdomen AP view -pelvis AP view -arm including proximal & distal joints AP & lateral view -forearm including proximal & distal joints AP & lateral view -hand including proximal & distal joints -thigh including proximal & distal joints AP & lateral view -leg including proximal & distal joints AP & lateral view -foot including proximal & distal joints AP & lateral view -head & neck (cervical spine) AP & lateral view -Paranasal sinuses OM view **Additional:** • Common normal Ultrasonographs, Isotope scan, • Magnetic Resonance Images (MRI), CT Scan • Coronary Angiograph	**For Tutorial** 09 hrs

Learning Objectives	Contents	Teaching hours (Total 20 hrs)
Clinical Anatomy Students will be able to: • describe the anatomical basis of clinical disorder of structures of the thorax and the abdomen.	***Thorax*** • Pleurisy / Pleural effusion • Pneumothorax • Coronary artery disease • Pericarditis/ pericardial effusion • Flail chest • Paralysis of the diaphragm ***Abdomen*** • Portal vein obstruction • Hydrocele • Hernia • Peritonitis, ascites • Gastric ulcer • Duodenal ulcer • Gall stone/cholecystitis • appendicitis • Benign hyperplasia of prostate, Prostatic cancer • Cystocele • Stress incontinence • Rupture urethra • Salpingitis • Ectopic pregnancy • Prolapse of uterus / vagina • Haemorrhoids • Undescended testis • Psoas abscess • Ischiorectal abscess	**For Tutorial** 03 hrs 06 hrs

Learning Objectives	Contents	Teaching hours
Clinical Anatomy Students will be able to: • describe the anatomical basis of clinical disorder of the structures of head & neck, nervous system & extremities	***Head & Neck*** • Fracture of the skull bones • Scalp injury • Piriform fossa and foreign body • Otitis media • Sinusitis • Epistaxis • Tonsilitis • Swelling of thyroid gland • Mumps • Cavernous vein thrombosis • Cervical rib ***CNS & Eyeball*** • Injury to brain /eye ball / spinal cord/cranial nerves • Meningitis • Hydrocephalus • Cerebral ischaemia, intracranial haemorrhage (extradural,subarachnoid, cerebral) • Papilledema • Horner's syndrome ***Superior extremity*** • Dislocation of shoulder joint • Brachial plexus & injury to its nerves • Carpal tunnel syndrome • Colle's fracture • Breast abscess & breast cancer ***Inferior extremity*** • Varicose vein • Deep vein thrombosis • Nerve injury • Dislocation of hip joint • Rupture of menisci & cruciate ligament, Bursitis • Deformities of foot	**For Tutorial** 03hr . 03hr 03hr 02hr

Learning Objectives	Contents	Teaching hours
Clinical Anatomy Students will be able to: • describe the anatomical basis for selection of arteries, veins & muscles of clinical importance. • demonstrate the different auscultatory areas • describe the anatomical basis for clinical procedure of Thorax, Abdomen, Head & Neck , CNS & Eyeball.	• Arterial pulsation • Intravenous injections • Intramuscular injection • Apex beat, mitral, tricuspid, aortic & pulmonary areas • Sternal puncture • Pleural effusion • Pericardial effusion • Coronary angiogram • Bronchoscopy • Laryngoscopy • Paracentesis /peritoneal dialysis • Ryle's tube • Endoscopy • Liver abscess • Vasectomy • Tubal ligation • Nasogastric intubation • Palpation of Cervical lymph node • Lumbar puncture • Epidural/spinal anesthesia • Pudendal block • Fundoscopy	

Regional Anatomy : THORAX CARD
(DISSECTION, DEMONSTRATION & *TUTORIAL*)

Learning Objectives	Contents	Teaching hours
Students will be able to: • demonstrate the boundary & identify the contents of thoracic wall, thoracic cavity, mediastinum & intercostal space • identify & demonstrate the gross features of bones & joints of thorax • describe the formation, course, branches & distribution of spinal nerve / intercostal nerve • identify & demonstrate the surfaces, borders, parts, chambers- including structures within the chambers of the heart • explain blood supply & nerve supply of heart • identify & demonstrate the layers of pericardium • identify & demonstrate the surfaces, borders, fissures, lobes, hilus & bronchopulmonary units of the lung • identify & demonstrate the layers & parts of pleura. • explain the blood supply, lymphatic drainage & nerve supply of lung & pleura. • identify & demonstrate the trachea, bronchus & bronchial tree. • explain blood supply & nerve supply of trachea & bronchial tree. • explain the blood supply, nerve supply & lymphatic drainage of thoracic wall. • identify & demonstrate the surfaces, parts openings, attachments of the diaphragm. • explain the blood supply & nerve supply of the diaphragm. • explain the significance of the orifices of the diaphragm. • explain & demonstrate the extension, parts, relations & constrictions of oesophagus • explain the blood supply, lymphatic drainage & nerve supply of the oesophagus. • correlate clinical conditions associated with structures of thorax (Heart with its vessels, lung, trachea, bronchus, bronchial tree & the diaphragm)	• Thoracic wall formation, thoracic cavity, intercostal space and mediastinum. • Bones and joints of the thorax • Spinal nerve / intercostal nerve • Heart with pericardium. • Lung with pleura, trachea and bronchus. • Blood vessels, nerves and lymphatics of the thorax. • The diaphragm. • Oesophagus • Clinical Anatomy	45 hrs.

NB: Previously mentioned 53 hours in pages 10-16 for Tutorial also have shown in this part **(DISSECTION, DEMONSTRATION & *TUTORIAL*)**

Regional Anatomy: SUPERIOR EXTREMITY CARD
(DISSECTION, DEMONSTRATION & *TUTORIAL*)

Learning Objectives	Contents	Teaching hours
Students will be able to: • identify & demonstrate muscles, vessels, nerves of pectoral region including attachment of muscles • describe the parts of mammary gland & its blood supply, lymphatic drainage & nerve supply • demonstrate the boundary & identify the contents of axilla, quadrangular & triangular spaces, & cubital fossa • demonstrate the attachments of muscles, and identify vessels, nerves, lymphatics & lymph nodes of different parts of superior extremity • demonstrate the gross features of bones & joints of superior extremity and muscles acting on joints • correlate clinical conditions associated with structures (nerves, vessels, bones, joints) of superior extremity	• Pectoral region with mammary gland • Axilla • Superficial dissection of the upper limb, back and scapular region including quadrangular & triangular space Front of the arm, forearm and palm • Back of the arm, forearm and dorsum of the hand • Blood supply, lymphatic drainage, cutaneous innervation & dermatome of superior extremity • Bones & joints of the upper limb • Clinical Anatomy	43 hrs.

Regional Anatomy: ABDOMEN CARD
(DISSECTION, DEMONSTRATION & *TUTORIAL*)

Learning Objectives	Contents	Teaching hours
Students will be able to: • demonstrate the different layers of anterior abdominal wall & hernial region • explain clinical types of hernia • demonstrate the different parts of GI Tract & its peritoneum • explain the mode of blood supply, lymphatic drainage & nerve supply of different organs • demonstrate the features of liver, pancreas, supra renal gland & different parts of biliary system • explain blood supply, lymphatic drainage & nerve supply of them. • demonstrate the features of kidney, suprarenal gland, ureter, urinary bladder, & urethra • explain their blood supply, lymphatic drainage & nerve supply • demonstrate the features of different parts of male & female reproductive system. • explain their blood supply, lymphatic drainage & nerve supply. • demonstrate the muscles and identify the vessels, nerves & lymphatics of posterior abdominal wall • demonstrate the parts and identify the contents of the pelvis • differentiate between male & female pelvis • demonstrate the gross features & joints of lumbar vertebra & bony pelvis and muscles acting on joints • correlate clinical conditions associated with different organs of the abdomen	• Anterior wall of the abdomen with hernial region. • Stomach, abdominal part of the oesophagus • Duodenum, pancreas and spleen. • The mesentery and mesenteric vessels, jejunum and ileum. • Large intestine. rectum & anal canal • Liver with the biliary apparatus including gall bladder; portal vein. • Kidney, suprarenal gland, ureter, urinary bladder & urethra. • Ovary, uterus, uterine tube, female external organs and perineum. • Vas deferens, seminal vesicle, prostate and male external genital organs. • Muscles, blood vessels, lymphatics and nerves of the posterior abdominal wall. • Muscles, blood vessels lymphatics, nerves of the pelvis. • Lumbar vertebra, bony pelvis & joints • Clinical Anatomy	103 hrs.

Regional Anatomy: INFERIOR EXTREMITY CARD (DISSECTION, DEMONSTRATION & *TUTORIAL*)

Learning Objectives	Contents	Teaching hours
Students will be able to: • demonstrate muscles attachments and identify vessels & nerves of different parts of inferior extremity • demonstrate the boundary and identify the contents of femoral triangle, adductor canal, popliteal fossa & sole of the foot • demonstrate the features of bones, joints, & muscles acting on joints • explain the venous drainage, lymphatic drainage, & dermatome of inferior extremity • correlate the clinical conditions associated with structures (nerves, vessels, bones, joints) of inferior extremity	• Front and medial side of the thigh • Gluteal region and back of the thigh • Front of the leg and dorsum of the foot • Lateral side, medial side and back of the leg including the popliteal fossa sole of the foot • Bones & joints of lower limb • Arches of the foot • Blood supply, lymphatic drainage, cutaneous innervation & dermatome of inferior extremity • Clinical Anatomy	42 hrs.

Regional Anatomy: HEAD & NECK CARD
(DISSECTION, DEMONSTRATION & *TUTORIAL*)

Learning Objectives	Contents	Teaching hours
Students will be able to: • identify and demonstrate the different parts of bones of head & neck, joints, & muscles acting on joints • state the gross features & attachments of skull bones including base of skull & cervical vertebrae. • demonstrate movements of joints of head & neck • demonstrate the layers of scalp identify the contents of temporal region • demonstrate the boundary of face and identify muscles and sensory supply of face • identify parotid gland & duct & explain the structures within the parotid gland • demonstrate the boundary and identify contents of different triangles of head & neck region • demonstrate the boundary and identify contents of mouth cavity • demonstrate the gross features & nerve supply of tongue • explain Auditory pathway (VIII – cranial nerve) • demonstrate the different parts of pharynx with their extension & muscles of pharynx, the walls of nose and paranasal air sinuses, the extension, cartilages & muscles of larynx • identify structures present in the internal surface of the larynx • demonstrate the region of vertebral column and attachments of muscles of the back • demonstrate the different parts of ear • correlate important clinical conditions associated with structures in Head & Neck (Thyroid gland, parathyroid gland, air sinuses, larynx, scalp, ear, face etc.)	• Bones & joints of head and neck • Scalp and temporal region • Face and orbit • Anterior triangle and its subdivisions, submandibular region including thyroid gland • Posterior triangle • Mouth and tongue • Pharynx • Nose and paranasal sinuses • Larynx • Vertebral column and deep dissection of the back of the neck • External, middle and internal ear. • Clinical Anatomy	87 hrs.

Regional Anatomy: CENTRAL NERVOUS SYSTEM & EYEBALL CARD (DISSECTION, DEMONSTRATION & *TUTORIAL*)

Learning Objectives	Contents	Teaching hours
Students will be able to: • demonstrate ❑ the boundary & contents of cranial cavity & orbit ❑ the different parts of brain & cranial nerves attached to brain ❑ the layers of meninges- Pia, arachnoid, and dura mater • explain the folds of dura & its contents • explain the blood supply & nerve supply of the meninges • demonstrate the boundary of different lobes of cerebrum, sulci, gyri & important functional areas • explain the blood supply of cerebrum including the formation of Circle Willis • demonstrate the parts & describe the functions & connections of ❑ diencephalon, pituitary gland, basal nuclei, ❑ internal capsule, extra pyramidal system & ❑ limbic system, brain stem • locate &describe • the nuclei, course, functional components & distribution of cranial nerves • the boundary & parts of ventricles circulation of CSF through ventricles • gross features of spinal cord and its meninges and spinal nerves attached to it • the coats of eyeball & the course of optic nerve • explain refractive media • explain the effects of lesion and loss of blood supply to different parts of nervous system.	• Introduction to the nervous system, cranial cavity and orbit. • General examination of the brain • Superficial attachments of cranial nerves • meninges of the brain • Cerebrum: lobes of cerebrum, sulci, gyri & important functional areas, blood supply, formation of Circle of Willis • Diencephalon: thalamus, hypothalamus, metathalamus, epithalmus and pituitary gland • Basal nuclei, internal capsule, extra pyramidal system and limbic system • Brain stem and reticular formation • Cranial nerves • Ventricles and cerebrospinal fluid Spinal cord & spinal nerves • eyeball • Clinical Anatomy.	40 hrs

Cell Biology & Histology Tutorial & Practical (Card I)

Learning Objectives	Contents	Teaching hours
Students will be able to: • demonstrate different parts of microscope & how to handle it • state the principles of tissue preparation • explain cell division • identify different types of tissue on slide under microscope	• Microscope: Parts & how to handle • Principles of different types of microscopy • Principles of tissue preparation and staining: • Fixation, embedding, sectioning & routine staining • Cell and cell division • Epithelium: Simple squamous, cuboidal, columnar, Pseudo stratified Stratified squamous, cuboidal, Stratified columnar Transitional • Connective tissue:: General, special, bone, cartilage • Muscular tissue: smooth, skeletal & cardiac muscle • Nervous tissue in general	17 hrs.

Cell Biology & Histology Tutorial & Practical (Card II)

Learning Objectives	Contents	Teaching hours
• Students will be able to identify different structures of the following systems on slides under microscope: Respiratory system. Cardiovascular system Digestive system and & associated Glands. Urinary system Male reproductive system and associated glands female reproductive system and associated glands	• Respiratory system Larynx, trachea, bronchial tree and Lung • Large artery, medium sized artery, large vein • Digestive system & associated glands Tongue, pharynx, oesophagus, stomach, small intestine & large intestine (including vermiform appendix) Liver and gall bladder, Pancreas • Urinary system Kidney, ureter, urinary bladder, urethrae • Male reproductive system and associated glands Testis, epididymis, vas deferens, seminal vesicle, prostate • Female reproductive system and associated glands Ovary, fallopian tube, uterus, vagina • Mammary gland , placenta	17hrs.

Cell Biology & Histology Tutorial & Practical (Card III)

Learning Objectives	Contents	Teaching hours
• Students will be able to identify following structures on slides under microscope: Lymphatic system Salivary glands Nervous system Endocrine system Special sense organs Skin	• Lymphatic system Lymph node, tonsil, spleen & thymus • Exocrine glands (salivary glands} • Nervous system spinal cord, cerebrum, cerebellum, peripheral nerve (including the optic nerve) • Endocrine gland (Pituitary, Thyroid, Parathyroid, Adrenal and Islet's of Langerhans • Special sense organs: Eyeball (cornea, retina), internal ear • Thick skin & thin skin	18 hrs.

Teaching - Learning & Assessment Methods

Teaching / Learning Method	***Teaching Aid***	***In Course Assessment***	***Summative Assessment***
Lecture	Computer & multimedia Slide projector, overhead projector (OHP), black board white and different colour chalk, white board and different colour white board markers.	• Item Examination: Oral, Practical • Card Completion Examination • Term Examinations: Written, Oral, Practical • Preparation of exercise book	• Written • Oral • Practical
Regional Anatomy: Demonstration & Tutorial	Cadavers, prosected parts, bones, viscera and other specimens of body parts, models, charts, black board white and different coloured chalk, white board and different coloured white board markers, Illustration sheets/posters, OHP, video, slide projector, computer with CD ROM, radiographs & other images. Projection system and Virtual anatomy dissection table		
Regional Anatomy: Dissection	Cadavers, prosected parts, specimens and bones, black board white and different coloured chalk, white board and different colour white board markers, Computer & multimedia. Projection system and Virtual anatomy dissection table		
Cell Biology & Histology Tutorial & Practical	Histological slide, Microscope & Projection microscope slide projector, black board white and different colour chalk, white board and different coloured white board markers, OHP, Illustration sheets (including photomicrographs & drawings)/posters, video projector, computer with CD ROM drive.		

Assessment in Anatomy

Component	Marks		Total Marks
Formative assessment	**10+10**		**20**
WRITTEN EXAMINATION			
paper-I- MCQ (SBA+MTF)	**20**		
(SAQ+ SEQ)	**70**		
paper-II- MCQ (SBA+MTF)	**20**		**180**
(SAQ+ SEQ)	**70**		
ORAL EXAMINATION (Structured)			
Board I	**75**		**150**
Board II	**75**		
PRACTICAL EXAMINATION	**Board I**	**Board II**	
Objective structured practical Exam (OSPE)	**30**	**30**	**75 +75**
Dissection	**10**	**15**	
Anatomy of Radiology and imaging	**10**	**10**	
Lucky slides	**10**	**10**	
Living Anatomy	**10**	**10**	
Practical Khata	**05**	**---**	
		Grand Total	**500**

- ***Topics: Board I: CNS & Eyeball, Head & Neck, Thorax (Gross anatomy, Clinical anatomy, Histology, Embryology).***

  Cell biology & Genetics. General Histology: Epithelial Tissue, Nervous Tissue. General Anatomy: Angiology, Neurology.

  Board II: Abdomen, Inferior & Superior Extremity (Gross anatomy, Clinical anatomy, Histology, Embryology).

  General Embryology. General Histology: Connective Tissue, Muscle Tissue General Anatomy: Osteology, Arthrology, Myology.
- ***Each student will appear in Board I & Board II in separate date/day for oral and practical examination***
- **Pass marks 60% in each of theoretical, oral and practical examination**

Time allocation in Anatomy

Lecture & Review - 115 hours

Term	General Anatomy Hours	Cell Biology Hours	General Histology Hours	Systemic Histology Hours	General Embryology Hours	Systemic Embryology Hours	Neuro anatomy Hours.	Human Genetics Hours.	Total Hours
First Term	12	06	10	02	13	-	01	02	**46**
Second Term	-	-	02	14	05	17	02	-	**40**
Third Term	-	-	02	02	-	07	18	-	**29**
Grand Total Hours (Class +Exam)	**12**	**06**	**14**	**18**	**18**	**24**	**21**	**02**	**115**

Cell Biology & Histology - Tutorial & Practical – 52 hours

Term	Class Hours (Including Item Exam hrs)	Card Completion Exam Hours	Total Hours
First Term (Card I)	15	2	17
Second Term (Card II)	15	2	17
Third Term (Card III)	16	2	18
Grand Total Hours	**46**	**6**	**52**

Term	Cards	Dissection & Demonstration	Tutorial Review			Part Completion Examination Hours	Total Hours
			Living (surface) Anatomy	Anatomy of radiology & Images	Clinical Anatomy		
First Term	**Thorax**	34	6	1	3	01	**45**
	Superior Extremity	33	4	2	3	01	**43**
Second Term	**Abdomen**	89	6	1	6	01	**103**
	Inferior Extremity	33	4	2	2	01	**42**
Third Term	**Head, Neck**	77	4	2	3	01	**87**
	Central Nervous system and Eye ball	35	00	1	3	01	**40**
Grand Total Hours		**301**	**24**	**9**	**20**	**06**	**360**

ACADEMIC CALENDAR for ANATOMY

Class/Exam	*Hours(including Class exams hrs)*	*First Term (14 working weeks)*	Evaluation & leave 04 weeks	*Second Term (15 working weeks)*	Evaluation & leave 04 weeks	*Third Term (14 working weeks)*	**2.Evaluation & preparatory leave for first prof–08 weeks** **1.Evaluation & preparatory leave for third term;03 weeks**
Lecture and Review	**115**	• General Anatomy-12 hrs • Cell Biology -06 hrs • Human Genetics - 02 hrs • General Histology-10 hr • Systemic Histology – 02 hrs • General Embryology - 13 hrs • Neuroanatomy – 01 hrs		• General Histology-02 hr • Systemic Histology - 14 hrs • General Embryology - 05 hrs • Systemic Embryology- 17 hrs • Neuroanatomy – 02 hrs		a) General histology - 02 hr b) Systemic Histology -02 hrs c) Systemic Embryology - 07 hrs d) Neuroanatomy - 18hrs	
Tutorial/ Review	**53**	Thorax Card – 10 hrs Sup. Ext. Card – 09 hrs		Abdomen Card – 13 hrs Inf. Ext. Card – 08 hrs		Head & Neck Card –09 hrs C.N.S & Eyeball – 04 hrs	
Dissection	**301**	Thorax Card - 34hrs Sup Ext Card- 3hrs		Abdomen Card – 89hrs Inf. Ext. Card – 33hrs		Head & Neck Card – 77 hrs C.N.S & Eyeball Card - 35 hrs	
Card Completion Exam	**06**	Thorax Card- 01hrs Sup Ext. Card- 01hrs		Abdomen Card– 01hrs Inf. Ext. Card – 01hrs		Head & Neck Card –01 hrs C.N.S & Eyeball Card - 01 hrs	
Cell Biology & Histology-Tutorial/ Practical	**52**	Card I – 17hrs		Card II - 17hrs		Card III – 18 hrs	
Grand Total	**527**						

N.B.- Card completion examinations will be arranged on discussion with other departments

(Physiology, Biochemistry)

Prerequisite for 1st professional examination

1. A Student must pass all term exam before appearing 1st professional exam.
2. Class attendance must be 75 %

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THORAX CARD

(ITEM EXAM FOLLOWING DISSECTION, DEMONSTRATION & TUTORIAL)

Year	
Session	
Roll No.	
Batch	

Card no.	
Cadaver no.	
Total marks	
Pass marks	

Name of the student				
Period of placement	**From :**		**To :**	

Part for dissection (item)	**Date of beginning**	**Date of examination**	**Marks obtained**	**Remarks and Signature of the Lecturer**
1.Thoracic wall, intercostal space, thoracic cavity and mediastinum				
2. Bones and joints of the thorax				
3. Heart with pericardium				
4. Lung, pleura, trachea and bronchial tree				
5. The Diaphragm & oesophagus				
6. Blood vessels, nerves and lymphatics of the thorax				
7. Living Anatomy				
8. Anatomy of Radiology & Images				
***Each item should cover related clinical & functional anatomy**				

No. of attendance in the practical classes of the card		**Out of**	
Mark obtained			
Remarks			
Signature of the Lecturer			
Signature of Head of the Department			

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SUPERIOR EXTREMITY CARD
(ITEM EXAM FOLLOWING DISSECTION, DEMONSTRATION & TUTORIAL)

Year		**Card no.**	
Session		**Cadaver no.**	
Roll No.		**Total marks**	
Batch		**Pass marks**	

Name of the student				
Period of placement	**From :**		**To :**	

Part for dissection (item)	Date of beginning	Date of examination	Marks obtained	Remarks and Signature of the Lecturer
1. Bones and introduction to the joints of the superior extremity				
2. Pectoral region with mammary gland				
3. Axilla				
4. Superficial dissection of the upper limb, back and scapular region.				
5. Front of the arm, forearm & palm				
6. Back of the arm, forearm & dorsum of the hand				
7. Blood vessels, nerves and lymphatics of the superior extremity				
8. Shoulder joint, acromioclavicular joint, elbow joint, wrist joint, joints of hand				
9. Living Anatomy				
10. Anatomy of Radiology & Images				
***Each item should cover related clinical & functional anatomy**				

No. of attendance in the practical classes of the card		**Out of**	
Mark obtained			
Remarks			
Signature of the Lecturer			
Signature of Head of the Department			

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ABDOMEN CARD

(ITME EXAM FOLLOWING DISSECTION, DEMONSTRATION & TUTORIAL)

Year		**Card no.**	
Session		**Cadaver no.**	
Roll No.		**Total marks**	
Batch		**Pass marks**	

Name of the student				
Period of placement	**From:**		**To :**	

Part for dissection (item)	Date of beginning	Date of examination	Mark obtained	Remarks and Signature of the Lecturer
1.Bones and joints of abdomen & pelvis				
2.Anterior wall of the abdomen with hernial region				
3.Stomach, abdominal part of the oesophagus and coeliac trunk				
4.Duodenum, pancreas and spleen				
5.The mesentery and mesenteric vessels, jejunum and ileum				
6.Large intestine				
7. Rectum and anal canal				
8..Liver with the biliary apparatus including gall bladder; portal vein				
9. Kidneys, suprarenal gland, ureters. urinary bladder, urethrae				
10. Muscles, blood vessels, lymphatics and nerves of the posterior abdominal wall				
11. Muscles, blood vessels, lymphatics, nerves of the pelvis				
12. Ovaries, uterus, uterine tubes, vagina, female external genital organs				
13.Perineum, pelvic diaphragm, urogenital diaphragm, perineal pouches, ischiorectal fossa				
14.Vas deferens, seminal vesicles, prostate, testes and male external genital organs				
15. Living Anatomy				
16.Anatomy of Radiology & Images				
***Each item should cover related clinical & functional anatomy**				

No. of attendance in the practical classes of the card		**Out of**	
Mark obtained			
Remarks			
Signature of the Lecturer			
Signature of Head of the Department			

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INFERIOR EXTREMITY CARD
(ITEM EXAM FOLLOWING DISSECTION, DEMONSTRATION & TUTORIAL)

Year	
Session	
Roll No.	
Batch	

Card no.	
Cadaver no.	
Total marks	
Pass marks	

Name of the student				
Period of placement	**From :**		**To :**	

Part for dissection (item)	Date of beginning	Date of examination	Marks obtained	Remarks and Signature of the Lecturer
1. Bones and introduction to the joints of the inferior extremity				
2. Front and medial side of the thigh				
3. Gluteal region and back of the thigh				
4. Front of the leg and dorsum of the foot				
5. Lateral side, medial side and back of the leg including the popliteal fossa., sole of the foot				
6. Blood vessels, nerves and lymphatics of the inferior extremity				
7. Hip joint, knee joint, tibiofibular joints , ankle joint				
8. Joints and arches of the foot				
9. Living Anatomy				
10. Anatomy of Radiology & Images				
***Each item should cover related clinical & functional anatomy**				

No. of attendance in the practical classes of the card		**Out of**	
Mark obtained			
Remarks			
Signature of the Lecturer			
Signature of Head of the Department			

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HEAD AND NECK CARD

(ITEM EXAM FOLLOWING DISSECTION, DEMONSTRATION & TUTORIAL)

Year	
Session	
Roll No.	
Batch	

Card no.	
Cadaver no.	
Total marks	
Pass marks	

Name of the student				
Period of placement	**From :**		**To :**	

Part for dissection (item)	Date of beginning	Date of examination	Mark obtained	Remarks and Signature of the Lecturer
1. Bones of head and neck				
2. Joints of head and neck				
3. Scalp and temporal region				
4. Face and orbit				
5. Anterior triangle and submandibular region				
6. Posterior triangle				
7. Mouth and tongue				
8. Pharynx				
9. Nose and paranasal sinuses				
10. Larynx				
11. Vertebral column and deep dissection of the back				
12. Blood vessels, nerves and lymphatics of the head & neck				
13. Exocrine & endocrine glands of head & neck				
14. Organ of hearing and equilibrium (Ear)				
15. Living Anatomy				
16. Anatomy of Radiology & Images				
***Each item should cover related clinical & functional anatomy**				

No. of attendance in the practical classes of the card		**Out of**	
Mark obtained			
Remarks			
Signature of the Lecturer			
Signature of Head of the Department			

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CENTRAL NERVOUS SYSTEM AND EYEBALL CARD

(ITEM EXAM FOLLOWING DISSECTION, DEMONSTRATION & TUTORIAL)

Year	
Session	
Roll No.	
Batch	

Card no.	
Cadaver no.	
Total marks	
Pass marks	

Name of the student				
Period of placement	**From :**		**To :**	

Part for dissection (item)	**Date of beginning**	**Date of examination**	**Mark obtained**	**Remarks and Signature of the Lecturer**
1. General introduction to the nervous system, cranial cavity and orbit				
2. General examination of the brain with its nerve attachments and meninges				
3. Cranial nerve – nuclei, course. functional components, supply & lesions				
4. Cerebrum				
5. Diencephalon				
6. White matter of cerebrum, Basal ganglia,, Pyramidal and extra -pyramidal system , limbic system				
7. Brain stem, reticular formation & Cerebellum				
8. Ventricles and cerebrospinal fluid				
9. Spinal cord & Spinal nerve				
10. Eyeball				
11. Living Anatomy				
12. Anatomy of Radiology & Images				
***Each item should cover related clinical & functional anatomy**				

No. of attendance in the practical classes of the card		**Out of**	
Mark obtained			
Remarks			
Signature of the Lecturer			
Signature of Head of the Department			

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HISTOLOGY CARD NO. I

Year	
Session	
Roll No.	
Batch	

Total marks	
Pass marks	

Name of the student				
Period of placement	**From :**		**To :**	

Item	Date of beginning	Date of examination	Marks obtained	Remarks and Signature
1. Study of microscope				
2. Principles of tissue preparation and staining (routine)				
3. Cell and cell division				
4. Epithelium				
5. Connective tissue - General				
6. Connective tissue – proper				
7. Muscular tissue (skeletal, cardiac, smooth)				
8. Nervous tissue in general				

Total No. of attendance		**Out of**	
Marks obtained			
Remarks			
Signature of the Lecturer			
Signature of the Prof. of Anatomy			

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HISTOLOGY CARD NO. II

Year	
Session	
Roll No.	
Batch	

Total marks	
Pass marks	

Name of the student				
Period of placement	**From :**		**To :**	

Item	Date of beginning	Date of examination	Marks obtained	Remarks and Signature
1. Vascular system				
2. Respiratory system				
3. Digestive system & associated glands				
4. Urinary system				
5. Male reproductive system				
6. Female reproductive system				

Total No. of attendance		**Out of**	
Marks obtained			
Remarks			
Signature of the Lecturer			
Signature of the Prof. of Anatomy			

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HISTOLOGY CARD NO. III

Year	
Session	
Roll No.	
Batch	

Total marks	
Pass marks	

Name of the student				
Period of placement	**From :**		**To :**	

Item	Date of beginning	Date of examination	Marks obtained	Remarks and Signature
1. Lymphoid organ				
2. Salivary glands				
3. Endocrine Glands				
4. Nervous system				
5. Skin –thick skin & thin skin, Special sense organ (Cornea, Retina, Internal ear)				

Total No. of attendance		**Out of**	
Marks obtained			
Remarks			
Signature of the Lecturer			
Signature of the Prof. of Anatomy			

Physiology

Departmental Objectives

At the end of the course in physiology the **MBBS** students will be able to:

- Demonstrate basic knowledge on the normal functions of human body and apply it as a background for clinical subjects.
- Explain normal reactions to environment and homeostatic mechanism.
- Interpret normal function with a view to differentiate from abnormal function.
- Demonstrate knowledge & skill for performing and interpreting physiological experiments.
- Develop knowledge and skill to proceed to higher studies and research in physiology in relation to need and disease profile of the country.
- Develop sound attitude for continuing self-education to improve efficiency & skill in physiology.

List of Competencies to acquire :

Medical courses in physiology teach the essentials of the processes of life.

The physiology courses are very clinically relevant because the knowledge of the processes underlying the normal physiological functions of all the major organ systems is crucial for understanding pathology, pharmacology, and for competent clinical practice. In fact, all of medicine is based on understanding physiological functions.

In the process of completing these courses, students acquire the following competencies:

- Describe transport across the plasma membrane, the basis of resting membrane potential, the genesis and propagation of action potentials. Explain muscle excitation and contraction.
- Describe the heart and circulation and how the circulatory system functions as a dual pump and dual circulatory system with the knowledge of properties of cardiac muscle, cardiac cycle, hemodynamics, heart rate and blood pressure.
- Explain respiratory processes with the knowledge of structures, ventilation, diffusion, blood flow, gas transport, mechanics of breathing, and control of ventilation.
- Identify how the kidney plays an important role in the maintenance of homeostasis by regulating both the composition and volume of ECF compartment.
- Explain how the brain works at the neuronal systems level. The role of electrical & chemical signals in information transmission & processing. Brain circulation, metabolism, neurotransmitter release & receptors,
- Describe the physiological mechanism underlying sensory perception, motor control & maintenance of homeostasis as well as higher cortical functions. Understanding autonomic nervous system.
- Describe endocrine physiology: describe the synthesis, secretion, functions & mechanism of action of the endocrine hormones.
- Explain human reproduction, functional changes in the reproductive tract, the formation of sperm & ovum, fertilization & hormonal regulation of fertility, role of hormones in pregnancy, parturition & lactation.
- The students will be able to equip themselves with adequate knowledge and develop skill for performing physiology laboratory tests and interpreting these normal functions with a view to differentiate from abnormal conditions. such as
- Measurement of blood pressure
- Examination of radial pulse.
- Recording & analysis of normal ECG (electrocardiogram)(12 Lead).
- Auscultation of heart sounds, breath sounds & bowel sound.
- Estimation of Hb concentration.
- Estimation of total count of red blood cell (RBC).
- Estimation of total and differential count of white blood cell **(**WBC).
- Determination of bleeding time & clotting time.
- Determination of blood grouping & cross matching.
- Determination of erythrocyte sedimentation rate (ESR).

- Determination of packed cell volume.
- Measurement of pulmonary volumes & capacities.
- Examination of urine for volume, specific gravity/osmolarity and water diuresis.
- Elicitation of reflexes (e.g., knee jerk, ankle jerk, planter response, biceps jerk, triceps jerk).
- Recording of body temperature.
- Elicitation of light reflex.
- Interpretation of Snellen's chart and colour vision chart.
- Conduction and interpretation of Rinne test.
- Conduction and interpretation of Weber test.

Organization of the Course:
The course is offered in 3 terms (1st, 2nd & 3rd) total one & half years for phase -I MBBS Course.

Distribution of teaching - learning hours

Lecture	Tutorial	Practical	Total Teaching hours	Integrated teaching for Phase I	Formative Exam		Summative exam	
					Preparatory leave	Exam time	Preparatory leave	Exam time
120 hrs	120 hrs	97 hrs	337 hrs	36hrs	35 days	42 days	30days	30 days
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase								
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions								

Teaching/learning methods, teaching aids and evaluation

Teaching Methods			Teaching aids	In course evaluation
Large group	Small group	Self learning		
Lecture Integrated teaching	Tutorial Practical Demonstration	Assignment, self assessment & self study.	Computer & Multimedia & other IT materials Chalk & board White board & markers OHP Slide projector Flip Chart Models Specimens projector Study guide & manuals.	Item examination (oral) Practical item examination (Oral & practical) Card completion examination (written) Term final Examination (Written, oral & practical)

1st Professional Examination:
Marks distribution of Assessment of Physiology
Total marks – 400 (Summative)

- Written= 200 (SAQ + SEQ) 140 + MCQ (SBA+MTF) 40+Formative 20)
- SOE =100
- Practical= 100 (OSPE40 + Traditional 50 +Note Book 10)

Related Equipments:
Microscope, test tube, glass slide, centrifuge machine, micro pipette, chemicals & reagents, Sphygmomanometer, Stethoscope, ECG machine, Spirometer, Peak flow meter, Urinometer, clinical hammer, cotton, pin, clinical thermometer, spirit, pencil torch, Ishihara charts, Snellen's chart, tuning fork, models, specimens, Haemocytometer, Shahlis haemometer, haematocrit tube, westergren ESR tube & ESR stand etc.

Learning Objectives and Course Contents in Physiology

Cellular Physiology

Learning Objectives	Contents	Hours / days
At the end of the course the students will be able to: • explain goal of physiology. • explain principles of homeostasis • describe functional organization of the human body & cell physiology. • describe cell membrane transport. • Explain membrane potential, resting membrane potential and action potential. • describe muscle physiology • describe neuromuscular junction.	**CORE:** • Physiology: definition, goal & importance of physiology. • Homeostasis: definition, major functional systems, control systems and regulation of the body function. • The cell: functions of cell membrane and cell organelles. • The cell membrane transport: active & passive transport, exocytosis & endocytosis, intercellular communication, • Membrane potential: definition, basic physics of membrane potential. Resting membrane potential. • Action potential: definition & propagation of action potential. • Mechanism of skeletal muscle contraction & relaxation. • Neuromuscular junction: transmission of impulse from nerve ending to muscle fibre.	L=5 T=6 P=2

Physiology of Blood

Learning Objectives	Contents	Hours / days
At the end of the course the students will be able to: • describe the composition & functions of blood. • demonstrate knowledge about plasma proteins. • demonstrate knowledge about the formation , morphology, types & functions of RBC,WBC & platelets. • describe synthesis & breakdown of haemoglobin. • demonstrate knowledge about the blood grouping & blood transfusion. • describe about hemostasis & coagulation. • describe about the bleeding disorders.	**CORE:** • Blood: composition & functions. • Plasma proteins: origin, normal values, properties, functions & effect of hypoproteinaemia • Development and normal values of formed elements. • RBC: erythropoiesis. • Hemoglobin: synthesis, types, functions & fate of hemoglobin. • Red blood cell indices, • Anaemia, Polycythemia & Jaundice: definition & classification. • WBC: Classification, morphology, properties & functions, leucocytosis, leucopenia. • Platelet: morphology & functions. • Hemostasis: definition & events. • Coagulation: definition, mechanism, • Clotting factors & fibrinolysis • Blood grouping: ABO & Rh system • Hazards of blood transfusion & Rh incompatibility. **Additional/Applied Physiology** • Bleeding disorder: thrombocytopenic purpura & hemophilia, tests for bleeding disorder .	L=15 T=16 P=45 IT=06

Cardiovascular Physiology

Learning Objectives	Contents	Hours / days
At the end of the course the students will be able to : • describe the physiology of cardiac muscle • describe the rhythmical excitation of the heart. • demonstrate knowledge about events of cardiac cycle. • explain about the heart sounds. • explain about a normal ECG. • describe about hemodynamics. • describe local & humoral control of blood flow by the tissues. • describe the microcirculation, capillary fluid & interstitial fluid • describe about cardiodynamics: cardiac output, venous return & peripheral resistance. • explain about the heart rate & radial pulse. • describe the regulation of blood pressure. • demonstrate knowledge about the coronary circulation. • demonstrate knowledge about shock • describe the circulatory changes during exercise.	**CORE :** • Cardiac muscle: physiological anatomy, properties. • Junctional tissues of the heart: generation of cardiac impulse & its conduction. • Cardiac cycle: events, pressure & volume changes during different phases • Heart sounds: types & characteristics • ECG: principles, characteristics & interpretations • Functional classification of blood vessels & microcirculation • Interrelationship among pressure, flow & resistance. • Local & humoral control of blood flow by the tissue. • Exchange of fluid through the capillary membrane. • SV, EDV, ESV, EF: definition & factors affecting them. • Cardiac output: definition, measurement, regulation and factors affecting cardiac output. • Venous return: definition & factors affecting. • Peripheral resistance: definition & factors affecting. • Heart rate: definition, normal values, factors affecting & regulation. • Radial pulse: definition & characteristics. • Blood pressure: definition, types, measurement & regulation of arterial blood pressure. **Additional /Applied Physiology** Circulatory adjustment during exercise. Coronary circulation Cardiac arrhythmias: tachycardia, bradycardia & heart block Shock: definition, classification. Physiological basis of compensatory mechanism of circulatory shock.	L=18 T=18 P=18 IT=03

Respiratory Physiology

Learning Objectives	Contents	Hours / days
At the end of the course the students will be able to : • define pulmonary & alveolar ventilation. • explain the mechanism of respiration • describe pulmonary volumes and capacities, • describe pulmonary circulation • explain the diffusion of gases through the respiratory membrane. • describe the oxygen & carbon dioxide transport. • describe the respiratory centers & regulation of respiration. • define & classify hypoxia and cyanosis.	**CORE** • Physiological anatomy of respiratory system • Respiration: definition, mechanism. • Pulmonary & Alveolar ventilation. • Pulmonary volumes and capacities (spirometry) • Dead space: definition & types • Pulmonary circulation- pressure in pulmonary system effect of hydrostatic pressure in lungs, pulmonary capillary dynamics. • Composition of atmospheric, alveolar, inspired and expired air. • Respiratory unit and respiratory membrane. • Diffusion of Gases through the respiratory membrane. • Transport of Oxygen & Carbon dioxide in blood & body fluid. Oxy-hemoglobin dissociation curve. Bohr effect, Haldane effect & chloride shift mechanism. • Respiratory centers: name, location & functions. • Nervous & chemical regulation of respiration. • Lung function tests: name, significance • Ventilation -perfusion ratio. • Regulation of respiration during exercise. • Hypoxia: definition, types • Cyanosis: definition & types. **Additional/Applied Physiology** • Oxygen therapy in hypoxia • Definition of dyspnea, hypercapnea & periodic breathing.	L=12 T=14 P=8 IT=03

Renal Physiology

Learning Objectives	Contents	Hours / days
At the end of the course the students will be able to: • describe the structure & function of nephron. • describe the mechanism of urine formation. GFR, tubular reabsorption, tubular secretion. • describe the mechanism of water balance and osmotic diuresis. • explain physiological mechanism of micturition.	**CORE:** • Kidney: functions • Nephron: types, parts, structure & functions • Renal circulation: peculiarities & functional importance • Urine formation: basic mechanism • GFR: definition, determinants, measurement, control of GFR & regulation of renal blood flow • Reabsorption and secretion by the renal tubules • Definition of $T_{m,}$ Renal threshold, tubular load & plasma load, plasma clearance and diuresis, • Mechanism of formation of concentrated urine & diluted urine. • Micturition reflex **Additional /Applied Physiology** Abnormalities of micturition	**L= 12** **T= 10** **P= 02** **IT=06**

Gastrointestinal Physiology

Learning Objectives	Contents	Hours / days
Gastrointestinal Physiology At the end of the course the students will be able to: • describe the general principles of gastrointestinal function. • describe the movements of GIT	**CORE:** • Phygiological anatomy of gastrointestinal (GI) tract. • Enteric nervous system. • Local hormones of GIT: name, function & regulation of secretion • Hormonal control of GI function. • Movements of the GIT. • GI reflexes. • Functions of stomach, small intestine and large intestine **Additional / Applied Physiology** Pyloric pump	L=10 **T=8** P=02 IT=03

Endocrine Physiology and Physiology of Reproduction

Learning Objectives	Contents	Hours / days
At the end of the course the students will be able to: • describe types, hormonal receptors & general mechanism of action of hormone. • describe functions, mechanism of action & regulation of secretion of individual hormone. • describe disorders in relation to pituitary gland, thyroid and parathyroid gland, adrenal gland and endocrine pancreas	**CORE :** • Endocrine glands : name & name of their hormones. • Hormone: definition, classification, mechanism of action, assessment of hormone level. • Hypothalamic hormones, releasing & inhibitory hormones: name and functions. • Pituitaty Gland: physiological anatomy. • Pituitary hormones (anterior & posterior): name, functions, mechanism of action and their control by the hypothalamus and disorders (dwarfism, gigantism, acromegaly & hypopituitarism and diabetes insipidus). • Thyroid Gland: physiological anatomy. • Thyroid hormones: biosynthesis, transport, functions, mechanism of action, regulation of secretion, disorders (hypo and hyperthyroidism, cretinism, myxoedema and goitre).. • Parathyroid Gland: physiological anatomy. • Parathyroid hormone: functions, mechanism of action & regulation of secretion. • Adrenal Gland: physiological anatomy. Adrenocortical hormones: name, functions , mechanism of action , regulation of secretion & disorders (Addison's disease, Cushing's Syndrome, Conn's disease). • Islets of Langerhan's of pancreas - hormones: functions, mechanism of action & regulation of secretion **Additional / Applied Physiology** Pathophysiology of insulin deficiency.	L=20 T=20 P=02 IT=06

Learning Objectives	Contents	Hours / days
Physiology of Reproduction **At the end of the course the students will be able to :** • describe male & female reproductive organs & their hormones • describe spermatogenesis • explain about functions of testosterone, oestrogen and progesterone • describe ovulation, ovarian & menstrual cycle • demonstrate knowledge about puberty • explain about lactation	• Introduction to reproductive physiology, sex determination & sex differentiation. Puberty • Functional anatomy of male reproductive system • Secondary sex characteristics of male • Testes: functional structure and functions • Testosterone: function. • Spermatogenesis: steps & hormonal control. • Functional anatomy of female reproductive system • Secondary sex characteristics of female • Ovaries : functional structure and functions. Functional structure of uterus. • Menstrual cycle: definition, phases and hormonal control. • Ovarian cycle: phases and hormonal regulation. • Ovulation: definition, mechanism & hormonal control. • Definition of menstruation, menarche & menopause. • Ovarian hormones • Functions of oestrogen and progesterone. • Placental hormones: name & functions. • Mammogenesis: development and lactation. **Additional/Applied Physiology** Indicators of ovulation. Anovulatory cycle.	

Neurophysiology

Learning Objectives	Contents	Hours / days
At the end of the course the **Students will be able to:** • explain organization of the nervous system • explain the basic mechanism of synaptic transmission. • describe the sensory system of the body. • describe the organization and functions of the spinal cord. • explain the spinal cord reflexes. • describe the motor control system- pyramidal and extra pyramidal systems. • describe the functions of cerebellum. • describe functions of basal ganglia, thalamus, reticular formation & limbic system • describe functions of hypothalamus • describe organization & function of autonomic nervous system	**CORE:** • Functional organization of nervous system and functions of major levels of central nervous system(CNS). • **Neuron:** definition, parts, types • **Nerve fiber:** classification, properties, effects of injury/section to the nerve fiber • **Synapse:** physiological anatomy, properties, types, synaptic transmission • **Neurotransmitters:** definition, types, functions • **Sensory receptor:** definition, classification, properties, receptor potential. • **General/somatic senses:** definition, classification • **Ascending tracts/sensory pathways:** name & function. • Spinothalamic tract, tract of Gall, tract of Burdach, spinocerebellar tract : origin, course, termination & function. • **Cerebral cortex:** name & functions of the Brodmann's areas • **Reflex:** definition, classification, properties, • **Reflex arc:** definition, components • Stretch reflex, withdrawal reflex, crossed extensor reflex, reciprocal innervation & planter response. • **Muscle spindle**: definition, physiological anatomy, functions. • **Muscle tone**: definition, function, maintenance • **Descending tracts / motor pathways:** name & function. • Pyramidal tract: origin, course, termination, function & effect of lesion. • Extrapyramidal tract: name, functions. • Upper motor neuron and Lower motor neuron: definition, example, effect of lesion. • Spinal cord: hemisection.	L=18 T=18 P=08 IT=03

Learning Objectives	Contents	Hours / days
	• **Cerebellum:** functional division, functions, error control mechanism of motor activity & cerebellar disorder. • **Basal ganglia:** functional components, functions & effects of lesion • **Thalamus, Reticular formation, limbic system:** components & functions. • **Hypothalamus:** name of the nucleus and functions • **Autonomic Nervous system:** components and functions **Additional/Applied Physiology** Pain: types, dual pathway for transmission of pain, referred Pain. Thermostatic function of hypothalamus. Posture, equilibrium: definition, name of the areas controlling them. Sleep, memory: definition, name of the areas controlling them. Alarm or stress response.	

Physiology of Body Temperature

Learning Objectives	Contents	Hours / days
At the end of the course the students will be able to: • describe the physiology & regulation of body temperature.	**CORE :** • Normal body temperature, site of measurement, sources of heat gain, channels of heat loss, regulation of body temperature in hot and cold environment. **Additional/Applied Physiology** Heat stroke, hypothermia, frost bite, fever.	L=02 T=02 **P=02**
Physiology of Special Senses		
At the end of the course the students will be able to: • describe the neurophysiology of vision and visual pathway • explain errors of refraction, accommodation reaction, light reflexes, dark and light adaptation. • explain mechanism of hearing and describe auditory pathway • describe the physiology of smell and taste	**CORE:** • **Vision :** physiological anatomy of eye, image formation in the eyes, visual receptors, visual pathway, common refractive errors, photochemistry of vision, accommodation reaction, light reflex , dark & light adaptation, Field of vision, color vision, color blindness, visual acuity. • **Hearing:** auditory apparatus, receptor, mechanism of sound wave transmission, auditory pathway. • **Smell:** smell receptors, olfactory pathway. • **Taste:** taste receptors, modalities of taste sensation, taste pathway. **Additional/Applied Physiology** Effects of lesion in visual pathway. Argyll Robertson pupil, Horner's syndrome.	L=08 T=08 P=08 IT=06

Physiology Practical

Learning Objectives	Contents	Hours / days
Cellular Physiology & Physiology of Blood **Students will be able to** • demonstrate knowledge on common laboratory equipments used for practical hematology. • perform common hematological tests. • interpret results for practical purpose.	**CORE:** • Developing skill in using of microscope & common laboratory equipments. • Collection & preparation of blood sample. • Observation of osmotic behavior of RBC • Determination of total count of RBC, • Determination of total count of WBC • Determination of differential count of WBC. • Estimation of haemoglobin. • Observation of osmotic fragility of RBC. • Determination of ESR • Determination of PCV. • Determination of Blood grouping (ABO & Rh system) & cross matching. • Determination of bleeding time & clotting time. • Interpretation of Red Cell Indices	02 45
Cardiovascular Physiology **Students will be able to :** • examine the radial pulse & its application. • measure the blood pressure and effect of exercise on it. • auscultate 1st & 2nd heart sounds. • record & analysis of normal ECG.	**CORE :** • Measurement of Blood Pressure & effect of exercise on it. • Auscultation of 1st & 2nd heart sounds. • Examination of radial pulse. • Recording & analysis of normal ECG (12 leads).	**18**

Learning Objectives	Contents	Hours / days
Respiratory Physiology **Students will be able to :** • examine the Respiratory system • perform lung function tests & interpret tests on clinical conditions. • demonstrate the knowledge about breath sounds.	**CORE:** • Examination of respiratory system (physiological aspect) • Counting of respiratory rate. • Auscultation of breath sounds. • Determination of lung function tests including Spirometry.	08
Gastrointestinal Physiology Students will be able to: • auscultate the intestinal sound	**CORE** • Auscultation of intestinal sound	02
Renal Physiology Students will be able to: • Determine the specific gravity of urine	**CORE** • Determination of specific gravity of urine	02
Neurophysiology Students will be able to : • examine the sensory & motor functions of human body. • elicit the reflexes & interpret its clinical importance.	**CORE :** • Examination of motor & sensory functions. • Elicitation of the reflexes & interpretation of its clinical importance. (knee jerk, biceps jerk, triceps jerks & planter response).	10
Physiology of Body Temperature Students will be able to • record the body temperature	**CORE:** • Recording of the body temperature. • Observation of the effect of exercise on body temperature.	**02**
Physiology of Special senses Students will be able to : • perform the light reflex & accommodation reaction • perform visual acuity & color vision. • conduct tests for hearing & interpret the result	**CORE:** • Observation of Light reflex, • Interpretation of visual acuity and color vision. • Conduction and interpretation of Rinne test & Weber test.	08

Distribution of Teaching Hours

Systems	Lecture hours	Tutorial hours	Practical hours	Integrated teaching hours
1. Cellular Physiology	5	6	2	
2. Physiology of blood	15	16	45	6
3. Cardiovascular Physiology	18	18	18	3
4. Respiratory Physiology	12	14	8	3
5. Gastrointestinal Physiology	10	8	2	3
6. Renal physiology	12	10	2	6
7. Endocrine Physiology & Physiology of Reproduction	20	20	2	6
8. Neurophysiology & Physiology of body temperature	20	20	10	3
9. Physiology of Special Senses	08	8	8	6
Total	120	120	97	36

Time allocation in Physiology in different term

Term	Lecture hours	Tutorial hours	Practical hours	Integrated teaching hours	Total hours
1st Term	38	40	35	03	116
2nd Term	34	32	32	04	98
3rd Term	48	48	30	03	126
Grand Total	120	120	97	10	337

Summative Assessment of Physiology
(First Professional Examination)

Assessment systems and mark distribution

Components	Marks	Total Marks	Contents
WRITTEN EXAMINATION Paper – I- Formative Assessment + MCQ +SAQ Paper – II- Formative Assessment + MCQ +SAQ	10+20+70 = 100 10+20+70 =100	200	**Paper – I** 1. Cellular physiology 2. Physiology of blood 3. Cardiovascular physiology 4. Respiratory physiology 5. Gastrointestinal physiology **Paper – II** 1. Renal physiology 2. Endocrine physiology & physiology of Reproduction 3. Neurophysiology & temperature regulation 4. Physiology of Special senses
PRACTICAL EXAMINATION OSPE Traditional practical methods and experiments Practical Note Book	 40 50 10	100	
ORAL EXAMINATION (Structured) 2 boards	Board – I = 50 Board – II = 50	100	
Grand Total		400	

Pass marks 60% in each of written, oral and practical.

Department of Physiology

Students In course Evaluation Card. (Card for card completion & Term final examination on Physiology for individual student)

Students name---------- Roll no.----------

Session ---------- Year---------- Batch----------

Date of starting ---------- Date of ending ----------

Components	**Written**		**Oral**		**Practical**		**Remarks (Signature & Date)**
	Full Marks	**Marks Obtained**	**Full Marks**	**Marks Obtained**	**Full Marks**	**Marks Obtained**	
Cellular physiology & Physiology of Blood	100						
Cardiovascular physiology	100						
Respiratory physiology	100						
Gastrointestinal Physiology & Renal physiology	100						
Endocrine physiology	100						
Physiology of Reproduction	100						
Neurophysiology Physiology of Special Senses	100						
1st Term	**100**		**100**		**100**		
2nd Term	**100**		**100**		**100**		
3rd Term	**100**		**100**		**100**		

Department of Physiology

Attendance Record

Components	**Total Class held**	**Total Class attended**	**Percentage (attended/ Held)**	**Remarks (Signature & Date)**
Lecture (120 hours)				
Tutorial (120 hours)				
Practical (97 hours)				
Integrated teaching (36 hours)				

Academic Calendar for Physiology

		1st Term		2nd Term		3rd Term	
Teaching /Learning Method	**Teaching hours including Examination**	20 Working weeks	**E V A**	20 Working weeks	**E V A**	18 Working weeks	**E V A**
Lecture	120 Hours	GP- 05 hours Blood—15 hours CVS—18 hours	**L U A**	Resp. Physiology—12 hours GIT—10 hours Renal- 12 hours.	**L U A**	Endocrine & Reproduction—20 hours Nervous system & Body temp.—20 hours. Special Senses-08 hours.	**L U A T**
Tutorial	120 hours	GP—06 hours. Blood –16 hours. CVS—18 hours.	**T I O N**	Respiration—14 hours. GIT—08 hours. Renal —10hours.	**T I O N**	Endocrine & reproduction—20 hours. Nervous system & Body temp. –20 hours Special Senses—08 hours.	**I O N**
Practical	100 hours.	GP—02 hours. Blood—36 hours.	**4 W E E K S**	Blood-- 12 hours CVS---18 hours. GIT—02 hours	**4 W E E K S**	Respiration- 08 hours Renal – 02 hours Endocrine—02 hours Neuro physiology -08 hours Body temp—**02** hours Special Senses--08 hours	**7 W E E K S**

Continuous Assessment Card

Department of Physiology---------- **Medical college**----------
Students name---------- **Roll no.**----------
Session ---------- **Year** ---------- **Batch** ----------
Date of starting ---------- **Date of ending** ----------

Card 1: (Cellular Physiology & Blood)

Sl. No.	Name of item	Full Marks	Marks Obtained	Remarks (signature & Date)
1.	Definition, goal & importance of physiology. Homeostasis: definition, major functional systems, control systems of the body	10		
2.	The cell: functions of cell membrane & cell organelles.	10		
3.	The cell membrane transport: active & passive transport, exocytosis & endocytosis. Intercellular communications	10		
4.	Membrane potential: definition and basic physics of membrane potential. Resting membrane potential Nerve Action potential & propagation of action potential.	10		
5.	Neuromuscular junction & transmission of impulse from nerve ending to the muscle fibre. Muscle contraction & relaxation.	10		
6.	Composition & functions of blood, Plasma proteins: Origin, normal values, properties & functions.	10		
7.	RBC: normal count, morphology, functions, erythropoiesis, fate of RBC. Hemoglobin: synthesis, types, functions. Red blood cell indices. Anaemia: definition & classification Polycythemia: definition & type. Jaundice: definition & classification	10		
8.	WBC: classification with normal count, morphology, development, properties & functions. leucocytosis, leucopenia .	10		
9.	Platelets: normal count, morphology, functions & development. Hemostasis: definition & events Coagulation: definition, blood clotting factors. Mechanism of coagulation & fibrinolysis. Anticoagulant: name, mode of action. Bleeding disorder: thrombocytopenic purpura & hemophilia. Tests for bleeding disorder: bleeding time, coagulation time and prothrombin time.	10		
10.	Blood grouping: ABO & Rh system, hazards of blood transfusion & Rh incompatibility.	10		

Signature of batch teacher : Signature of head of department :

Continuous Assessment Card

Department of Physiology---------- **Medical college**----------

Students name---------- **Roll no.**----------

Session ---------- **Year** ---------- **Batch** ----------

Date of starting ---------- **Date of ending** ----------

Card 2: (Cardiovascular Physiology)

Sl. No.	Name of item	Full Marks	Marks Obtained	Remarks (signature & Date)
1.	Properties of cardiac muscle. Junctional tissues of the heart. Generation of cardiac impulse & its conduction in the heart.	10		
2.	Cardiac cycle: definition, events, pressure & volume changes during different phases of cardiac cycle. Heart sounds : type, characteristics and their significances ECG : definition, principles and interpretations Heart block: definition and types.	10		
3.	Functional classification of blood vessels, interrelationship among pressure, flow & resistance. Local & humoral control of blood flow in the tissues. Exchange of fluid through the capillary membrane.	10		
4.	SV, EDV, EF, ESV: definition & factors affecting them. Cardiac output : definition, measurement, regulation and factors affecting cardiac output. Venous return: definition & factors affecting. Pulse: definition, characteristics	10		
5.	Peripheral resistance: definition & factors affecting. Blood pressure: definition, types, measurement & regulation of arterial blood pressure.	10		
6.	Circulatory adjustment during muscular exercise Heart rate: factors affecting & regulation Cardiac arrhythmias : tachycardia, bradycardia. Shock: definition, classification. Physiological basis of compensatory mechanism of circulatory shock.	10		

Signature of batch teacher :

Signature of head of department :

Continuous Assessment Card

Department of Physiology---------- **Medical college**----------

Students name---------- **Roll no.**----------

Session ---------- **Year** ---------- **Batch** ----------

Date of starting ---------- **Date of ending** ----------

Card 3: (Respiratory Physiology)

Sl. No.	Name of item	Full Marks	Marks Obtained	Remarks (signature & Date)
1.	Respiration: definition, mechanism. Pulmonary & Alveolar ventilation. Pulmonary volumes and capacities(spirometry) Dead space: physiological & anatomical Lung function tests : name & significance	10		
2.	Composition of atmospheric, alveolar, inspired and expired air. Respiratory unit and respiratory membrane. Diffusion of Gases through the respiratory membrane. Peculiarities of pulmonary circulation Ventilation -perfusion ratio.	10		
3.	Transport of Oxygen & Carbon dioxide in blood. Oxy-hemoglobin dissociation curve. Bohr effect, Haldane effect & Chloride shift.	10		
4.	Respiratory centers: name, location & functions. Nervous & chemical regulation of respiration. Regulation of respiration during exercise.	10		
5.	Hypoxia: definition, types Cyanosis: definition & types. Definition of dyspnea, hypercapnea & periodic breathing.	10		

Signature of batch teacher :

Signature of head of department :

Continuous Assessment Card

Department of Physiology---------- **Medical college**----------

Students name---------- **Roll no.**----------

Session ---------- **Year** ---------- **Batch** ----------

Date of starting ---------- **Date of ending** ----------

Card 4 : (Gastrointestinal Physiology & Renal physiology)

Sl. No.	Name of item	Full Marks	Marks Obtained	Remarks (Signature & Date)
1.	Physiological anatomy of gastrointestinal (GI) tract. Enteric nervous system. Local hormones of GIT: name, functions & regulation of secretion	10		
2.	Movements of the GIT. GI reflexes. Functions of stomach, small intestine and large intestine	10		
3.	Kidney: functions of kidneys. Nephron: Types, parts and structure. Renal circulation: peculiarities with functional importance.	10		
4.	Urine formation Glomerular filtration, measurement and determinants of GFR, Autoregulation of renal blood flow and GFR.	10		
5.	Reabsorption and secretion by the renal tubules Definition of $T_{m,}$ Renal threshold, tubular load, plasma load, plasma clearance and diuresis	10		
6.	Mechanism of formation of concentrated & dilute urine.	10		
7.	Micturition reflex Abnormalities of micturition	10		

Signature of batch teacher: Signature of head of department :

Continuous Assessment Card

Department of Physiology,---------- Medical college----------

Students name---------- Roll no.----------

Session ---------- Year ---------- Batch ----------

Date of starting ---------- Date of ending ----------

Card 5 : (Endocrine Physiology)

Sl. No.	Name of item	Full Marks	Marks Obtained	Remarks
1.	Endocrine glands: name Hormones: definition, classification, mechanism of action, regulation of secretion	10		
2.	Hypothalamic hormones. Pituitary hormones (anterior & posterior): name, functions and their control by the hypothalamus and disorders (Dwarfism, gigantism, acromegaly & hypopituitarism and diabetes insipidus)	10		
3.	Thyroid hormones: biosynthesis, transport, functions, regulation of secretion, disorders (Hypothyroidism hyperthyroidism, Cretinism, Myxoedema and goitre). .	10		
4.	Parathyroid hormone: functions, mechanism of action & regulation of secretion. Calcium homeostasis.	10		
5.	Adrenocortical hormones: name, functions , mechanism of action , regulation of secretion & disorders (Addison's disease, Cushing's Syndrome, Conn's disease).	10		
6.	Hormones of Islets of Langerhan's of pancreas: functions , mechanism of action, regulation of secretion. Pathophysiology of insulin deficiency.	10		

Signature of batch teacher :

Signature of head of the department:

Continuous Assessment Card

Department of Physiology,---------- **Medical college----------**

Students name---------- **Roll no.----------**

Session ---------- **Year ---------- Batch ----------**

Date of starting ---------- **Date of ending ----------**

Card 6: (Physiology of Reproduction)

Sl. No.	Name of item	Full Marks	Marks Obtained	Remarks
1.	Introduction to reproductive physiology, sex determination & sex differentiation. Puberty Functional anatomy of male reproductive system. Secondary sex characteristics of male Gonad : structure and functions of testes. Testosterone: functions, Spermatogenesis: steps & hormonal control.	10		
2.	Functional anatomy of female reproductive system. Secondary sex characteristics of female Gonad : structure and functions of ovaries. Ovarian hormones Oestrogen and progesterone: functions Ovulation: definition, mechanism & hormonal control. Indicators of ovulation Menstrual cycle: definition & hormonal control. Ovarian and endometrial cycle with their hormonal regulation. Definition of menstruation, menarche & menopause.	10		
3.	Placental hormones: name & functions. Mammogenesis: hormonal influence for mammogenesis & lactation	10		

Signature of batch teacher :

Signature of head of the department :

Continuous Assessment Card

Department of Physiology---------- **Medical college**----------
Students name---------- **Roll no.**----------
Session ---------- **Year** ---------- **Batch** ----------
Date of starting ---------- **Date of ending** ----------

Card 7: (Neurophysiology & special senses)

Sl. No	Name of item	Full Marks	Marks Obtained	Remarks & signature
1.	Functional organization and functions of major levels of central nervous system(CNS). **Neuron:** definition, parts, types **Nerve fiber**: classification, properties, effects of injury to the nerve fiber **Synapse**: physiological anatomy, type, properties & synaptic transmission **Neurotransmitters**: definition, types & functions	10		
2.	**Sensory systems of the body:** **Sensory receptor**: definition, classification, properties, receptor/generator potential. **Cerebral cortex :** Name and functions of the Brodmann's areas. **General/somatic senses:** definition and classification. **Ascendingtracts/sensory pathways** – name.(Tract of Gall & Burdach, spinothelamic tract, spinocerebellar tract): origin, course, termination, functions, and effect of lesions.	10		
3.	**Reflex:** définition, classification, properties. Reflex arc: définition, component stretch reflex, knee jerk, planter response and Withdrawal reflex- with reciprocal innervations & crossed extensor-pathway . **Muscle spindle, Golgi tendon organ:** definition, physiological anatomy and functions**. Muscle tone** : definition , function and maintenance.	10		
4.	**Descending tracts/ motor pathways**- name Pyramidal tract: origin, course, termination, function, effect of lesion. Extrapyramidal tract: name, functions. Upper motor neuron and lower motor neuron : definition, effect of lesion. **Spinal cord** : effect of hemisection.	10		
5.	**Cerebellum:** functional division, neuronal circuit, functions, error control mechanism of motor activity & cerebellar disorder, **Basal ganglia:** functional components, functions & effects of lesions. **Thalamus, Reticular formation, Limbic system:** functional components and functions.	10		
6.	**Hypothalamus:** name of the nucleus, functions **Body Temperature** Normal body temperature, site of measurement, sources of heat gain, channels of heat loss, regulation of body temperature in hot and cold environment.	10		
7.	**Autonomic Nervous system:** physiological anatomy of sympathetic and parasympathetic system, functions. Alarm or stress response	10		
8.	**Vision: p**hysiological anatomy of eye, image formation in the eyes, visual receptors, visual pathway, common refractive errors, accommodation reaction, light reflex, dark and light adaptation. Field of vision, color vision, visual acuity	10		
9.	**Hearing:** auditory apparatus, receptor, Mechanism of hearing, mechanism of sound transmission and auditory pathway.	10		
10.	**Smell:** receptor and pathway**.** **Taste:** receptors, modalities of taste sensation and pathway.	10		

Signature of batch teacher : Signature of head of the department :

Continuous Assessment Card

Department of Physiology---------- **Medical college**----------
Students name---------- **Roll no.**----------
Session ---------- **Year** ---------- **Batch** ----------
Date of starting ---------- **Date of ending** ----------

Card 8: Physiology Practical

(I hear and I forget, I see and I remember, I do and I understand)

SL NO	**Name of experiment**	**Full Marks**	**Marks obtained**
1	Laboratory equipment. blood sample, collection (venous & capillary) of blood.	10	
2	Preparation & staining of blood film & differential count of WBC with interpretation and analysis of result	10	
3	Determination of total count of WBC with interpretation and analysis of result	10	
4	Determination of total count of RBC with interpretation and analysis of result	10	
5	Estimation of haemoglobin with interpretation and analysis of result	10	
6	Determination of packed cell volume (PCV), Calculation of MCV, MCH & MCHC with interpretation and analysis of result	10	
7	Estimation of ESR by Westergren method with interpretation and analysis of result	10	
8	Determination of bleeding time, clotting time with interpretation and analysis of result	10	
9	Study of morphology and osmotic behavior of RBC with interpretation and analysis of result	10	
10	Determination of ABO & Rh blood groups with interpretation and analysis of result	10	
11	Auscultation of 1^{st} & 2^{nd} heart sounds	10	

12	Examination of radial pulse.	10	
13	Measurement of normal blood pressure & effects of exercise on blood pressure.	10	
14	Recording & analysis of 12 leads normal ECG	10	
15	Auscultation of breath sounds	10	
16	Spirometric measurement of lung function test. Determination of FVC, FEV_1,FEV_1/FVC %, PEFR, MVV with analysis of result.	10	
17	Auscultation of intestinal sound.	10	
18	Elicitation of knee jerk, planter response	10	
19	Recording of oral & axillary temperature & effects of exercise on it	10	
20	Observation of light reflexes and analysis of result	10	
21	Determination of color vision	10	
22	Determination of visual acuity by Snellen's chart.	10	
23	Determination of hearing tests: Rinne and Weber test with interpretation and analysis of result	10	
24	Determination of specific gravity of urine	10	

Signature of batch teacher:

Signature of head of the department:

Biochemistry

Departmental Objective

At the end of the course in Biochemistry the students should be able to:

- acquire the basic & integrated knowledge on major biomolecules, enzymes, hormones and nutrients with fundamental chemical process within body system upon which life depends.
- demonstrate skills in performing and interpreting Biochemistry laboratory tests and procedures with emphasis on those used in Bangladesh.
- demonstrate skills in using the modern biochemical appliances.
- equip themselves with requisite knowledge for higher studies and research.
- develop sound attitude towards the need for continuing self-directed learning.

List of Competencies to acquire:

After completing the course of Biochemistry in MBBS course the students will-

1) apply the learned knowledge of biochemistry in medicine.
2) familiar with the biomolecules forming the structure of human body, their functions and role in health and diseases.
3) explain the role of enzymes in the diagnosis and treatment of diseases.
4) identify the source of energy in human body and the process by which this energy is derived from food.
5) explain metabolism of the body in fed and fasting state and consequences of prolonged starvation.
6) explain the role of liver in metabolism and derangement of metabolism in impaired liver function. Explain dyslipidemia and their clinical consequence
7) describe the water and electrolyte content of human body and their functions. Identify the types, causes and consequences of dehydration and over hydration. Explain the causes the consequences of electrolyte imbalance.
8) describe the sources of acids and bases in our body and the mechanism of their normal balance. Explain the causes and consequences of acidosis and alkalosis and the parameters to diagnose them.
9) demonestrate their basic conception about nutrients, balanced diet. Describe the common nutritional disorders of our country and their causes and consequences.
10) describe the components of balanced diet and explain the basic principles of making a diet chart. Attain the skill to assess nutritional disorders anthropometrically.
11) explain the basis of genetics and molecular biology and the common genetic disorders and explain the modern technology in molecular biology in the diagnosis and treatment of diseases.
12) diagnose diabetes mellitus, impairment of renal, liver and thyroid functions.

Attain the skill to perform and interpret the common biochemical tests in the diagnosis of diseases. Attain the skill to perform common bedside biochemical tests.

Distribution of teaching - learning hours

Lecture	Tutorial	Practical	Total teaching hours	Integrated teaching hour for Phase I	Formative Exam		Summative exam	
					Preparatory leave	Exam time	Preparatory leave	Exam time
117 hours	100 hours	100 hours	317 hrs	36 hrs	35 days	42 days	30 days	30 days
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase								
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions								

Teaching - learning methods, teaching aids and evaluation

Teaching Methods			Teaching aids	In course evaluation
Large group	Small group	Self learning		
Lecture Integrated teaching	Tutorial Practical Demonstration Problem solving	Assignment, self assessment and self study.	OHP Video tapes, Audio player Slide Projector Charts, Flip charts, Models, Specimens White board and marker Chalk board and chalk Computer and multimedia Study guide and manuals	• Item Examination (oral or written) • Card final (only written) • Term Examination • Term final (written, oral+ practical [OSPE & traditional])

Related Equipments:

Glass wares, micropipette, distilled water plant, p^H meter.

Laboratory equipments:

Photoelectric colorimeter, Centrifuge machine, PCR mechine, Incubator, Water bath, Hot air oven, Height and weight measuring instrument.

1st Professional Examination:

Marks distribution of Assessment of Biochemistry:

Total marks – 400

- Written=200 (Formative- 20+MCQ (SBA+MTF) 40+(SAQ+SEQ)140)
- SOE=100
- Practical= 100 (OSPE-50+ Traditional-40 + Assignment-10)

Learning Objectives and Course Contents in Biochemistry
Biophysics & Biomolecules

Learning Objectives	Contents	Teaching Hours
At the end of the course, students will be able to: • define biochemistry and explain its importance in medicine. • define solution, standard solution and types of standard solution. • describe colloid and crystalloid with example, define dialysis and mention its biomedical importance. • define p^H, p^K and p^H scale and mention their importance. • define acid, base, strong acid and weak acid. • define buffer. State the body fluid buffers with their basic mechanism of action. • state Handerson Hasselbach equation and its importance. • define and classify isotope. State its biomedical importance. • define and classify carbohydrates. Mention the sources and importance of biologically important monosaccharides, disaccharides and polysaccharides. • describe the reducing property of carbohydrate. • define amino acid, peptide, polypeptide and protein. • state their sources and functions. • explain the structure of protein and denaturation of protein. • define and classify lipids, state their sources, functions and biomedical importance. • define and classify fatty acids, state their sources, function and biomedical importance, mention eicosanoids with their origin. • state the sources and importance of essential fatty acids: omega-3 fatty acid, omega-6 fatty acid and transfatty acid. • define steroids and sterols. • describe the sources, and biomedical importance of cholesterol. • define and classify enzymes, describe the factors affecting enzyme activity. • define isoenzyme with example and mention their clinical application. • state the biomedical importance of enzyme. • co-factors and mention their functions.	**CORE:** • Introduction to Biochemistry • Concept of solutions • Colloids and crystalloids. • Concept of pH and buffer. • Concept of isotope. • Concept of Biomolecules: Carbohydrates. • Amino acids and proteins. • Lipids and fatty acids. • Enzymes	Lecture: 18 hours Tutorial: 25 hours Practical: 20 hours Total teaching hours: 65 hours

Food, Nutrition, Vitamins and Minerals

Learning Objectives	Contents	Teaching Hours
At the end of the course, students will be able to: • define and explain nutrients, essential nutrients, macro and micronutrients, food, proximate principles of food, diet, balanced diet. • define and explain with full meaning of the abbreviations- BMR, BMI, SDA. • mention the basis of calculating the calorie requirement of a person. • describe the sources, requirement and function of carbohydrate as nutrient and describe the importance of fibers in diet. • state glycaemic index (GI) with its importance. • describe sources, requirement and function of protein as nutrients; mention the name and significance of essential amino acid; state the biological value of protein. • describe the sources, requirement and function of lipids as nutrients. • mention the sources and nutritional role of PUFA • define and classify vitamins. • describe the sources, function, RDA, deficiency disorders of water-soluble vitamins. • describe the sources, functions, RDA, deficiency disorders and toxicity of fat-soluble vitamins. • state the role of minerals as nutrients, define trace elements. • state the importance of minerals: sodium, potassium, calcium, iron, iodine, fluoride, selenium, manganese, copper, zinc etc. • describe iron metabolism. • describe the biochemical basis of the common nutritional disorders e.g. PEM, night blindness, goiter, obesity, nutritional anaemia.	**CORE:** • Basic concepts of food, nutrition and dietary principles. • Energy balance and calculation of energy equivalent of food. • Nutritional aspect of carbohydrates, fats and proteins, Fibers. • Vitamins and minerals. • Common Nutritional disorders.	Lecture: 18 hours Tutorial: 15 hours Practical: 10 hours Total teaching hours: 43 hours

Digestion, Absorption, Bioenergetics and Metabolism

Learning Objectives	Contents	Teaching Hours
At the end of the course, students will be able to: • define digestion, absorption, metabolism, anabolism, and catabolism. • describe the phases of metabolism • describe biological oxidation, respiratory chain and oxidative phosphorylation. • enumerate high and low energy compounds, describe ATP. **Carbohydrate Metabolism:** • describe digestion and absorption of carbohydrate with endproducts. • define glycolysis and describe the pathway, state the conversion of pyruvate to lactate, acetyl CoA and oxaloacetate. • calculate the amount of energy liberated in glycolysis and oxidative decarboxylation of pyruvate. • describe citric acid cycle and explain why it is called an amphibolic and final common metabolic pathway. • calculate the amount of energy liberated in TCA cycle and total energy liberated from complete oxidation of a mole of glucose in aerobic and in anaerobic conditions. • define glycogenesis and glycogenolysis and state their role in storage and supply of glucose to meet body's demand. • state the importance of HMP pathway. • define gluconeogenesis and describe its process and importance. • describe glucose homeostasis and mention its importance, • state the glucostatic functions of liver with other biochemical functions.	**CORE:** • Introduction to metabolism • Biological oxidation, respiratory chain and oxidative phosphorylation. • High and low energy compounds. ATP • Phases of metabolism (digestion, absorption and intermediary metabolism) • Glycolysis • Citric acid cycle • Glycogenesis and glycogenolysis • Hexose monophosphate shunt • Gluconeogenesis • Blood glucose homeostasis • Cori cycle	Lecture: 29 hours Tutorial: 18 hours Practical: 25 hours Total teaching hours: 73hours

Learning Objectives	Contents	Teaching Hours
Lipid Metabolism • describe digestion and absorption of lipids (triacylglycerol, phospholipids, cholesterol esters) • enumerate the blood lipids with their sources and mention the anabolic and catabolic pathways of lipid metabolism. • describe the process of degradation of triacylglycerol. • state the processes of fatty acid oxidation and describe beta-oxidation of even and odd chain fatty acids. • state the sources and fate of acetyl-CoA. • name the ketone bodies. • describe ketogenesis and fate of ketone bodies, state the biomedical importance of ketone bodies. • define ketosis and mention the causes of ketosis and describe its pathogenesis. • enumerate the lipoproteins, state its general structure and functions, describe the metabolism of chylomicron, VLDL, LDL and HDL cholesterol, explain the clinical importance of LDL & HDL cholesterol. • state the role of HMG-CoA reductase in regulation of blood cholesterol level. • define eicosanoids, mention the basic steps of their synthesis.	**CORE:** • Digestion and absorption of lipid. • Blood lipids and pathways of lipid metabolism. • Triglyceride metabolism. • Beta-oxidation • Ketogenesis and ketosis. • Lipid transport and lipoprotein metabolism. • Ecosanoids.	

Learning Objectives	Contents	Teaching Hours
Protein Metabolism • describe digestion and absorption of protein. • state the concept of protein turnover, amino acid pool • define nitrogen balance, mention its types and state the routes of nitrogen loss. • state the pathways of amino acid catabolism. • define and describe transamination and deamination. • describe sources and way of disposal of ammonia, explain ammonia intoxication • describe the urea cycle including sites, reactions and importance of the cycle.	**CORE:** • Digestion and absorption of protein • Protein turnover, common amino acid pool, nitrogen balance • Pathways of protein metabolism • Deamination and transamination. • Fate of amino acid in the body • Source and disposal of ammonia **ADDITIONAL:** • Role of liver in over all metabolisms. • **Integrated metabolism** Metabolic adjustment of fed, fasting and starvation state.	

Renal biochemistry, body fluid, electrolytes and acid-base balance

Learning Objectives	Contents	Teaching Hours
At the end of the course, students will be able to: • define GFR, renal threshold, plasma clearance, osmolar clearance and free water clearance, describe mechanism of acidification of urine. • state the body fluid compartments and state the composition of ECF and ICF • state water turnover, water intake and output, describe volume homeostasis (water balance), enumerate volume disorders with example, define water intoxication. • explain the importance of major electrolytes (Na^+, K^+, Ca^{++}, Mg^{++} and PO_4^{--}) and mechanism of their homeostasis. • describe acid base homeostasis & state the simple acid base disorder with causes of acidosis and alkalosis and mechanism of their compensation and correction. • state acid base parameters, anion gap and base excess, • state the role of kidneys in water, electrolyte and acid-base balance. • state abnormal constituents in urine with normal urine volume and obligatory urine volume, explain limiting p^H of urine. • define and classify diuresis with example.	**CORE:** **Renal biochemistry in relation to water, electrolytes and acid base homeostasis** • Total body water and body fluid compartments. Composition of body fluids. • Regulation of normal water balance. • Major electrolytes and their homeostasis. • Volume disorders. • Acid base homeostasis & disorders.	Lecture: 20 hours Tutorial: 12 hours Practical: 20 hours Total teaching hours: 52 hours

Clinical Biochemistry and clinical endocrinology

Learning Objectives	Contents	Teaching Hours
At the end of the course, students will be able to: • state the basic concepts of clinical biochemistry eg quality control & quality assurance, specificity, sensitivity • mention measurements of unit eg SI unit • list the common anticoagulants used in laboratory • state the laboratory hazards with its types and specimen used in labooratory • state the normal level of serum bilirubin and mechanism of causation of jaundice. • describe the common liver function tests with interpretation. • explain the basis of application of clinical enzymology in disease. • state the lipid profiles of blood & their clinical importance. • state the causes and consequence of hyperglycaemia and hypoglycaemia. • state the laboratory diagnosis of diabetes mellitus, OGTT and its interpretation, define IFG, IGT and HBA_{1c}. • state renal function tests • define proteinuria and microalbuminuria, glycosuria. • state thyroid function tests with interpretation.	**CORE:** • Introduction to clinical biochemistry. • Normal biochemical values in conventional and Sl. Units. • Clinical enzymology related to liver and myocardial diseases. • Lipid profiles and dyslipoproteinemias. • Organ function tests (liver, kidney & thyroid) • Diagnosis of diabetes mellitus • Bilirubin metabolism and Jaundice. • Proteinuria and microalbuminuria	Lecture: 14 hours Tutorial: 15hours Practical: 20 hours Total teaching hours: 49 hours

Fundamentals of Molecular Biology and genetics

Learning Objectives	Contents	Teaching Hours
At the end of the course, students will be able to: • explain chemistry, & functions of nucleic acid, nucleosides, and nucleotides. • describe the structure and functions of DNA. • describe the structure, types and functions of RNA. • describe DNA organization, cell cycle and genetic code. • describe the the central dogma & processes of replication of DNA, • define gene, allele, genome, genotype, phenotype, trait, and codon. • describe transcription and post transcriptional modification. • describe translation and post translational modification. • explain the concepts & application of medical Biotechnology • explain the concepts & application of recombinant DNA technology. • explain the concept of DNA cloning, PCR, DNA fingerprinting • define and classify mutations, mutagens.	**CORE:** • Basic concepts of molecular biology. • Nnucleic acid, nucleosides, and nucleotides. • Replication, transcription and translation. • Gene, genome, allele, trait, genetic code, mutation, mutagens. • PCR, DNA cloning, recombinant DNA technology • Biomedical aspects of medical biotechnology: understanding & application.	Lecture: 18 hours Tutorial: 15 hours Practical: 05 hours Total teaching hours: 38 hours

Biochemistry practical

Learning Objectives	Contents	Teaching Aids	Teaching Hours
Students will be able to: • list the laboratory hazards and the precautions to prevent them. • identify the different laboratory glass wares and equipments. Mention their uses. • prepare different type of standard solution from supplied solute, solvent and standard solution. • identify different parts of photoelectric colorimeter. Demonstrate its technique and the basic principle of calculation. • perform different biochemical tests according to given method and manual. • know the clinical indication of performing biochemical tests. • interpret biochemical values to apply in clinical situations.	**CORE** • Identification of laboratory glass wares and equipment. • Preparation of solutions. • Sample collection & processing • Photometry. • Estimation, demonstration of technique, calculation and interpretation of result: • Blood glucose estimation. • Serum cholesterol estimation. • Serum urea • Serum creatinine • Serum total protein • Serum bilirubin • Abnormal constituents of urine and their clinical significance.	• OHP • Video tapes, Audio player. • Charts, Flip charts, Models, Specimens • White board and marker • Chalk board and chalks • Computer and multimedia • Study guide and manuals • Glass ware, micropipette • Distil water plant • pH meter • Laboratory equipments: • photoelectric colorimeter • Centrifuge machine • PCR mechine • Incubator • Water bath • Hot air woven • Height and weight measuring instrument	**100 hours**

Evaluation of Biochemistry
Summative Assessment (1st Professional Examination)

Components	Marks	Total Marks
Formative assessment	10+10	20
WRITTEN EXAMINATION Paper – I- MCQ (SBA+MTF) (SAQ+SEQ) Paper - II- MCQ (SBA+MTF) (SAQ+SEQ)	 20 70 20 70	180
PRACTICAL EXAMINATION OSPE Traditional methods Assignment on specific practical procedure	 50 40 10	100
ORAL EXAMINATION (Structured)		100
Grand Total		**400**

- OMR sheet will be provided for MCQ.
- Pass marks 60 % in each of theoretical, oral and practical.

Continuous Assessment Card

Card No- 1. Biophysics and Biomolecules

No.	Items	Marks(10 in each item)	Initials and date
1.	Introduction of biochemistry, acid, base, p^H, p^K, buffer, Henderson-Hasselbalch equation.		
2.	Solutions, crystalloid, colloid, dialysis and isotopes.		
4.	Carbohydrates.		
5.	Lipids		
6.	Amino Acids and Protein.		
7.	Enzymes, coenzymes, cofactors, isoenzsymes		

Card No- 2. Food, nutrition and vitamins

No	Items	Marks(10 in each item)	Initial and date
1.	Basic concepts of Nutrient, food, diet, balanced diet, essential dietary components, , total calorie calculation,DRI, RDA, MR, BMR, BMI, SDA.		
2.	Dietary fibers, nutritional importance of carbohydrate, lipid & protein, glycaemic index (GI) of food.		
3.	Minerals- (macro & micro), trace elements, common nutritional disorders, PEM, BMI. obesity, iron metabolism and its deficiency, iodine deficiency		
4.	Water soluble vitamins		
5.	Fat soluble vitamins		

Card No- 3. Digestion, absorption, bioenergetics and metabolism

No	Items	Marks(10 in each item)	Initial and date
1.	**Digestive juices**, local hormone of GIT, digestion & absorption of carbohydrate, lipid, protein.		
2.	**Bioenergetics-** biological oxidation, high energy phosphates, oxidative phosphorylation, respiratory chain. metabolism-definition, phases; anabolism, catabolism		
3.	**Carbohydrate metabolism**- glycolysis, fate of pyruvate, TCA cycle, HMP pathway, gluconeogenesis, glycogenesis, glycogenolysis, blood glucose regulation.		
4.	**Lipid metabolism:** lipolysis, Beta-oxidation of fatty acid, fate of Actyl-CoA, ketone bodies, ketosis & its pathoghenesis. Lipoproteins & their metabolism, Cholesterol metabolism.		
5.	**Protein metabolism:** Amino acid pool, Transamination, Deamination. Source & fate of ammonia, ammonia intoxication, Urea cycle.		

Card No- 4. Renal biochemistry, body fluid, electrolytes and acid base balance

No	Items	Marks(10 in each item)	Initial and date
1.	**Renal biochemistry-** GFR, tubular load, TM, renal threshold, plasma clearance, osmolar clearance, free water clearance, acidification of urine.		
2.	**Body fluid-** Body fluid compartments, daily water intake & output, water turnover, body fluid volume regulation, volume disorders and diuresis.		
3.	**Acid-Base Balance-** origin of acids & bases, maintenance of static blood p^H. Acid base disorders, their compensation & coprrection, anion gap and base excess.		
4.	**Serum Electrolytes-** Serum electrolytes & their reference ranges. Functions, regulations, hypo & hyper states **o**f serum $[Na^+]$, $[K^+]$ $[Ca^{++}]$ & $[PO_4^{--}]$		

Card No- 5. Clinical biochemistry and clinical endocrinology

No	Items	Marks(10 in each item)	Initial and date
1.	Clinical biochemistry- S I unit, Laboratory hazards, Sample collection, Photometry. Clinical enzymology, lipid profiles of blood.		
2.	Clinical enzymology and lipid profiles of blood.		
3.	Diagnosis of diabetes mellitus. OGTT, IGT, IFG and $HbA_{1C.}$		
4.	Thyroid function tests and interpretation.		
5.	Commonly done LFT. Jaundice.		
6.	Renal function tests and interpretation.		

Card No- 6. Fundamental of molecular biology and genetics

No	Items	Marks(10 in each item)	Initial and date
1.	Nucleic acids, nucleotides, DNA, RNA, DNA organization, Cell cycle.		
2.	The central dogma, Genome, Gene, Genetic code, Codon, Mutation, mutagens, Genotype, Phenotype, trait, allele.		
3.	Replication, Transcription and post transcriptional modification,		
4.	Translation and post translational modification.		
5.	Recombinent DNA technology, PCR, Cloning.		

Total Teaching Hours for Biochemistry

System	Lecture	Tutorial	Practical	Integrated teaching
1. Biophysics and biomolecules'	18	25	20	Common hour of Phase I
2. Food, nutrition, vitamins and minerals	18	15	10	
3. Digestion, absorption, bionergetics and metabolism	29	18	25	
4. Body fluids, electrolytes and acid base balance	20	12	20	
5. Clinical biochemistry and clinical endocrinology	14	15	20	
6. Molecular Biology and genetics (Fundamentals)	18	15	05	
Total Teaching Hours: (317)	**117**	**100**	**100**	**36**

Academic Calendar for Biochemistry

First Term				
System(Two)	**Lectures**	**Tutorials**	**Practical**	**Seminar**
Card-1.Biophysics and biomolecules and	18 hrs.	25 hrs.	20 hrs.	2 hrs.
Card-2. Food and Nutrition	18 hrs.	15 hrs.	10 hrs.	1 hrs.
	36 hrs.	40 hrs.	30 hrs.	3 hrs.

Second Term				
System(Two)	**Lectures**	**Tutorials**	**Practical**	**Seminar**
Card-3.Digestion,absorption, bioenergetics and metabolism	29 hrs.	18 hrs.	25 hrs.	2 hrs.
Card-4.Bodyfluids, electrolytes,renal	20 hrs.	12 hrs.	20 hrs.	1 hrs.
chemistry and acid base balance	49 hrs.	30 hrs.	45 hrs.	3 hrs.

Third Term				
System (Three)	**Lectures**	**Tutorials**	**Practical**	**Seminar**
Card-5.Clinical biochemistry and clinical Endocrinology	14 hrs.	15 hrs.	20 hrs.	02 hrs.
	18 hrs.			
Card-6.Molecular Biology	32 hrs.	15 hrs.	05 hrs.	02 hrs.
		30 hrs.	25 hrs.	04 hrs.

Phase II

- Generic Topics on Medical Humanities to be taught in Phase-II
- Integrated Teaching in Phase II
- Subjects of Phase II--
    - Pharmacology & Therapeutics
    - Forensic Medicine & Toxicology
        - General Pathology only for teaching learning & formative assessment
        - General Microbiology only for teaching learning & formative assessment

Generic Topics on Medical Humanities to be taught in Phase-II

The following three topics will be taught within 2nd phase under supervision of Phase-II coordination committee in collaboration with medical education unit (MEU). The sessions will be under the guidance of Principal & Vice-principal, coordinated by concerned departments and sessions will be delivered by concerned experts of the topics. Each session will be one and half hour. Attending these session will be mandatory and will be reflected in the formative & summative assessment of Phase-II.

Topics:

1. Communication skill
2. Doctor–patient relationship (DPR)
3. Physicians' / *bedside manner*, etiquette and rapport building with patients

Topics	Learning objective	List of Contents	Method	Time
Communication skill	• explain the concept of communication skills, types and components of the communication skills • state the main tools of communication • mention the importance of communication skills • describe ways of effective communication particularly with patients, students and others	• Concept of communication skills, types and components of the communication skills • Main tools of communication • Importance of communication skills • Ways of effective communication particularly with patients, faculties and others	Interactive Lecture Or Seminar	One and half hour
Doctor–patient relationship (DPR)	• define doctor–patient relationship (DPR) • State importance of DPR • List Patient-related, doctor-related and health systems related factors of DPR • Explain the means of strengthening the DPR • Mention some current examples of the DPR	• Definition of doctor–patient relationship (DPR) • Importance of DPR • Patient-related, doctor-related and health systems related factors of DPR • Means of strengthening the DPR • Some current examples of the DPR	Interactive Lecture Or Seminar	One and half hour
Physicians' *bedside manner*, etiquette and rapport building with patients	• define *manner*, etiquette and rapport building • state Hippocrates and religious quote on *manner* and etiquette • explain importance good manners of doctors • explain negative impact of a doctor's poor manner • mention the means of developing good *manner and* rapport *with patients and attendants* • mention some current examples of *manner*, etiquette and rapport building with patients	• Definition of *manner*, etiquette and rapport building • Hippocrates and religious quote on *manner* and etiquette • Importance good manners of doctors • Negative impact of a doctor's poor manner • Means of developing good *manner and* rapport *with patients and attendants* • Some current examples of *manner*, etiquette and rapport building with patients	Interactive Lecture Or Seminar	One and half hour

Integrated Teaching in phase II

All the departments of Phase II (Pharmacology, Forensic Medicine & Toxicology) must be present and take part in the integrated teaching while the faculty representatives from concerned clinical & others departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase II should be ensured. Concern audiovisual aid, equipment and patient will be used. Students need to get some 'take home message' from every session. To ensure presence of the students 10 (Ten) marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule for integrated teaching session will be set at the phase II committee meeting in collaboration with medical education unit (MEU).

Total -15 hour. Each session will be for at least 2 hour

1. Electrocution and lightening
2. Burn
3. Drowning
4. Death
5. Poisoning
6. Substance abuse
7. Pulmonary Tuberculosis
8. Malaria

Topic	Learning objective	Core content	Discipline involved
Term-I			
Electrocution and lightening	• define electrocution • mention the mode of electrocution • list the causes of electrocution • enumerate consequences of electrocution • describe the management of electrocution • explain the prevention of electrocution and lightening	• Definition of electrocution • Types and causes of electrocution • Consequences of electrocution • Management of electrocution • Preventive measures of electrocution and lightening	• Forensic medicine & Toxicology • Community medicine & Public Health • Neuro Medicine • Cardiology • Surgery
Burn	• define burn • mention the types of burn • describe the pathophysiology including the causes of burn. • differentiate between antemortem and postmortem burn, dry burn and wet burn/chemical burn • explain the consequences/complications of burn. • estimate the surface burn & burn index along with its importance • make a plan for management of burn • discuss the forensic aspect related to the burn tragedy. • describe the medico legal aspect & negligence issues involve in burn case • describe the precaution & prevention strategies; social & health impact that involve the life style of victim.	• Definition, type and cause of burn • Pathophysiology of burn • Clinical features of burn • Estimation of area of surface burn • Complication of burn • Management of burn survival • Medico legal aspect of burn • Role & responsibilities of forensic expert in fire tragedy • Postmortem findings and cause of death in burn • Strategies for prevention of fire/burn	• Forensic medicine & Toxicology • Community Medicine & Public Health • Pathology • Surgery/ Plastic Surgery • Anaesthesiology /Critical care medicine

	• describe the cause of death & analyze the postmortem findings for logical conclusion.		
Drowning	• define drowning • classify drowning with its postmortem finding. • describe the pathophysiology of drowning. • mention the medico legal importance of drowning • describe the management of drowning survival. • differentiate ante mortem from postmortem drowning. • describe the preventive strategies of drowning in Bangladesh.	• Definition, type, mechanism & Patho-physiology of drowning • Epidemiology of drowning • Postmortem findings of drowning • Medico legal aspect & cause of death due to drowning. • Management strategies of drowning. • Preventive strategies of drowning	• Forensic Medicine • Community Medicine • Pathology • Medicine • Paediatric Medicine
Death	• define death, sudden death • classify death • mention the causes of sudden death • describe medico legal aspects of sudden death • describe medico legal importance of somatic death • describe the criteria to declare the death • describe the criteria of declaration of death in ICU • describe the psychological, ethical, scientific issues of death • describe the duty of a doctor in relation to death • mention appropriate ways of issuing death certificate • describe the role of death statistics & death audit in health service	• Definition, types and moment of death • Signs of somatic death • Brain death(criteria of declaration in ICU) • Suspended animation • Sudden death • Psychological, ethical, scientific issues of death • Duty of a doctor in relation to death • Death certificate • Death statistics & death audit	• Forensic medicine & Toxicology • Community Medicine & Public Health • Pathology • Medicine
Poisoning	• define poison(medically and legally) • classify poison • describe the aims and objectives/principles of management of poisoning • mention the common routes and mode of poisoning • describe the legal aspects of poisoning	• Definition of poison • Classification of poison • Domestic poison; Intended poison; occupational poison • Management of poisoning case • Duties of a doctor in a poisoning case • Laboratory diagnosis in a poisoning case. • Post mortem Findings & medico legal aspects of poisoning	• Forensic medicine & Toxicology • Community Medicine & Public Health • Pharmacology • Medicine

Substance abuse	• define substance abuse • mention the causes of substance abuse • list the drugs used as substance abuse • describe the mechanism; clinical manifestation, complications & diagnosis of substance abuse (amphetamine(yaba), cannabis, solvent abuse, drunkenness, drug addiction) • describe the forensic aspect related to the substance abuse • mention the health & social hazards with its impacts • list the crimes related to substance abuse • outline the treatment and rehabilitation of substance abuse • list the strategies to prevent substance use	• Definition of substance abuse • Drugs used for substance abuse • Amphetamine (yaba); Cannabis; LSD, Cocaine, solvent abuse, Drunkenness • Features and diagnosis of substance abuse • Management of substance abuse • Forensic aspect related to substance abuse • Health & social hazards and its impact • Crime related to substance abuse. • Strategies to prevent substance abuse	• Forensic medicine & Toxicology • Community Medicine & Public Health • Pharmacology • Medicine/Psychiatry
Pulmonary Tuberculosis	At the end of the session students will be able to: • explain epidemiological approach to overcome Pulmonary Tuberculosis • describe the microbes (structure, antigenic component and staining characteristics). • explain the pathogenesis of this disease • outline the diagnostic approaches (clinical presentation and diagnosis) • enumerate the drugs used • mention the adverse effects of drugs	• Epidemiology of Pulmonary Tuberculosis • National guideline of tuberculosis treatment • MDR-TB • XDR-TB • Extra-pulmonary Tuberculosis • Drug interactions of different anti-TB drugs • Role of Steroid in fulminant tuberculosis • Complications and Concomitant immuno-suppressive illness	• Pharmacology • Microbiology • Pathology • Community Medicine Respiratory Medicine/ Medicine • Forensic Medicine & Toxicology
Malaria	At the end of the session students will be able to understand: • mention the prevalence of malaria • enumerate the causative agents of malarial fever • explain the pathophysiology of different types of malaria and organs involved • outline the diagnostic approaches (clinical presentation and diagnostic tools) • list the drugs used in malaria (uncomplicated, complicated severe and prophylaxis) • mention adverse effects of anti-malarial drugs	• Prevalence of Malaria • Causative agents • Pathophysiology of different types of Malaria and organs involved • National guideline of Malarial treatment • Cerebral Malaria and Treatment of Acute, Chronic, cerebral malaria. • Drug approach in pregnancy and other complications.	• Pharmacology • Microbiology • Pathology • Community Medicine • Medicine • Forensic Medicine & Toxicology

Pharmacology & Therapeutics

Departmental Objectives:

The objective is to provide a need based integrated "Basic Pharmacology for a safe and effective prescribing" course so that the students on graduation will be competent to:

- Describe the pharmacological effects, mechanisms of action, pharmacokinetic characteristics and adverse reactions of drugs in order to be able to prescribe safely and effectively.
- Describe the basic principles and concepts considered essential for rational (effective, safe, suitable and economic) prescribing and use of medicines in clinical practice.
- Understand the principles of rational prescribing and the basis of utilizing the principles of rational evaluation of therapeutic alternatives.
- Recognize, manage and report the adverse drug reactions (ADRs) and drug interactions.
- Obtain informed consent by providing enough information about disease(s), treatment(s) and alternative options available, in order to allow the patients to make informed decision about their treatment.
- Identify and assess objectively the drug information sources.
- State the Essential Drug List and principles underlying the "Concept of Essential Drugs", and apply them appropriately in community oriented health care delivery service.
- Recognize the implications of poly pharmacy and other means of irrational prescribing, identify influences favouring irrational prescribing and develop means to resist them.
- Evaluate the ethical and legal issues involved in drug prescribing, development, manufacture and marketing.
- Acquire methods of learning needed for evaluation of existing and new drugs and to follow trends and approaches in pharmacological research.
- Develop attitude for continuous self learning and professional development throughout their practicing life.

List of competencies to acquire:

A) Knowledge and Understanding

- Basic pharmacodynamics (effects, mechanism), and clinical pharmacokinetics required for safe and effective prescribing.
- Adverse Drug Reactions (ADRs): recognizing, management & reporting
- Basic principles & concepts essential for rational (effective, safe, suitable and economic) prescribing and use of drugs in clinical practice.
- Concept of essential drugs and selection of essential drug list for use in community oriented health care services.
- Drug information sources: access to unbiased drug compendia and use of standard treatment guidelines , formularies to support safe and effective prescribing

- Ethics of Prescribing: Informed patient consent about disease, treatment given and alternative options available.
- The ethical and legal issues involved in drug prescribing, development and marketing.

B) Skill –

- Taking drug history.
- Prescription writing: choosing safe & effective drugs and appropriate dosage formulations.
- Selecting appropriate drugs (P Drug) to support rational prescribing considering efficacy, safety, suaitability and cost.
- Recognizing, managing and reporting Adverse Drug Reactions (ADRs) and drug interactions.
- Obtaining accurate objective information to support safe and effective prescribing.
- Prescribing drugs for special groups: elderly, children, pregnancy, breast feeding mothers, renal &/or hepatic impairment or failure.
- Getting informed consent from patients
- Analyzing new evidence:
    - Reading, assessing and critically analyzing clinical trial results
    - Practicing evidence based medicine
    - Assessing the possible benefits and hazards of new therapy

C) Attitude –

- Continuous self learning to keep their knowledge & skill uptodate through continuous professional development.
- Communicating with patients regarding disease, the drug treatment and alternative options to obtain informed consent and respecting patients' own views and wishes in relation to drug treatment.

Distribution of teaching - learning hours

Lecture	Tutorial	Practical and Demonstration	Clinical Case Report	Total teaching hours	Integrated teaching hour for Phase II	Formative Exam		Summative exam	
						Preparatory leave	Exam time	Preparatory leave	Exam time
100 hrs	30 hrs	50 hrs	15 hrs	195 hrs	15	10 days	15 days	10 days	15 days
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase									
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions									

Teaching-learning methods, teaching aids and evaluation

Teaching Methods				Teaching aids	In course evaluation
Large group	Small group	Self learning	Others		
Lecture	Tutorial Practical & Demonstrations	Assignment	Integrated teaching/ Assignment with presentation, clinical case report Block Placement at the end of term II	Laptop, Multimedia, Microphone, Speaker, Overhead Projector with Screen, Laser pointer, Slide Projector, Black Board, White Board, Marker, Duster, Tracing paper, showing drug effect, reference books	Item Examination Card final (written) Term Examination Term final (written, oral and practical)

2nd Professional Examination:
Marks distribution of Assessment of Pharmacology & Therapeutics:

Total marks – 300

Formative assessment marks=10

- Written = 90
  [MCQ=20 (Multiple True False-10 + SBA-10),
  SAQ+SEQ = 70
  Making a total of 100 marks
- Structured Oral Examination (SOE) = 100
- Practical : 100
  OSPE =40 (08 procedure stations, each having 05 marks]
  Traditional =60 (Prescription writing 10, Drug interaction 05 x 02 =10,
  Tracing and plotting = 10, Integrated teaching and Case report = (5+15) = 20,
  Practical notebook =10)

Term I

Learning Objective	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
A. <u>GENERAL PRINCIPLES OF PHARMACOLOGY</u> At the end of the course students shall be able to: • describe the role and scope of pharmacology • understand the principles of drug disposition (kinetics)-absorption, distribution, metabolism and excretion • understand the basic principles related to cellular and molecular aspects of drug action (dynamics), selectivity, specificity and quantitative aspects of drug action • recognize adverse drug reactions, interactions and problems of drug misuse and abuse • describe the ethical, legal and economic aspects of prescription writing and compliance	**A. GENERAL PRINCIPLES OF PHARMACOLOGY** **Lectures:** **01: Introducion to Pharmacology** **02: Drug Compendia (Information sources)** Pharmacopoeiea, Formulary, Treatment guidelines (BP, INN, BNF and BDNF) **03. Drug Administration** Routes, drug delivery and formulations for local & systemic effects **04: Drug Absorption** Transfer of drugs across cell membrane & specialized barriers, Factors influencing absorption **05: Bio-availability** Studies to compare bio-equivalence & to monitor therapy **06: Drug Distribution** V_d, Plasma protein & tissue binding, redistribution **07: Drug Metabolism** Where, why and how of bio- transformation, hepatic microsomal enzymes- induction & inhibition Genetic influence on Drug metabolism (Pharmacogenetics)	**Lectures/ Practical/ Tutorials/ Assignments**	**12 hrs**	**Three item Examinations (Item 1,2,3)**

Learning Objective	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
	08: Drug Elimination Routes, Renal Excretion & factors influencing renal excretion **09: Clinical Pharmacokinetics** V_d, Cl, First & Zero order kinetics of Elimination, $t_{½}$, Steady state concentration, loading dose & maintenance dose **10: Pharmaco-Dynamics:** Specific and non specific mechanisms Receptors involved Second messenger system Enzyme mediated drug action **11: Quantitative aspects of drug action** Dose-response relationships & curves Therapeutic Index and window-importance Information obtained from D-R curves Agonists – efficacy, potency, shift of curves Antagonists - efficacy, potency, shift of curves **12:Individual variations in drug responses** **13. Drug Interaction at different levels** 14: **Drug safety and Pharmacovigilance** Adverse drug reactions: Types, detecting & managing ADR ADR monitoring & reporting			

Learning Objective	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
B. AUTONOMIC PHARMACOLOGY At the end of the course the students will be able to: ▪ Understand the organization of autonomic nervous system, physiology of neuro-chemical transmission, co-transmission and their pre and post synaptic modulation ▪ Understand the physiology of cholinergic neurotransmission, classify the cholinoceptors and identify the drugs affecting cholinergic transmission and cholinoceptors	**B. AUTONOMIC PHARMACOLOGY** **Lectures:** **01: Introduction** Organization of ANS – sympathetic, parasympathetic, and enteric NS. Transmitters in ANS (ACh, NA, NANCs) Co-transmission, pre and postsynaptic modulation Cholinergic neurotransmission & drugs modifying the events, Cholinergic receptors **02: Cholinergic Drugs** Effects of the stimulation of Cholinoceptors Classification of cholinergic drugs – cholinoceptor agonists and anti-cholinesterase **03: Drugs for Glaucoma** Role of Cholinergic drugs compared to other drugs **04: OPC insecticide poisoning** Manifestation & management **05: Anti-cholinergic Anti-muscarinic** Atropine and atropine substitutes **06: Anti-cholinergic anti-nicotinic** Classification – Neuromuscular blockers & their role as skeletal muscle relaxant during anaesthesia Ganglion blocker (names only) (No-6 red part to be deleted) **07: Adrenergic neurotransmission** Drugs modifying the events Adrenergic receptors Effects of stimulation of adrenoceptors	**Lectures/ Practicals/ Tutorials/ Assignments**	**10 hrs**	**Two item Examinations (Item 4,5)**

Learning Objective	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
	08: Adrenergic Drugs: Classification Adrenergic inotropic agents & their role in therapy Role of Adrenaline, Noradrenaline, Isoprenaline, Dopamine & Dobutamine in therapy Adrenergic vasoconstrictors, nasal decongestants **09: Selective β_2 agonists as Bronchodilators, Other bronchodilators** used in bronchial asthma **10: α–adrenoceptor antagonist** Role of selective α_1 antagonist in therapy **11: β- adrenoceptor antagonist** Role of **β** blockers in therapy			

Learning Objectives	Core-Content	Teaching-Learning Strategies	Teaching Hours	* Evaluations
RENAL & CARDIOVASCULAR PHARMACOLOGY Students will be able to: • Classify or list drugs which affect the Cardiovascular System • Identify their pharmacological effects • Interprete mechanisms of actions, kinetics and toxicity • Correlate these knowledge to form the basis for their rational use in a given clinical situation	**Renal & Cardiovascular Pharmacology Lectures :** 01: **Diuretics** Classification of diuretics: based on sites & mechanism of action and efficacy Pharmacology of Thiazides, Loop, Potassium sparing diuretics: their role in therapy edema and hypertension 02: **Drugs used in hypertension** Epidemiology and pathophysiology of hypertension, Objectives of anti-hypertensive therapy, Classification of anti-hypertensive drugs. Pharmacology of Diuretics, β blockers, Ca channel blockers, ACE inhibitors, Angiotensin receptor antagonists, α blockers, α methyl dopa, Vasodilaotrs Principles of selection of drug in different clinical situations 03: **Drugs used in congestive cardiac failure** Pathophysiology of heart failure Objectives of therapy Drugs used in CCF: Diuretics, ACE inhibitors & ARBs, Selective β-blockers, (Additional) Cardiac glycosides, vasodilators, Phosphodiasterase inhibitors. 04: **Antianginal drugs** Pathophysiology of angina, Objectives of therapy Drugs used in angina: Nitrates, **β-** blockers, Ca^{2+} channel blockers. **05. Antiarrhythmic Drugs** Pathophysiology of arrhythmia Pharmacology of antiarrhythmic drugs	**Lecture/ Tutorial/ Class Assignments**	**08 hrs**	**Two item Examinations (Item 6, 7)**

Learning Objectives	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
HEMATOPOIETIC PHARMACOLOGY Students will be able to: • Classify or list drugs which affect the hematopoietic system • Identify their pharmacological effects • Interprete mechanisms of actions, kinetics and toxicity • Correlate these knowledge to form the basis for their rational use in a given clinical situation	**HEMATOPOIETIC PHARMACOLOGY** **Lectures:** 01: **Anticoagulants & Thrombolytics** Pathophysiology of thrombo-embolism Pharmacology of Anti-coagulants: Heparin and LMW heparin, warfarin. Pharmacology of thrombolytics: Streptokinase, Alteplase, Reteplase etc. 02: **Antiplatelet drugs** Pharmacology of low dose aspirin, clopidogrel, glycoprotein IIb/IIIa inhibitors and their role in therapy 03: **Lipid regulating drugs** Pharmacology of statins. fibrates, nicotinic acid, resins etc. 04: **Drugs for anaemia** Pathophysiology of anaemia Pharmacology of hemopoeitics iron, folic acid, vit B_{12} Pharmacology of erythropoietin **ADDITIONAL CONTENTS (–SEEMS IRRELEVANT, PLEASE DELETE)**	**Lecture/ Tutorial/ Class Assignments**	**07 hrs**	**One item Examination (Item 8)**

Learning Objectives	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
ENDOCRINE PHARMACOLOGY At the end of the session the students will be able to: ▪ understand the physiology of endocrine and metabolic systems • List the pancreatic islet hormones and understand their role in the control of blood glucose; define and classify diabetes; understand the diagnostic criteria and monitoring tests and describe the pharmacology of insulin and oral antidiabetic drugs. • List and describe the physiology of adrenocortical hormones. Identify the synthesis inhibitors & their role in therapy; describe the pharmacology of adrenocorticosteroids to assess their role in therapy as anti-inflammatory and immunosuppressive drugs	**Endocrine Pharmacology** **Lectures:** 01: **Endocrine Pancreas and control of blood glucose** Islet hormones, control of blood glucose Diabetes mellitus – types, diagnostic criteria, monitoring Insulin & preparations Oral Hypoglycemic agents Hypoglycemic reactions & management 02: **Adrenal cortex and drugs used in therapy** Adrenocortical hormones: synthesis & blockers; Control of secretion, mechanism of action Pharmacological actions, uses and preparations Adverse effects 03: **Reproductive system** Hormonal control of female reproductive system Estrogens & anti-estrogens Progesterone & anti-progesterone Hormone replacement therapy **(HRT)** Drugs used for contraception 04: **The Uterus** Drugs that stimulate uterine contraction (oxytocics) Drugs that inhibit uterine contraction 05: **The Thyroid** Synthesis, storage & secretion of thyroid hormones Thyroid functions & regulations Abnormalities of thyroid function Drugs used in disease of thyroid	**Lectures/ Practicals/ Tutorials/ Assignments**	**07 hrs**	**One item Examination (Item 9)**

Learning Objectives	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
Gastrointestinal Pharmacology Students will be able to: • Classify or list the drugs affecting GIT • Identify pharmacological effects of the drugs • Interpret the mechanism of action, kinetics of the drugs and their toxicity • Correlate the gained knowledge to form the basis for rational use of medicines in a given clinical situation	**Gastrointestinal Pharmacology** **Lectures** 01: **Drugs used in Peptic ulcer** Pathophysiology of peptic ulcer Therapeutic goal and approach Antacids, H_2- blockers, Proton pump inhibitors, gastric cytoprotective agents, Helicobactor pylori eradication regimen Gastroprokinetic drugs and other agents 02: **Drugs to treat diarrhoea** Epideiology, Principles of management Fluid and electrolyte replacement Selection of route and preparations ORS and different IV fluids Role of Antimicrobial drugs Antimotility drugs 03:**Drugs used in helminthiasis** 04: **Laxatives** 05: **Drugs for Inflammatory Bowel Diseases (IBS) & Irritable Bowel Syndrome (IBS)** **06: Anti-emetic and Pro-kinetic drugs**	**Lecture/ Tutorial/ Class Assignment**	**06 hrs**	**One item Examination (Item 10)**

Term II

Learning Objectives	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
Pharmacology of Drugs Acting on CNS Students will be able to: • Classify or list of drugs acting on Central Nervous System • Explain the mechanisms of action, kinetics and toxicity of these drugs • Describe the uses, administration, adverse effects & precautions of drugs used in diseases of CNS	**Central Nervous System** **Lectures:** 01:**Introduction to CNS Drugs** Neurotransmitters of CNS (distribution, ion channel) general characteristics of CNS drugs 02: **Opioid analgesic** Pathophysiology of pain, Pain pathway, endogenous opioids and opioid receptors Opioids: morphine, codeine, pethedine, tramadol, fentanyl used as analgesics compared. Role of morphine in myocardial infarction and pulmonary edema. Other clinical uses of opioids 03: **Anxiolytics and hypnotics** Pathophysiology of sleep Benzodiazepines and other non-BDZ sedative-hypnotics Centrally acting muscle relaxants 04: **Antidepressant drugs** Neurochemical basis of depression TCAs, SSRIs, MAOIs and other atypical antidepressants, Anti-manic drugs 05: **Antipsychotic drugs** Neurochemical basis of psychosis Pharmacology of anti-psychotic drugs: 06: **Local anaesthetic** Drugs, mechanism of action, techniques of local anaesthesia, uses and hazards	**Lecture/ Tutorial/ Class Assignment**	**15 hrs**	**Three item Examinations (Item 11, 12, 13)**

Learning Objectives	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
	07: **General anaesthetics** Principles of General Anaesthesia Preanaesthetic medication, Balanced Anaesthesia Induction & Maintenance: Intravenous anaesthetics &Inhalation anaesthetics (nitrous oxides, halothane, fluranes) 08: **Skeletal muscle relaxation** Depolarizing and Non depolarizing 09: **Antiparkinsonian Drugs** Pathophysiology of Parkinson's diseases Pharmacology of antiparkinsonian drugs 10: **Antiepileptics/Anticonvulsants** Pathophysiology of epilepsy Pharmacology of antiepileptic drugs			

Learning Objectives	Core-Content	Teaching-Learning Strategies	Teaching Hours	* Evaluations
Student will be able to • describe:the role of biogenic amines & prostaglandins in health & diseases • explain their mechanism of actions, pharmacological effects, kinetics and toxicity • correlate these knowledge to form the basis for rational use of drugs in a given clinical situation	**Autacoids and drugs used in inflammation** **Lectures:** 01: **Autacoids** Definition and lists of autacoids **Histamine:** synthesis, storage & release, pharmacological actions & physiological role **Histamine antagonist:** H_1 antagonists: classification, role in allergic conditions & other clinical uses and adverse reactions H_2-receptor antagonists: role in peptic ulcer (covered with GIT Pharmacology) 02: **Ecosanoids** Prostaglandins, Leukotrienes, Platelet Activating Factor (PAF) Synthetic pathways & antagonists Physiological roles, pharmacological actions and possible clinical uses of synthetic analogues and antagonists 03: **NSAIDs / Non-opioid analgesics delete red part* of the line** Paracetamol (mechanism of antipyretic and analgesic action, adverse effects) Other NSAIDs (mechanism of action, adverse effects and precaution) Selective COX II inhibitors 04. **Drugs for Migraine**	**Lecture/ Tutorial/ Class Assignment**	**06 hrs**	**One item Examination (Item 14)**

Learning Objectives	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
CHEMOTHERAPY Students will be able to: • Classify or list each group/ class of antimicrobial drugs • Understand & explain the mechanism of action, kinetics and toxicity of the antimicrobial drugs • Describe the clinical uses, administration, adverse effects of different antimicrobial drugs used in different clinical situations and the precautions that should be taken before their use • Correlate the gained knowledge to form the basis for rational use of medicines in a given clinical situation	**CHEMOTHERAPY** **Lectures:** 01: **Introduction** General concept, Mode of action & Classification of antimicrobials Principles of antimicrobial therapy 02: **Drug Resistance** Mechanism of development of drug resistance by microbes 03: **Cell wall synthesis inhibitors** Penicillins Cephalosporins Other β-lactams Non β-lactam antibiotics 04: **Protein Synthesis Inhibitors** Aminoglycosides Tetracyclines Macrolides Chloramphenicol Newer Protein synthesis inhibitors 05: **Sulfonamides & Cotrimoxazole** Sulfonamides combinations, Topical uses Cotrimoxazole 06: **Quinolones & Fluoroquinolones** 07: **Anti Amoebic Drugs :** Metronidazole and other uses of Metronidazole 08: **Drugs used in Tuberculosis** 09: **Drugs used in Leprosy** 10: **Drugs used in Malaria & Kala-Azar** 11: **Drugs used in Fungal Infections** 12: **Drugs used in Viral Infections** 13: **Cancer Chemotherapy** **14. Anti Helminthic Drugs**	**Lecture/ Tutorial/ Class Assignment**	**25 hrs**	**Five item Examination (Item 15, 16, 17,18, 19)**

Learning Objectives	Core Contents	Teaching-Learning Strategies	Teaching Hours	* Evaluations
CLINICAL PHARMACOLOGY Students will be able to: • state the principles of rational prescription • identify means of irrational prescribing and consequences • take measures to prevent irrational prescribing • select essential drugs in common diseases from EDL • select P drug – in some clinical situation • correlate these knowledge to form the basis for rational use of drugs in a given clinical situation	**CLINICAL PHARMACOLOGY** **Lectures:** 01: **Rational Prescribing** General Principles, cuses & consequences of irrational prescribing, Measures to prevent irrational prescribing 02: **Essential Drug concept** Definition, Selection criteria, Essential Drug List Rationale for prescribing from this Drug List 03: **'P' Drug concept** Definition, Selection criteria, selection of 'P' Drug for some clinical situations 04: **Drug selection for some special clinical conditions:** Pregnancy, Lactating mother, elderly, children, renal / hepatic failure or impairment 05: **Anti Microbial Resistance and how to overcome the indiscriminate use of antimicrobials**	**Lecture/ Tutorial/ Class Assignment**	**04 hrs**	**One item Examination (Item 20)**

Pharmacology Practicals

Learning Objectives	Core Contents	Teaching Hours
GENERAL PRINCIPLES OF PHARMACOLOGY **PRACTICALS:** Laboratory experiments and demonstrations have been designed to help students to achieve: - the ability to relate the principles and concepts to specific clinical situations At the end of the course, students shall be able to: • identify different dosage formulations and their usage • understand, interpret and analyze experimental data relating to drug disposition • oberve, analyse and compare the drugs action using the previously developed printed papers on experimentally prepared isolated and whole animal tissue	**GENERAL PRINCIPLES OF PHARMACOLOGY** **1. Prescription writing** Format, legal & ethical aspects, drug nomenclature, compliance and Exercise on Prescription Writing **2. Drug Dosage Formultions** Source & Routes of drug administration Drug Formulation & Delivery Techniques Exercise on Drug Dosage Formulations **3. Clinical Pharmacokinetics** Study of Time-Plasma Concentration Curves Determination of $t_{½}$, V_d, Cl, K_e, steady-state concentration, Loading & Maintenance dose **4. Study of Pharmacodynamics** **i. Study of Dose Response Relationship** Construction of Log Dose-Response Curves **ii. Study of Drug Antagonism** Construction of Log Dose-Response Curves in presence of Antagonists **5. Adverse drug Reaction** – Exercise on ADRs reporting & monitoring	 05 hrs 05 hrs 04 hrs 04 hrs 04 hrs

Learning Objectives	Core Contents	Teaching Hours
AUTONOMIC PHARMACOLOGY **PRACTICALS:** Laboratory experiments and demonstrations have been designed to help students to achieve: - the ability to relate the principles and concepts to specific clinical situations At the end of the session , students shall be able to: • understand, interpret and analyze experimental data relating to drug disposition • oberve, analyse and compare the drugs action using the previously developed printed papers on experimentally prepared isolated and whole animal tissue	**AUTONOMIC PHARMACOLOGY** **1. Interpretation of Tracings on Blood Pressure** Demonstration of presence of Autonomic receptors **2. Study of Effect of Drugs on Skeletal Neuromuscular Junction** Demonstration of presence of Nicotinic receptors & effect of competitive reversible & irreversible neuromuscular blockers on them	06 hrs 02 hrs

Learning Objectives	Core Contents	Teaching Hours
CLINICAL PHARMACOLOGY **PRACTICALS:** Exercises have been designed to help students to understand the principles and concepts related to rational prescription. At the end of the session, students shall be able to: • evaluate drug information sources • understand the principles of rational prescription & essential drug concept • select P drug • interprete and analyse the prescription supplied	**CLINICAL PHARMACOLOGY** **1. Drug Information Sources** Acomparative study of the 'Prescribing binformation of Drugs' as probided by the Manufacturers' Product Literatures and the authentic Drug Compendia (British National Formulary/ Bangladesh National Formulary) 2. **Essential Drug Concept** Exercise on selection Essential Drugs 3. **'P Drug' Concept** Exercise on selection 'P Drugs for different clinical situations & preparation of student formulary 4. **Prescription Audit** Exercise on 'Prescription Audit' using INRUD indicators	05 hrs 05 hrs 04 hrs 06 hrs

Pharmacology Tutorial

Learning Objectives		Contents	Teaching Hours
Students will be able to: • list each group/class of dugs • explain the mechanisms of action and Describe the uses, administration, kinetics, adverse effects & precautions of used in different clinical conditions • state the principles of rational prescription	**TERM I**	**General Pharmacology:** Pharmacokinetics and Pharmacodynamics **Autonmic Pharmacology:** • Review of Cholinergic–Anticholinergic drugs • Revives of Adrenergic–Antiadrenergic drug • Drugs acting on Renal & CVS • Review on Endocrine drug • Drugs for Bronchial asthma, PUD, Anemia	20 hours

	Term II	• Drugs ued in Anxiety, sleep disorder • Drugs used in depression, epilepsy and parkinsonism • Autacoids & NSAIDs • Chemotherapy for specific infections: Shigellosis, Enteric fever, ARIs, UTIs, malaria, tuberculosis, fungal infections • RUM: Principles of Rational prescribing & means to resist pressure for irrational prescribing, Essential Drug Concept	10 hours
	Clinical case studies & presentation – 5 clinical Cases		**15 hours**

Department of Pharmacology & Therapeutics

Clinical Pharmacology Case Report

Name of the Student :

Class Roll no :

Remarks of the Batch Teacher :

Signature of Professor of Pharmacology & Therapeutics

Particulars of the Patient

Personal history

Name of the patient: Age:

Education: Occupation:

Socio-economic Status: Ward/Bed:

Date of Admission: Date of discharge:

History of past illness (including Drug History)

Description of present illness (History & Clinical Findings)

Investigation done with results:

Provisional diagnosis:

Treatment given:

Drug therapy given

(mention the exact brand name written in the treatment sheet and their corresponding generic name):

Result &Outcome of the treatment:

Make a Summary of the Case Report (Stating personal history, complaints, clinical findings, reports of investigations done, diagnosis made, treatment given & outcome of the treatment)

A. Discussion about therapeutic problem & drug therapy given

1. Define the therapeutic problem(s) of the case you have reported.
2. Did the drug(s)/ treatment given address all the therapeutic problem?
   Yes/No
   Relate the treatment/drugs given to specific therapeutic problem.
   If no, explain why?
3. For each drug given, was their other alternatives?
4. Considering the drug(s) given & the alternatives, whether the choice was MOST appropriate **(**Consider effectiveness of drug, Risk & Cost, Route of Administration, Dosage, Frequency & Duration of Therapy and Patient's Factors like Age, Pregnancy & Diseases**).**

B. Comments on Prescription

1. Were the drug (s) written in capital letters?
2. Was the route of administration, dosage, frequency & duration of therapy properly mentioned?
3. Was the patient warned about possible adverse effects of each drug & how to avoid them?
4. Was the antimicrobials prescribed rationally (when given) ?

C. Report on Adverse Effects

Was there any reported adverse effects in this case?

If yes, what are the clinical manifestations & how they have been managed?

D. Final Comments

E. Drug Discussion

Brief information about the drug(s) used in the therapy (including Generic name/ International Non-proprietary name, Pharmacological effects, Mechanism of action, Metabolism and Elimination, Important drug-drug and drug-food interactions)

Signature of the student

Department of Pharmacology & Therapeutics

In-Course Evaluation Card of the Student

Name of Student:

Year: Roll No.: Batch: Session:

Address:

SSC Exam Year: GPA:

HSC Exam Year: GPA:

Admission in Medical College:

First Professional Examination Passed in_____at first/second/third chance

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For Official Use Only

	TERM I		TERM II		FINAL	
	Held	**Attended**	**Held**	**Attended**	**Held**	**Attended**
Lecture						
Practical						
Tutorial						
Seminar/ Integrated teaching						

Head of the Department

Department of Pharmacology & Therapeutics

_____ Medical College

In-Course Evaluation Card of the student

TERM I

SL No	Title and contents	Marks	Initial of teacher
	TERM I		
01.	General Pharmacology • Introduction to Pharmacology and its branches • Important definitions • Sources of Drug, Nomenclature and Dosage Formulation • Drug compendia (BNF, BDNF) • Routes of Drug Administration		
02.	Pharmakokinetics • Absorption, Bio-availability and drug distribution • Biotransformation and Excretion		
03.	Pharmacodynamics • Mechanism of Drug Action • Enzyme mediated drug action		
04.	Quantitative aspects of drug action • Dose response relationship and curve • Therapeutic Index and Window • Drug Antagonism • Adverse drug reaction (ADR)		
05.	Drug interaction at different level		
06,	Drug safety and Pharmacovigilance		
07.	Autonomic Pharmacology • Cholinergic agonists and antagonists • Adrenergic agonists and antagonists • Drugs used in Glaucoma • Drugs used in different types of Shock • Respiratory Pharmacology		
08.	Diuretics and Drugs used in Hypertension		
09.	Antianginal, Antiarrhythmic, Antiplatelet, Anticoagulant, Fibrinolytic, lipid regulating drugs Drugs used in heart failure		
10.	Hematinics		
11.	Drugs used in Diabetes Mellitus Steroidal agents Drugs for hypothyroidism and Anti-thyroid Drugs Hormonal Contraceptives Drugs acting on Uterus and HRT		
12.	Gastrointestinal Pharmacology • Drugs used in PUD • Antidiarrhoeal agents • Laxatives and purgatives • Drugs used in IBD • Anti-emetic and prokinetic drugs		
FIRST TERM EXAMINATION			

Students' In-Course Evaluation Card (contd.)

TERM II

01.	**Central Nervous System** • Drugs used in anxiety and sleep disorder: • Benzodiazepines and Non-Benzodiazepines • Antipsychotic, Antidepressant, Antiparkinsonian and Anticonvulsant drugs • Opioid Analgesics, Anesthetics, Skeletal muscle relaxants • Drug dependence, Tolerance, Addiction & Tachyphylaxis		
02.	**Autacoids** • Ecosasnoids • Prostaglandin analogues • Antihistamines • Serotonin agonist and antagonists • Drugs used for Migraine		
03.	NSAIDs		
04.	**General aspects of chemotherapy** • Principles of AMA • Hazards of AMA, Superinfection, Masking of Infections & PAE • Chemoprophylaxis		
05.	**Cell wall synthesis inhibitors** • Penicillin, Cephalosporin, other β-lactams • Non β lactam antimicrobials		
06.	**Protein Synthesis Inhibitors** • Aminoglycosides • Tetracyclines • Macrolides • Chloramphenicol • Newer Protein synthesis inhibitors		
07.	**Sulfonamides & Cotrimoxazole** • Sulfonamides combinations, Topical uses • Cotrimoxazole		
07.	**Quinolones & Fluoroquinolones**		
08.	Drugs used in Tuberculosis, Leprosy, Malaria, Kala-azar, Amebiasis (Also other uses of Metronidazole),Filariasis and Helminthiasis		
09.	Antifungal, Antiviral, Anti-scabies and Cancer Chemotherapy		
10.	**Clinical Pharmacology** • Essential drug concept • Rational prescribing • "P" drug concept • Drug selection for some special clinical conditions • Antimicrobial resistance		
SECOND TERM EXAMINATION			

Summative Assessment of Pharmacology & Therapeutics
Assessment Systems and Mark Distribution

Components	Marks	Total Marks
Formative assessment	10	10
WRITTEN EXAMINATION MCQ(Multiple True-False+SBA) SAQ+SEQ	 20 70	90
PRACTICAL EXAMINATION Traditional Practical Examination OSPE	 60 40	100
ORAL EXAMINATION (Structured) 2 Boards	50+50	100
	Grand Total	**300**

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- There will be separate Answer Script for MCQ
- Pass marks 60 % in each of theoretical, oral and practical

Summary of the Pharmacology Academic Program

	Term I	Term II	Total Teaching hours
Lectures/Revision	50 hours	50 hours	100 hours
Practicals & Demonstrations	30 hours	20 hours	50 hours
Tutorials	20 hours	10 hours	30 hours
Clinical case report Assignment with presentation		15hours	15 hours
Total	100 hours	95 hours	**195 hours**

PHARMACOLOGY COURSE ORGANIZATION

TERM I		TERM II	
REGULAR		REGULAR	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	21—26	27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46	47-52
Total hours for lecture	**= 50 hours**	**Total hours for lecture**	**= 50 hours**
General Principles of Pharmacology	= 12 hours	Central nervous System	= 15 hours
Autonomic Nervous System	= 10 hours	Autacoids and Dugs used in Inflammation	= 06 hours
Renal and Cardiovascular Pharmacology	= 08 hours	Chemotherapy	= 25 hours
Haemopoietic Pharmacology	= 07 hours	Clinical Pharmacology	= 04 hours
Endocrine Pharmacology	= 07 hours		
Gastrointestinal Pharmacology	= 06 hours		
Total hours for Practicals	**= 30 hours**	**Total hours for Practicals**	**= 20 hours**
Prescription writing	= 05 hours	Drug information Sources	= 05 hours
Dosage Formulations & Drug delivery techniques	= 05 hours	Essential Drug List	= 05 hours
Pharmacokinetic Study	= 04 hours	Exercise on selection of "P" drugs	= 04 hours
Pharmacodynamic Study	= 04 hours	Prescription Audit	= 06 hours
Exercise on ADR reporting form fillup	= 04 hours		
Study of autonomic receptor function	= 06 hours		
Study of drugs on Skeletal N-M junction	= 02 hours		

TERM I cont.			TERM II cont.	
Total hours for Tutorials	**= 20 hours**		**Total hours for Tutorials**	**= 10 hours**
General Pharmacology:			• Drugs ued in Anxiety, sleep disorder,	= 01 hours
Pharmacokinetics and	= 02 hours		• Drugs used in depression, epilepsy and parkinsonism	= 01 hours
Pharmacodynamics	= 02 hours		• Autacoid & NSAIDs	= 02 hours
Autonmic Pharmacology:			• Chemotherapy for specific infections: Shigellosis, Enteric fever, ARIs, UTIs, malaria, tuberculosis, fungal infections	= 04 hours
• Review of Cholinergic & Anticholinergic drugs	= 02 hours		• RUM: Principles of Rational prescribing & means to resist pressure for irrational prescribing Essential Drug Concept	= 02 hours
• Revives of Adrenergic& Antiadrenergic drug	= 02 hours = 04 hours			
• Drugs acting on Renal & CVS				
• Review on Endocrine drug	= 04 hours			
• Drugs for Bronchial asthma, PUD, Anemia	= 04 hours			

Forensic Medicine & Toxicology

Departmental Objectives:

At the end of the course in Forensic Medicine, the undergraduate student will be able to:

1. To produce competent, compassionate, reflective and dedicated health care professionals accoding to national goal. Practice medical and medico-legal works as per national goals and objectives.
2. Examine medico-legal cases and prepare reports or certificates in accordance with the law of land.
3. Perform medico-legal postmortem examination and interpret autopsy findings and results of relevant investigations to logically conclude the cause, manner and time since death.
4. Practice medicine ethically with humanly etiquette, discharge duties promptly and execute legal responsibilities of the physician toward his patient, profession, society, state and humanity at large.
5. Prevent and protect himself from medical and legal mishap.
6. Identify and apply relevant legal provisions applicable to the medico-legal and medical practice.
7. Collect, preserve and dispatch specimens in medico-legal case and other concerned materials to the appropriate Government agencies for necessary examination.
8. Diagnose, apply principles of management and understand medico-legal implications of common poisons.
9. Apply general principles of analytical, environmental, occupational and preventive aspects of toxicology.
10. Explain legal provision related to medical and medico-legal practice

List of Competencies to acquire:

1. Perform ethical medical practice and maintain proper doctor-patient relationship.
2. Capable to give deposition in the court of law as a medical expert.
3. Collect, preserve and dispatch the medico-legally important specimen.
4. Prepare, dispatch and store the proper medical records.
5. Perform proper examination of victim/assailant of physical assault and sexual assault.
6. Perform medico-legal examination (impotency, age determination, sex determination, mental fitness, mental state)
7. Perform medico-legal autopsy and interpret the findings.
8. Prepare certificates and medico-legal reports according to the law of the land.
9. Prepare referral or discharge certificate and death certificate properly and authentically as per ICD-10.
10. Supervise and guide the medical team/practitioner regarding the ethical and legal consequence related to medical issues.
11. Handling dead body ethically and morally.
12. Explain legal provision and guide members related to medical and medico-legal practice
13. Record the dying declaration.
14. Diagnose and declare the death of a person.

The goal of teaching forensic Medicine in the undergraduate medical course is to produce a physician who will be well informed and alerts about his/her medico-legal responsibilities and is capable of being discharging medico-legal duties in medical practice.

Finally, on the basis of above context, those who are concern with Forensic medicine should initiate the thinking to redesign the curriculum where appropriate and give emphasis on those aspects in teaching learning and assessment of the students in under graduate medical education in Forensic Medicine.

Distribution of teaching - learning hours

Lecture	Tutorial	Practical	Total teaching hours	Integrated Teaching hour for Phase III	Formative		Summative	
					Preparatory leave	Exam time	Preparatory leave	Exam time
100 hrs	45 hrs	40 hrs + 12 days (8 days at mortuary + 4days for court visit, Police Station, OCC visit & DNA/Forensic lab visit)	185hrs + 12 days	20hrs	07 days	12 days	07 days	12 days
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase								
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions								

Teaching-learning methods, teaching aids and evaluation

Teaching methods				Teaching aids	In course evaluation
Large group	Small group	Self learning	Others		
Lecture Integrated teaching	**Practical:** Demonstration, Exercise,project work **Tutoria**l: Classroom exercise, Question answering session, Brain-storming and discussion, Role play Problem solving exercise	Assignment, self study & self assessment	Video & slide presentation. Community Oriented teaching and learning. 10days in mortuary 6 days in OCC, Court visit, Police station visit & Forensic Lab visit	Multimedia. Camera (Still & Video);OHP), Slide Projector, Black board;Flip chart, Handout / Charts, Reading materials, Paper cutting/Film strip, Textbook Questionnaire, Video film or slide tape	Item exam Card final Term exam Term final exam (Written+SOE+ Practical)

3rd Professional Examination:

Marks distribution of Assessment of Forensic Medicine: Total marks – 300

- Written =100 (MCQ+ SEQ+ SAQ+ FA)
    - MCQ-20 (50% SBA+50% MTF),
    - SEQ(Structured Essay Question)-20,
    - SAQ-50 (Short Answer Question) +
    - FA(formative assessment) marks 10
- Structured Oral Examination= 100
- Practical=50, OSPE= 40 & Others (PM report, Injury certificate & Practical assaignment)=10

Related Equipments, Aids, Specimen / Models:

- Post-mortem video tape, TV, Cassette Player (available on different events/topics).
- Module on Teaching Health Ethics (WHO, CME and BM&DC)
- Module on mass disaster;
- Sexual Assault examination kit; MR Kit; Microscope; X-ray view box; chomaograph; X-ray film.
- Autopsy instrument set, dummy and photographs showing all major types of injuries and other cases.
- Specimen of poisons and related instruments (Ryles tube, stomach wash tube etc.)
- Weapons: Mechanical weapons, Firearms and ammunitions.

Learning Objectives and Course Contents in Forensic Medicine & Toxicology

Section -01: Introduction to Forensic Medicine
and
Recent advances in Forensic Medicine

Learning Objectives	Contents	Teaching hrs
At the end of session the student will be able to- • define forensic medicine, medical Jurisprudence. Differentiate forensic medicine from medical jurisprudence. • explain the attributes and skills of physician for successful medico-legal practice • describe DSD.Explain why combination of all tests are now practiced instead gene based test only. • define and classify consent.Describe the reason of taken consent.Identify the criteria of valid consent. • describe theelements of inform consent.List the indication of informed consent • list the documents constitute medical records.describe the medical and legal purpose of keeping medical record. • describe the reason for identification of dead in disaster. • describe the procedure of identification of deceased in disaster victim(DVI). • describe the legal issues related to age of child. • describe the types,management of sports injury. Explain the medicolegal aspect related to sports medicine. • describe the information provided by exam of a blood& hair • list the blood groups. Describe the Medico-legal issues of blood group. • differentiate hair from fiber, animal hair from human. • define DNA profiling. Describe the method of DNA profiling. • describe the samples collected for DNA profiling (living/dead) • describe the composition of semen; Mention its mL • describe the importance of visit of crime scene and function of forensic lab.	**Core** • Introduction to Forensic Medicine& its subdivision; medical jurisprudence • Recent advances in Forensic Medicine ○ Emerging issues in sex verification and disorder of sex development(DSD) ○ Medico-legal issues in **consent**; ○ **Euthanasia**: legal,social and humanitarian aspect ○ Legal and ethical issues in **medical records**. ○ Legal issues in End life care & Paliative care ○ **Age of child**: legal perspective ○ Analytic and Clinical toxicology • Mass disaster: Introduction, effect, management strategies, disaster victim identification (DVI). • Sports medicine (type, mechanism, management and prevention of sports injuries. • Forensic science: ○ **Trace evidence**(blood stain, blood group, hair, semen); ○ **DNA Profiling**. **Optional:** • *Forensic science*: ○ criminalistics, ○ crime scene investigation, ○ forensic lab. • Cybercrime, Basics of ICT. • History and landmarks of Forensic medicine • HLA typing and Bioinformatics	L-9hrs T-4hrs

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section-02: Legal aspect (Legal structure; court procedure)

Learning Objectives	Contents	Teaching hours
At the end of session the student will be able to- • define and classify courts Bangladesh. • describe the power and function of session courts and magistrate courts of Bangladesh. • define offence. Give examples of criminal offence. • define and enlist the sentence approved in law. describe death reference. • briefly describe various medico-legal systems . • define summon, evidence, deposition, perjury, dying deposition, witness, and hostile witness. • explain the parts of deposition. • describe the procedure of recording evidence/ deposition in court of law. • list the medical documentary evidences. Explain each type of evidence and witness. • describe the procedure of taken dying declaration. • differentiate dying declaration from dying deposition. • explain the conducts of a doctor as an ideal witness. • prepare medical certificate & report authentically as per expectation of court.	**Core:** • Legal structure (courts) of Bangladesh and their jurisdiction: o Supreme Court, High Court, Sessions Court, Additional Sessions Court, Magistrates Court, Metropolitan Magistracy. o Sentence o Medico-legal system of Bangladesh; coroners system; Medical examiners system; continental Medico-legal systems. • Legal (Court) procedures: o Summons: definition, duties o Evidence, perjury, deposition, parts of deposition, procedure of recording evidence, court questions. o Witness, types of witness, conduct of doctor in witness box. o Legal provision related for medical practice • Medical certification and Medico-legal reports including dying declaration and medical documentary evidence. **Additional:** o The Penal code; CrPc, Evidence act, Organ transplant act, Consumers protection act; MTP act; Workmen's compensation act o Legal terminology applicable in court procedure.	L-4hrs T-2hrs

Learning Objectives and Course Contents in Forensic Medicine & Toxicology

Section 3: Medical Jurisprudence (Medical ethics)

Learning Objectives	Contents	Teaching hours
The student will be able to – • define ethics, etiquette. Describe etiquettes of a good doctor. • explain the codes of Geneva declaration and its importance. • describe the duties as per International code of medical ethics. • explain the functions of BM&DC.Mention composition of it. • describe the procedure and type of disciplinary action taken by BM&DC. • describe the rights and privileges of a registered medical practitioner. • describe the rights of patients. Mention the duties of patients. • explain the responsibilities and duties of physician. • define professional secrecy and privileged communication. • describe the rules of professional secrecy. • describe the conditions in which the physician can ignore the rules of secrecy. • define Doctor Patient Relationship. Explain elements of it. • explain the skills of effective doctor patient relationship. • describe the issues in relation to DPR. • describe models of doctor patient relationship. • define infamous conduct, covering, dichotomy & malpraxis. • describe the component of infamous conduct with example. • explain the element to be proved in a plea of malpraxis. • differentiate civil from criminal malpraxis. • list the examples of criminal malpraxis and civil malpraxis. • explain the measures to prevent malpraxis. • explain the defenses of a doctor in malpraxis case. • describe therapeutic misadventure, medical maloccurance, product liabilities. • describe the procedure of dealing ethical dilemma and conflict. • describe the ethical and legal issues in end life care.	**Core** • **Medical ethics:** o WMA declaration Geneva declaration, international code of medical ethics o BMDC: Bangladesh Medical &Dental Council (BMDC), its constituents, functions and disciplinary control. professional death sentence. o Right & privilege, Duties. ➢ Rights and privileges of a doctor. ➢ Rights of patients. ➢ Dutiesof a medical practitioner toward patients & society, Professional secrecy & privileged communication. o Doctor-patient relationship; Component; Skills o Fairness and Equity; Specific Health Issues;Jargons in the field of medical ethics. o Code of Medical ethic of BMDC o Malpractice ➢ Ethical malpractice: Professional Infamous conduct ➢ Professional (Medical) Malpractice: civil and criminal Negligence ➢ Precautions, prevention & defences against pfofessional negligence. ➢ Vacarious liability, Contributory negligence, Corporate negligence; Res ipsa loquitor.Novus actus internen. o Medical maloccurance; Product liability. o Applied ethics and research ethics o Soft skill and humanities; End life care;palliative care **Additional:** • Code and law of medical ethics, its history • Tokyo declaration1975, Helsinki declaration .Other important WMA declaration • Ethical review board. Procedure of ethical review in a research proposal. Dealing ethical dilemma and conflict. • Organ transplant Act. MTP Act. Consumers Protection Act • Legal provision related to medical practice.	**L-10hrs** **T-04hrs**

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section 4: Forensic Pathology (L-24hrs; T-16hrs)

Learning Objectives	Contents	Teaching hours
The student will be able to- • define autopsy. Describe types of autopsy. • describe the objective of medico-legal autopsy. • describe the prerequisite of medico-legal autopsy. • describe the procedure of external and internal examination. • describe cause of negative and obscure autopsy. • describe the procedure of exhumation and second autopsy. • describe the rules of autopsy. Mention the hazards of autopsy. • list the viscera preserved for chemical analysis. • define inquest. Describe the content of an inquest. List the indication of magistrate inquest. • describe the safe working and proper utilization of a modern morgue and laboratory facilities. **Additional:** • describe the special procedure in HIV/Corona, custodial death, mutilated and highly decomposed. • describe the methods of dead body preservation. • describe the procedure of autopsy as per UNHCR	**Core** **01. Autopsy:** • Definition; Type; prerequisite; objective; • Procedure: external, internal (opening body cavity, 3rd incision, removal of viscera, internal exam) and laboratory procedure; Report writing; opinion. • Collection and dispatch of specimen. • Inquest report: definition, type, content, magistrate inquest. • Modern morgue. • Exhumation: definition, procedure; importance; 2nd autopsy. • Forensic anthropology: Post Mortem exam of mutilated and skeletal remains. **Additional:** • Virtual autopsy procedure,Academic autopsy; • Special Autopsy & disposal of radioactive corpse. • Recommendation of autopsy as per human right commission. • Clinical autopsy: Legal formalities,Procedure; Precaution; Importance • Methods of preserving dead body.	**L-5hrs** **T-4hrs**

Forensic Pathology-contt

At the end of session the student will be able- • describe the modes of death. Mention the unnatural death. • give examples of death due to asphyxia, coma and syncope. • describe the changes after death.Mention changes in eyes. • define hypostasis. Differentiate hypostasis from bruise. • define rigor mortis. • explain the mechanism, sequence of appearance and medico-legal importance of rigor mortis. • define putrefaction, adipocere formation & mummification. • describe the mechanism, cardinal sign, external features and medico-legal importance of putrefaction, adipocere formation and mummification. • describe the procedure to estimate time since death. • define sudden death. Describe the cause & ML imp of it. • list the postmortem artifacts. Explain its importance. • describe the autopsy finding to be looked in custodial death. • list the questions to be answered to assess the fatality and liability in anesthetic and operative deaths.	**Core:** **02. Death** • Mood and manner of death (natural/ unnatural) ➢ Asphyxia; syncope; coma • PM changes after death: ➢ Immediate ➢ Early change: skin change, eye change, cooling of body, hypostasis, rigor mortis ➢ Late change: putrefaction, adipocere formation and mummification • Post mortem artifacts: Resuscitative artifact, agonal artifact and postmortem artifact. • Sudden death. • Custodial death. • Anaesthetic and operative deaths. **Additional:** • Radioactive carbon(C_{14}) estimation • Forensic entomology • Death due to occupational and environmental hazards • Dead body management & handling in disaster	**L-6hrs** **T-3hrs**
The student will be able to- • define infanticide.Describe the signs of live born, stillborn and dead born. Differentiate live born from dead or stillborn. • describe the cause of death in case of infanticide and its modes of death. • describe maceration, spalding sign and umbilical cord change.	**Core** **03. Infanticide**: definition, legal bearing, cause of death, mode of death. a. Dead born(def, spalding sign, maceration) b. Live born c. Still born **Additional:** • Precipitated labor • Cot death, SIDS, foeticide • Death due to neglect	L-2hrs T-1hrs

Forensic Pathology-contt

The student will be able- • define hanging, strangulation, drowning, smothering, choking. • describe the types of hanging, strangulation & drowning. • describe postmortem findings of hanging, strangulation and drowning. • describe the cause of death and medico-legal imp of hanging and strangulation. • differentiate hanging from postmortem suspension and strangulation.	**Core:** **04. Violent asphyxial death:** ➢ Hanging: def, types, cause of death, mechanism of death, PM finding, ML imp. ➢ Strangulation: definition, type, throatling, ligature strangulation,cause of death,PMfinding,ML imp. ➢ Drowning: Definition, types, pathophysiology, PM findings, cause of death, ML imp. ➢ Suffocation: smothering, choking, and gagging.	L-5hrs T-3hrs
Students will be able to - • describe the medico-legal importance of crush syndrome. • describe the features of traumatic asphyxia. • describe the cause of traffic accident and objectives of autopsy in traffic wound. • explain the injuries sustained by pedestrian, driver, motorcyclist, and passenger. • describe the objectives of autopsy in traffic accident. describe importance of seat belt syndrome. • define forensic ballistic.classify firearms. list the composition of cartridge. Enumerate diferent cartridges. • differentiate exit from entry firearm wound. Describe the features of suicidal firearm arm injuries. • describe the composition of bomb and effects of bomb blast. • define joule burn. describe complication of electrocution. • describe the cause of death and postmortem features of electrocution.	**Core** **05.Wound: (L-6hrs; T-3hrs)** • ***Transportation wound***: ➢ Trauma in RTA; cause, preventive device (helmet, seat belt syndrome); ➢ Injuries sustained by pedestrian; driver, motorcyclist; passenger; Crush syndrome. ➢ Objectives of autopsy in traffic wounds. • ***Firearm and explosives***: ➢ Fire arms, cartridge composition, fire arm injuries (entry and exit) according to range, medico-legal aspect. ➢ Bomb blast and explosion • **Electrocution and lightning**. • **Autopsy (mass disaster) protocol** **Additional:** • Transportation: Trauma in Railway disaster; River traffic, Air crush.	**L-6hrs** **T-2hrs**

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section 5: Clinical Forensic Medicine (L-18hrs; T-12hrs)

Learning Objectives	Contents	Teaching hours
At the end of session the student will be able to- • define& classify death. Differentiate death from suspended animation.Mention the medico-legal importance of somatic death. • mention the signs of brain stem death. Describe the diagnostic criteria of brain death. • describe the criteria to declare death. Define death trance. Prepare death certificate as per ICT-10.	**01. Death:** ➢ Basic of death: definition, type, ML imp of somatic death; signs of death; cause, manner, mechanism of death; Brain death: types, signs, diagnostic criteria. ➢ Declaration of death. ➢ Suspended animation; presumption of death	**L-2hrs** **T-2hrs**
• define injury, wound, hurt, battery, assault and homicide. • list the components of grievous hurt. • classify homicide with examples. Describe the defense and fabricated wound.Mention the cause of death due to wound. • classify wounds. Describe the consequence of wound. • define, classify and describe the medico-legal importance of abrasion, bruise, laceration, incised and punctured wound. • how to determine the age of wound(abrasion,bruise,incised). • describe the features of incised wound and chop wound. • differentiate incised wound from incised looking wound; suicidal from homicidal cut throat wound; antemortem from postmortem wound; homicidal,suicidal & accidental wound. • describe the types of skull fracture, types of intracranial hemorrhage and brain injuries. Mention whiplash injury. • describe flail chest; describe the effect of chest wound • define domestic violence. Briefly describe features of BBS. • describe Manchausen syndrome; Battered wife syndrome. • define burn, scald. Describe the types, management, complication and cause of death in burn. • define torture. Describe the methods and effects of torture.	**02. Wound:** • ***Medico-legal aspect:*** injurywound, hurt, battery; grievous hurt;cause of death due to wound; homicide; defense wound;fabricated wound. • ***Mechanical wound:***abrasion,bruise,laceration, incised wound and puncture wound • ***Regional injury***: ○ Head injury: Scalp, skull fructure, Intra cranial hemorrhage, brain injuries. ○ whiplash injury.Crush syndrome. • ***Domestic Violence:***Battered Baby syndrom(BBS); Manchausen syndrome; violence against women. • ***Thermal injury:*** *Heat (Burn scald) and cold.* • ***Torture*** • ***Neglect and starvation*** **Additional:** Chest injury,abdominal injury,genital injury and extremity injury.	**L-09hrs** **T-04hrs**

Clinical Forensic Medicine-Contt

Learning Objectives	Contents	Teaching hours
The student will be able to- • explain the medico-legal issues in marriage. describe when marriage become null and void. Outline conditions where a women can demand divorce. • differentiate between true & false virginity, impotency & sterility.describe the causes of impotency & sterility in male or female.Outline the procedure to examine impotency case. describe the medico-legal issues. • describe the prerequisite and procedure of examination of victim or accused of sexual assault. • identify signs of rape and other sexual offences with their medico-legal importance. Describe the complications of rape. • classify hymen. Differentiate fimbriated from ruptured hymen. • describe the genital and extragenital sign of virginity. • describe collection, preservation, and dispatch of swab, blood, stains, hair and body fluid. • describe different sexual deviations	**CORE:** **03. Forensic aspect of sex:** • Medico-legal aspect related with marriage. • Impotency, sterility; Medico-legal aspect. • Legitimacy; Paternity and maternity. • Hymen:Type, cause of rupture; medico-legal aspect. • Virginity and defloration. **Sexual offences:** • Natural: Rape, Adultery, Incest. • Unnatural: sodomy, Lesbianism, Buccal coitus, Bestiality • Investigations: collection & dispatch of specimen (HVS,stain,hair,blood); radiology **Medico-legal report preparation:** Impotency, fixation of paternity & maternity, report on sexual violence;rape. **Sexual perversions:** sadism, masochism, voyuerism, necrphilia, necrophagia. **Additional:** • Psychosexual instinct; • legal provisions related.	**L-7hrs** **T-3hrs**

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section 6: Identification

Learning Objectives	Contents	Teaching hours
The student will be able to- • describe the objectives/purpose of identification. • enumerate the traits of identification. • identify those traits that are applicable for living. • describe how to differentiate different race. • explain the technique of sex determination. Describe the ML imp of sex. • describe the medico-legal importance of age. Mention the prerequisite & procedure of age estimation. • explain the role of forensic radiology and forensic odontology in identification. • define dactylography. Describe its type & importance. • define scar. Describe nature & importance. • define trace evidence.Describe the information that could be concluded by blood stain, hair and semen. • determine the cause and nature of death from the trace evidences. • describe the information provided by examination of bite marks. • describe procedure of identification in mass death & skeleton remain.	**CORE:** **Identification:** • Definition, types, objectives, and method of identification. • Identification traits; Identity of living persons & dead bodies. • Race, religion, sex. • Age: medico-legal importance; estimation of age. • Tattoo, scar, stature, mole, birthmark • Stature, occupational marks. • Trace Evidence. • Forensic Dactylography. • Forensic Radiology: introduction, scope and medico-legal issues. • Forensic Odontology: introduction, scope and forensic issues. • Bite marks; Modern technologies used in identification • Identification in mass death & examination of human remains. **Additional:** • X-ray identification. • Superimposition. Lip print • Brain fingerprinting; • Lie detector. • Biometrics;retina scan, Iris scan. • Forensic Voice analysis • Questioned document examination • Forensic ballistic	**L-6hrs** **T-3hrs**

Section 7: Forensic aspect of reproduction		
Learning Objectives	**Contents**	**Teaching hours**
The student will be able to- • explain the procedure of artificial insemination with their medico-legal importance.describe the medico-legal issues in IVF. • Diagnose pregnancy and delivery with their medico-legal importance.describe the signs & PM findings of pregnancy. describe the signs of recent delivery in living and dead. • defineabortion with its type. Describe the method, complication, management, duties and medico-legal importance of criminal abortion. List the indication of therapeutic abortion. • describe medico-legal importance of viable age.	**Forensic aspect reproduction:** • Artificial insemination and other artificial methods of conception with medico-legal implication (IVF,cloning). • Surrogated mother & baby. • Pregnancy: Medico-legal importance; Signs of pregnancy& duration. PM finding of pregnancy. • Delivery: signs of recent & remote delivery in living & dead. • Abortion: types, methods, complication, managementandduties of medical practitioner. • Indication of therapeutic abortion. Spontaneous, Artificial (justifiable and criminal abortion). **Additional:** • Feticide and viability; IUF death.•MTP act; • Infertility & its medico-legal issues; Invitro Fertilization	L- 5hrs T-3hrs
Section -08: Forensic Psychiatry		
Students will be able to: • define forensic psychiatry. describe the features of mental illness. • how to diagnose a case of mental disorder. • describe how to fix-up civil, criminal and social responsibilities of an insane person. • define delusion, illusion, hallucination & delirium. Describe the types of hallucination and delusion with its medico-legal importance. • Explain McNaughten's rule. Describe the civil & criminal responsibilities. • Explain the role of personality disorder and substance abuse related with crimes and its medicolegal importance. • Differentiate true from false insanity.	**CORE:** • Definition of forensic psychiatry. Classification of mental disorder, lucid interval, testamentary capacity. • Important terms of forensic psychiatry. Elements of forensic psychiatry(psychosis, neurosis,delirium, delusion, illusion, hallucination, confabulation, phobia, impulse etc) • Issues of incompetency to stand trial/event. • Criminal responsibility of an insane person. • Personality disorder related with crime. • Aggressive behavior and medicolegal issues • Diminished responsibility. • Civil and Social responsibilities. • Substance abuse affecting mental state • True insanity and feigned insanity: • Rules in relation to forensic psychiatry. **Additional:** Mental health act Advances in forensic Psychiatry. Psychosexual instinct	L-4hrs T-2hrs

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section-09: Forensic Toxicology

Learning Objectives	Contents	Teaching hours
Students will be able to: • define and classify poison. • describe the factors modifying the action of poisons. • describe the duties of a doctor in case of poisoning. • outline the principles of management of acute poisoning. • outline the principles of management of chronic poisoning. • describe the mechanism, FD, features, complication, management, ML imp & postmortem finding of specific poison. • describe post mortem appearances in respective poisoning cases. • describe preventive measure of drug abuse, domestic, insecticides and food poisoning. • define drunkenness,vitriolage.	**Toxicology** CORE: General aspects of poisoning: • Forensic Toxicology. Legal provisions related to Poisons & poisoning. • General aspect of toxicology. • Poisons. Classification of poisons. • Factors modifying the action of poison. • Antidote. • Principles of Management of acute & chronic poisoning. • Prevention of domestic poison & therapeutic poison. **Specific Poisoning:** • Corrosive poisons: strong acids and alkalis. • Acetaminophen (paracetamol) poisoning. • Metallic poisons: Lead, Arsenic, Copper and Mercury. • Delirients: Dhatura, Cannabis. • Somniferous agents: Opium and its derivatives;Hypnotics- Barbiturate. • Inebriates: Alcohol, methyl alcohol. • Petroleum product: Kerosene oil. • Gaseous poisons: Carbon monoxide, Chlorine,CO_2,Cooking gas (methane). • Insecticides: Organo-phosphorus comp (OPC) and chloro-compound. • Snake Bite. • Drug dependence and drug abuse. Doping. • Food poisoning. • Potka fish(Puffer fish) **Additional:** • Spinal poison; Cardiac poison; cocaine; • Organic irritant:ricinuscommunis; ergot;arbusprecatorius; calatropis;cathraides; scorpion. • Clinical toxicology; Environmental toxicology; Occupational toxicology; Analytic toxicology.	**L- 20hrs** **T- 05hrs**

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section-10: PRACTICAL (40hrs)

Learning Objectives	Contents	Teaching hours
Practicals: The students will be able to: • perform examination of medico-legal cases individually. • perform medico-legal autopsies under supervision. • attend the court as a witness and give deposition as an expert witness. • prepare/write certificates on injury cases, births, deaths, sickness & fitness, discharge etc. • prepare ten reports on medico-legal autopsies. • prepare dying declaration. • recognize medico-legal cases individually.	A. **Demonstration: (18hrs)** • Demonstration & observation of ten medico-legal autopsies. • Observation/examination of intoxicated persons in the ward (Indoor). • Flip chart • Weapons: Blunt weapons; Sharp Cutting weapons; sharp pointed • Dangerous weapon: firearms • Forensic photograph: o Identity: Tattoo; fingerprint; Barr body & Davidsons body o Thanatology: Marbling, degloving, demonstration rigor mortis o Asphyxial death: Ligature marks; FB in trachea(Choking) Hanging; Strangulation; Partial hanging; smothering; sexual asphyxia; traumatic asphyxia; diatoms; drowning. o Trauma: Hesitation cut; fabricated injury; incised wound; cut throat wound with hesitation mark; defence wound; shotgun injury; pattern abrasion; graze abrasion;contact rifle entry wound; chop wound; pugilistic attitude; soot particle in the trachea; Lacerated wound; • Toxicology specimen(poison) ▪ Corrosives:Hcl,H_2SO_4, HNO_3, carbolic acid;Oxalic acid; Salicylic acid; corrosive alkali. ▪ Inorganic: lead; copper; Arsenic; Mercury; Phosphorus. ▪ Organic: chili seeds; Snake. ▪ Systemic: ▪ CNS: inebrients(Alcohol; methy alcohol); delerients(Dhatura, Cannabis Indica); Poppy(Opium); Nux vomica ▪ Insecticides: OPC; Chloro-compund ▪ Domestic: kerosene; naphthalene; harpic; savlon; Dettol.	2hrs 2hrs 2hrs 2hrs 2hrs 2hrs 2hrs 2hrs 2hrs

The students will be able to: • explain the procedures of examination of victim of sexual offences,physical assault. • explain and describe the procedure of postmortem examination. • explain the procedures of determination of age. • describe the suspected poisoning cases and can describe the emergency management of an intoxicated patient in the ward. • prepare injury report,postmortem report; age estimation report,mental state report, death certificate, death note for patients record,Sickness and fitness certificate, discharge certificate,	B. **Exercise**: (22yrs) • Preparation of certificates on following Medico-legal situations: o Prepare 5-10 Injury report o Prepare 10 Postmortem reports o Prepare death certificate according to ICD-10 with recording of death note. o Prepare medical(fitness & sickness) certificate; discharge certificate; Birth certificate. o Prepare report on Insanity. o Prepare age estimation report. o Prepare report of sexual assault. • Recoding Dying declaration. • Examine for estimation of the age of a person. • Examine victim of physical assault. • Examine victim of sexual assault. • Examine a drunkenness case • Management of poisoning case • Age estimation from bones by X-rays. • Assignment.	10hrs 2hrs 2hrs 2hrs 2hrs 2hrs 2hrs
	C. **Observation**	
	D. **Experiment:** E. **Role play**: Drunkenness Infamous conduct F. **Presentation** G. **Problem solving**:	

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section-11: Observation of ten Medico-legal Autopsies (10days)

Learning Objectives	Contents	Teaching hours
The student will be able to: • note the particulars of deceased, case no, Police station referencecase/GDE no with date; name & number of the police constable, date of time of dispatch and arrival of dead body. • scrutinize the documentary prerequisites and other prerequisites for medico-legal autopsy • observe and note the changes of death on the dead body. • observe and note the marks in relation to identification. • observe and note the external injuries. • observe and note the external examination. • observe and note the incisions for opening body cavities. • observe and note the findings of internal examination & viscera. • observe and note the procedure of viscera preserved, preservative used, packed & labeled.	• College authority will contact and fix the schedule with suitable time & date to attend. • Transport will be provided by the college authority.	8 days

Learning Objectives and Course Contents in Forensic Medicine & Toxicology
Section-12: Day visit-06

Learning Objectives	Contents	Teaching hours	
The student will be able to: • note the name of the court students attend & other type of courts present here; date • observe the court environment and court etiquette. • observe role of public prosecutor office. • observe the role of judge,publicprocecutor& defense lawyer • observe the court procedure and gain a practical experience. • prepare an assaignment on your experience of court visit.	**Visit to court.**	• College authority will contact and fix suitable time & date to attend. • Transport will be provided by the institute.	One day

The Student will be able to: • note the name of police station and the administrative structure • observe the procedure of first information report (FIR); Inquest report; chalan form and general diary entry (GDE). • observe the activities perform in police station. • prepare experience report. • prepare an assaignment on the activities perform in police station.	**Visit to police station**	• College authority will contact and fix suitable time & date to attend. • Transport will be provided by the institute.	One day
The Student will be able to: • note the name of hospital and the administrative structure. • observe the victim of sexual assault; victim of domestic violence; victim of battered baby syndrome. • observe the activities of OCC. • prepare experience assaignment. • prepare report on the case you observed here with findings and opinion.	**One stop Crisis Center (OCC)**	• College authority will contact and fix suitable time & date to attend. • Transport will be provided by the institute.	one day
The Student will be able to: • note the name of DNA lab or forensic lab. • observe the activities perform by forensic lab. • observe the problems in collection, packing & dispatch of samples for forensic lab. • prepare report on your observation.	**DNA lab. Forensic lab.**	• College authority will contact and fix suitable time & date to attend. • Transport will be provided by the institute.	One day

Existing summative assessment of Forensic Medicine & Toxicology

Assessment systems and mark distribution.

Components	Marks	Total Marks
Formative assessment	10	10
WRITTEN EXAMINATION MCQ (50% Single Best Answer+50% Multiple True False) SEQ (Structured Essay Question)-**20** **SAQ** (Short Answer question)	 20 20 50	90
Practical Examination		100
ORAL EXAMINATION (Structured Oral Examination).		100
	Grand Total	**300**

- There will be separate Answer Script for MCQ.
- Pass marks 60 % in each of theoretical, oral and practical.

Example of a "Format" for Integrated Teaching

Teacher of Anaesthesiology	**Teacher of Pharmacology**	**Teacher of Medicine**	*Teacher of Forensic Medicine*
Hazards of anaesthesia and causes of death, injury and disability.	The Pharmacological aspects of opium and opoids.	Clinical aspects of acute opium and opoids poisoning.	❑ When and how far anaesthetists are responsible for such death? ❑ Legal responsibilities of an anaesthetist. ❑ Forensic aspects of acute opium and opoid poisoning. ❑ Determination of causes of death due to above poison. ❑ Methods for determination and confirmation of the poison.

TIME SCHEDULE

Sl no	Section	Topic	Lecture	Tutorial
01	**Section -01**	Introduction to Forensic Medicine and Recent advances in Forensic Medicine	09hrs	04hrs
02	**Section -02**	Legal structure and court procedure	4 hrs	02hrs
03	**Section -03**	Medical Jurisprudence and Medical ethics	10hrs	04hrs
	Section -04:	**Forensic Pathology (L-24hrs; T-13hrs)**		
04		Medico-legal Autopsy	05hrs	04hrs
05		Death: Mode, manner; Changes after death; Artifact Sudden death; Custodial death.Anesthetic & surgical death	06hrs	03hrs
06		Infanticide	02hrs	01hrs
07		Violent asphyxia	05hrs	03hrs
08		Wound: Transportation wound; Firearm & explosives; Electrocution & lightning	06hrs	02hrs
	Section-05:	**Clinical Forensic Medicine (L- 53hrs; T- 22hrs)**		
09		Basics of Death	02hrs	02hrs
10		Wound: Mechanical wound; Regional wound; Thermal wound; domestic violence;Torture & Neglect.	09hrs	04hrs
11		Forensic aspect of sex	07hrs	03hr
12	**Section -06**	Identification	06hrs	03hrs
13	**Section -07**	Forensic aspect of Reproduction	05hrs	03hrs
14	**Section -08**	Forensic Psychiatry	04hrs	02hrs
15	**Section -09**	Forensic Toxicology	20hrs	05hrs
		Total	**100hrs**	**45 hrs**
16	**Section -10**	**Practicals (**demonstration;exercise; observation; role play; problem solving)	**-**	**40hrs**
				85hrs
17	**Section -11**	**Autopsy observation at Mortuary**	**12 days**	
18	**Section -12**	**Court Visit; Thana visit; OCC and forensic lab visit**		
		Grand Total :100+45+40=185 hrs + 12 days		

Item card

Department of Forensic Medicine & Toxicology. ……. ……Medical college
Name…… ……. Roll…….. Batch……. Session…….

		First Term					Second Term		
		Item no	**Date**	**Mark obtained**			**Item no**	**Date**	**Mark obtained**
Introduction & Recent advances	**01**	• Introduction to Forensic Medicine;Branches; history & Scope • Recent advance in Forensic medicine: DSD; age of child. • Consent; Euthanasia; • Medical records;			**Forensic aspect of Reproduction**	**11**	• Artificial insemination; surrogate mother • Pregnancy: Ml imp, Sign, PM finding • Delivery: Ml imp, sign of recent/remote delivery in living & dead; PM finding • Abortion: Therapeutic,Justifiable & Criminal abortion.		
	02	• Mass disaster, DVI; Sports medicine. • Forensic science & Trace evidence: Blood stain Blood group, Hair, Semen; • DNA Profiling			**Forensic Psychiarty**	**12**	• Forensic Psychiatry; Types of mental disorder; • Elements/terms of psychiatry(phobia,delirium,delusion, illusion, hallucination, psychosis,neurosis, impulse etc) • Personality disorder; agrrasive behavior; true insanity • Civil,criminal & social responsibilities;Important rules		
Legal aspect	**03**	Law & Legal aspect: • Legal structure: courts, power & function; penal code; sentence. • Legal (courst) procedure:Evidence,witness; ideal witness;summon. • Certificate & medico-legal reports			**Medical Jurisprudence**	**13**	• Principles of medical ethics; Ideal etiquette • BMDC; right & privilege of doctor/patient; • Duties of doctor /patient;Profesional secrecy • WMA declaration (Geneva declaration,others)		
Clinical forensic medicine & Forensic Pathology	**04**	• Basics of Death:definition,type, mode, manner, cause, diagnosis, declaration, somatic death, apparent death, brain death • Changes of death: immediate,early, Late change • Post mortem artifact				**14**	• Doctor patient relationship(def,element,skills,model) • Ethical malpractice(infamous conduct); • Negligence(Malpraxis):def,element,prevention, defence • Doctorine res Ipsa loquito,contributory, therapeutic misadventure, corporate negligence, ethical dilemma.		
	05	• Sudden death. • Custodial death; Anaesthetic and operative deaths. • Torture and neglect(BBS, Starvation)			**Forensic Toxicology**	**15**	• General asect of poisoning:Domestic & therapeutic poison. • Poison: def,classicifation,factor,effect, diagnosis • Principles of management/objectives.		
	06	• Autopsy:def; type;prerequisite, procedure; laboratory procedure, report writing; Special autopsy & autopsy of special situation • Modern mortuary; Exhumation; Inquest; Ml system • Infanticide: Live born, dead born, still born				**16**	• Corrosive poisons: strong acids and alkalis. • Acetamnophen(paracetamol) • Metallic: Arsenic, Copper, Mercury • Insecticide(OPC); kerosene oil		
	07	• Define injury, hurt, assault, battery, homicide • Medicolegal aspect: grievous hurt, defence wound, cause of death. • Mechanical wounds:Abrasion; Bruise;laceration;Incised, Stab wound • Regional injury; Transpotation; Thermal and electrical wound				**17**	• Delerient: Dhatura, Cannabis; coccaine • Narcotic & hypnotic: Opium; Barbiturate • Inebrient:Alcohol, methyl alcohol • Sbstance abuse; solvent abuse		
	08	• **Hanging** : Definition,type,mechanism,cause of death, postmortem finding; ML imp, difference from PM suspension. • **Strangulation**: def,type,cause of death, PM finding,ML imp,. • **Drowning**: def, type, pathophysiology; PM finding; cause of death; Ml imp, diatom; lab investigation • **Suffocation** : smotherinf;chocking; gagging;				**18**	• Cabon monoxide poisoning; war gas. • Snake Bite. • Food poisoning. • Potka fish(Puffer fish) • Yellow olender		
	09	Forensic aspect of sex, sexual offence • Impotency,sterility; Marriage, divorce; legitimacy;paternity,maternity • Hymen, Virginity,defloration • Sexual offence: rape,adultery,incest • Unnatural sexual offence: sodomy,bestiality,lesbianism • Sexual perversion, Sexual instinct				**19**	• Clinical toxicology; Imp & forensic aspect • Environmental toxicology; • Occupational toxicology; • Analytic toxicology		
	10	• Identification: trait, objectives, Ml imp. • Race; Sex; age • Dactylograpy,Tattoo, scar • Modern technique, comparism data; superimposition				**20**	• Overall conception regarding forensic medicine • Attitude, Interpersonal skill,Extra academic skill • Soft skill, management skill, leadership skill		

Academic Schedule for Forensic Medicine & Toxicology

<table>
<tr><th colspan="13">3rd Phase</th></tr>
<tr><th colspan="5">First Term</th><th></th><th colspan="6">Second Term</th></tr>
<tr><th>01
(July)</th><th>02
(Aug)</th><th>03
(Sept)</th><th>04
(Oct)</th><th colspan="2">05
(Nov)</th><th>06
(Dec)</th><th>07
(Jan)</th><th>08
(Feb)</th><th colspan="2">09
(Mar)</th><th>10
April</th><th>11
May</th><th>12
June</th></tr>
<tr>
<td colspan="5">
Forensic Medicine & forensic science
○ Introduction to Forensic Medicine
○ Recent advance in Forensic medicine: DSD; consent; Euthanasia; medical records; Sports medicine
○ Mass disaster& DVI.
○ Forensic science: blood stain &group, Hair, Semen; DNA Profiling
Legal aspect:
○ Legal structure
○ Legal (courst)procedure
○ Certificate & medico-legal reports
Medical Jurisprudence
○ Medical ethics:Health Ethics; Rights & Privileges of Doctors & patient,Duties of doctor. Code & law of medical ethics; Professional secrecy
○ BMD&C
○ WMA declaration& applied ethics
Forensic Pathology
○ Autopsy &Infanticide;Changes after death and Post-mortem artifactes
○ Asphyxial death
○ Transpotation; thermal and electrical wound
Clinical forensic medicine
Death:Basics,braindeth
Mechanical wounds &Medicolegal aspect.
Forensic aspect of sex, sexual offence
Identification
</td>
<td>9 hrs

4hrs

10hrs

24hrs

18hrs

6hrs</td>
<td>1st Internal assessment</td>
<td colspan="3">
Forensic Psychiatry

Forensic aspect of reproduction:
○ Artificial insemination and disputed paternity & maternity
○ Pregnancy
○ Delivery
○ Abortion
Forensic Toxicology
○ General aspect of poisoning
○ Corrosives
○ Metallic poison
○ Deliriant poison, inebriants
○ Management of acute poisoning.
○ Gaseous poisons,
○ Insecticides,
○ Snake bite
○ Substance abuse
○ PM finding; preservation and despatch of viscera
○ Analytic,occupational,clinical toxicology
</td>
<td>4hrs

5hrs

20hrs</td>
<td>2nd Internal assessment</td>
<td></td>
<td colspan="2">3rd Prof exam</td>
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<tr>
<td></td>
<td colspan="4">Lecture-71hrs; Tutorial-35hrs: Practical-27hrs
+12 days(8 days for observation of autopsy at mortuary + 4 days court, thana,OCC, DNA& forensic lab visit)</td>
<td></td>
<td></td>
<td colspan="3">Lecture-29hrs
Tutorial-10hrs
Practical-13hrs</td>
<td colspan="3">Total:195hrs
+ 12 days</td>
</tr>
</table>

01. Postmortem report form: Students has to prepare 10 PM report

বাংলাদেশ ফরম নং- ৫৩৭২

স্টেশন.....

ময়না তদন্তের রিপোর্ট

২০.....সনের.....মাসের.....তারিখ

(পি,আর,বি ফরম নং ৫৫, ২৮৪ নিয়ম দ্রষ্টব্য)

	নাম, লিঙ্গ, বয়স ও গোত্র	কোথা হইতে আনা হইয়াছে - গ্রাম ও থানা।	যে কনষ্ট্যাবল কর্তৃক আনা হইয়াছে তাহার নাম এবং সংগে আসা আত্মীয় - স্বজনের নামসমূহ।	প্রেরণের দিন ও ক্ষণ।	লাশ কাটা মর্গে আনয়নের দিন ও ক্ষণ	পরীক্ষার দিন ও ক্ষণ	পুলিশ কর্তৃক প্রদত্ত তথ্য	যে ব্যাক্তি মেডিক্যাল অফিসারের সামনে সনাক্ত করিয়াছেন।

বিশেষ দ্রষ্টব্য ঃ- যাবতীয় অঙ্গ-প্রত্যঙ্গের অবস্থা লক্ষ্য করুন এবং কোন রোগ অথবা যখমের চিহ্ন না পাইলে স্বাস্থ্যবান লিখুন।

১ - বাহ্যিক লক্ষণ	১ - ব্যাক্তির অবস্থা - বলবান, শীর্ণ, গলিত ইত্যাদি	২- যখম - অবস্থান, আকার ও ধরণ	৩ - আঘাত - অবস্থান, আকার ও ধরণ	৪ - গলা ব্যবচ্ছেদের সময় প্রাপ্ত পত্নীর চিহ্ন, ইত্যাদি

২ - মাথা খুলি এবং মেরুদন্ডের অস্থি	১ - মাথার বহিরাররণ - মাথার খুলি এবং মেরুদন্ডের অস্থি খন্ডসমূহ	২ - ঝিল্লী	৩ - মস্তিস্ক এবং মেরুদন্ড রজ্জু (যদি কোন রোগ অথবা যখমের নিদর্শন না থাকে তাহা হইলে মেরুদন্ডের নল পরীক্ষার দরকার নাই)।

৩ - বক্ষস্থল	১ - প্রকার - পাজর এবং কোমলাস্থিসমূহ।	২ - ফুসফুস আবরণী	৩ - বাগযন্ত্র ও শ্বাসনালী	৪ - ডান ফুসফুস	৫ - বাম ফুসফুস	৬ - হৃদ্করা ঝিল্লী	৭ - হৃৎপিন্ড	৮ - রক্ত নালী

৪ - উদর	১ - প্রকারসমূহ	২ - উদরের উপরের ঝিল্লী	৩ - মুখ, শ্বাসনালী এবং অন্ননালী	৪ - পাকস্থলী এবং উহার অভ্যন্তরস্থ বস্তুসমূহ।	৫ - ক্ষুদ্রান্ত্র ও উহার অভ্যন্তরস্থ বস্তুসমূহ।	৬ - বৃহদান্ত্র ও উহার অভ্যন্তরস্থ বস্তুসমূহ।

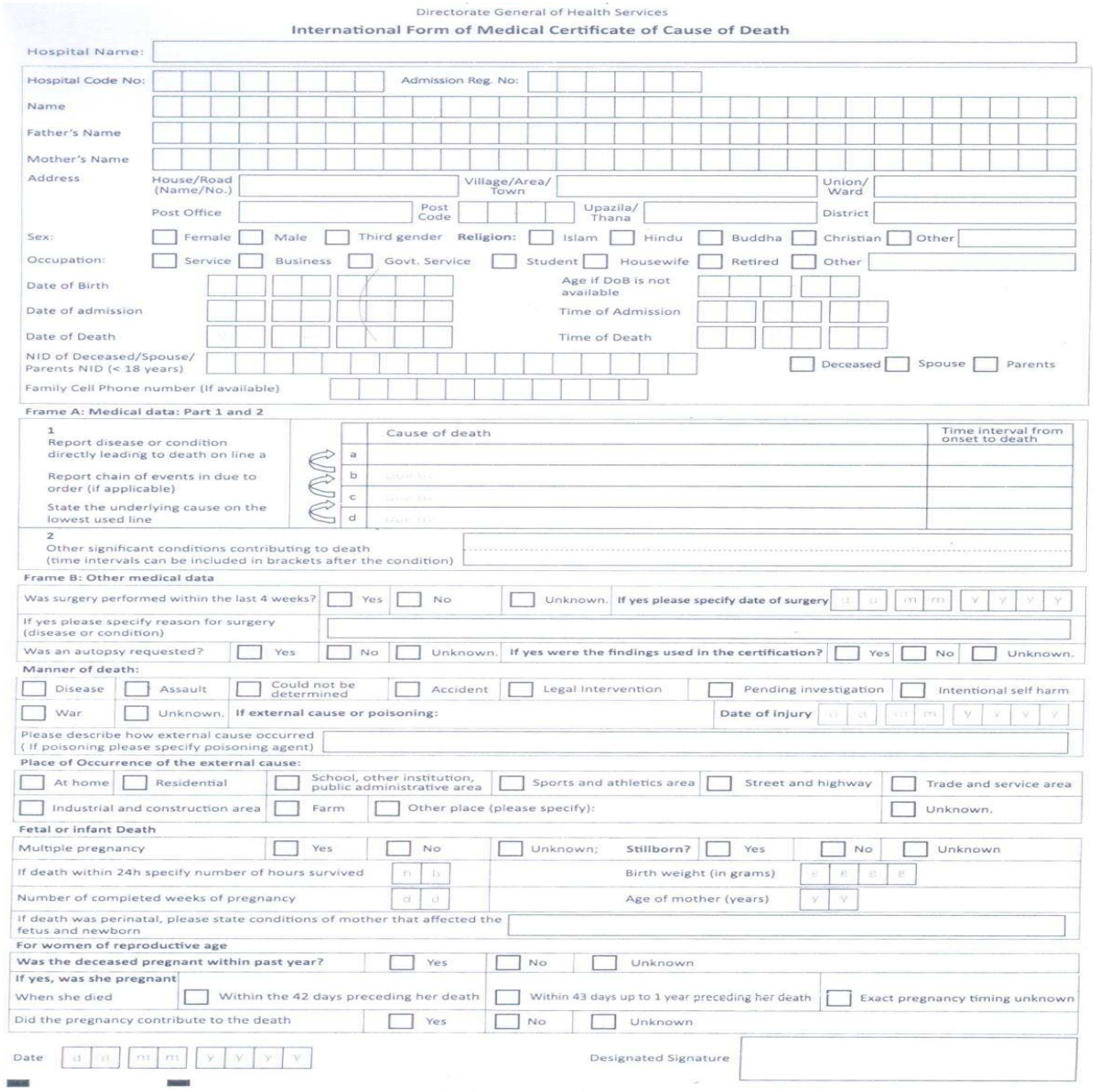
	৭ - যকৃত	৮ - প্লীহা	৯ - মূত্রাশয়সমূহ	১০ - মূত্রাস্থলী	১১ - প্রজনন অঙ্গসমূহ, বাহিরের এবং ভিতরের।

অস্থি ভঙ্গ, স্থানচ্যুতি।	১ - যখম	২ - রোগ অথবা বিবর্ণতা	৩ - অস্থিভঙ্গ	৪ - স্থানচ্যুতি

বিস্তৃত বিবরণ।	রোগ অথবা যখমের আয়তন		

মৃত্যুর কারণ সম্পর্কে মেডিক্যাল অফিসারের মতামত	সিভিল সার্জনের মন্তব্য
বিঃ দ্রঃ - যখমের ক্ষেত্রে, যখমে হত্রার, তআত্মহত্যার বা অন্য কিছুর আলামত আছে কিনা তাহা লিখুন। ..... সহকারী সার্জন	১৯..... সনের .....মাসের .....তারিখ ..... সিভিল সার্জন

02. Students has to write 6 death certificates according to this form(ICD-10)



Directorate General of Health Services

International Form of Medical Certificate of Cause of Death

Hospital Name:

Hospital Code No: | Admission Reg. No:

Name

Father's Name

Mother's Name

Address: House/Road (Name/No.) | Village/Area/Town | Union/Ward

Post Office | Post Code | Upazila/Thana | District

Sex: ☐ Female ☐ Male ☐ Third gender **Religion:** ☐ Islam ☐ Hindu ☐ Buddha ☐ Christian ☐ Other

Occupation: ☐ Service ☐ Business ☐ Govt. Service ☐ Student ☐ Housewife ☐ Retired ☐ Other

Date of Birth | Age if DoB is not available

Date of admission | Time of Admission

Date of Death | Time of Death

NID of Deceased/Spouse/Parents NID (< 18 years) ☐ Deceased ☐ Spouse ☐ Parents

Family Cell Phone number (If available)

Frame A: Medical data: Part 1 and 2

		Cause of death	Time interval from onset to death
1 Report disease or condition directly leading to death on line a	a		
Report chain of events in due to order (if applicable)	b		
	c		
State the underlying cause on the lowest used line	d		

2 Other significant conditions contributing to death (time intervals can be included in brackets after the condition)

Frame B: Other medical data

Was surgery performed within the last 4 weeks? ☐ Yes ☐ No ☐ Unknown. **If yes please specify date of surgery** d d m m y y y y

If yes please specify reason for surgery (disease or condition)

Was an autopsy requested? ☐ Yes ☐ No ☐ Unknown. **If yes were the findings used in the certification?** ☐ Yes ☐ No ☐ Unknown.

Manner of death:

☐ Disease ☐ Assault ☐ Could not be determined ☐ Accident ☐ Legal Intervention ☐ Pending investigation ☐ Intentional self harm

☐ War ☐ Unknown. **If external cause or poisoning:** **Date of injury** d d m m y y y y

Please describe how external cause occurred (If poisoning please specify poisoning agent)

Place of Occurrence of the external cause:

☐ At home ☐ Residential ☐ School, other institution, public administrative area ☐ Sports and athletics area ☐ Street and highway ☐ Trade and service area

☐ Industrial and construction area ☐ Farm ☐ Other place (please specify): ☐ Unknown.

Fetal or infant Death

Multiple pregnancy ☐ Yes ☐ No ☐ Unknown; **Stillborn?** ☐ Yes ☐ No ☐ Unknown

If death within 24h specify number of hours survived h h | Birth weight (in grams) g g g g

Number of completed weeks of pregnancy d d | Age of mother (years) y y

If death was perinatal, please state conditions of mother that affected the fetus and newborn

For women of reproductive age

Was the deceased pregnant within past year? ☐ Yes ☐ No ☐ Unknown

If yes, was she pregnant

When she died ☐ Within the 42 days preceding her death ☐ Within 43 days up to 1 year preceding her death ☐ Exact pregnancy timing unknown

Did the pregnancy contribute to the death ☐ Yes ☐ No ☐ Unknown

Date d d m m y y y y | Designated Signature

- ***Hours of Teaching:***
  - **Large group**
    * Lecture - 100 hours.
  - **Small group**
    * Practical - 40 hours.
    * Tutorial - 45 hours.
    * Integrated teaching/ Assignment - 10 hours.

    Total = 195 hours.

Summary of the Forensic Medicine Academic Programme

	1st Term	2nd Term	Total
Lecture/Revision	71 hrs	29 hrs	100 hrs
Practical/ Demonstration/ exercise	27 hrs	13 hrs	40 hrs
Tutorial	35 hrs	10 hrs	45 hrs
Integrated Teaching/ Assignment	5 hrs	5 hrs	10 hrs
8 days for attending mortuary for observation of medico-legal autopsy. 4 days for court visit; PS (Thana), OCC, DNA lab and Forensic lab visit			12days
Total	---------	---------	**195 hrs + 12days**

Phase III

- Generic Topics on Medical Humanities to be taught in Phase-III
- Integrated Teaching in Phase III
- Subjects of Phase III
  - Community Medicine & Public Health
  - Pathology
  - Microbiology

Generic Topics on Medical Humanities to be taught in Phase –III

The following two topics will be taught within 3rd phase under supervision of Phase-III coordination committee in collaboration with medical education unit (MEU). The sessions will be under the guidance of Principal & Vice-principal, coordinated by concerned departments and sessions will be delivered by concerned experts of the topics. Each session will be one and half hour. Attending these session will be mandatory and will be reflected in the formative & summative assessment of Phase-III.

Topics:

1. Integrity and accountability of medical professionals
2. Aspects of a good doctor

Topics	Learning objective	List of Contents	Method	Time
Integrity and accountability of medical professionals	• define integrity and accountability in medical practice • mention importance of integrity and accountability in medical practice • outline doctors behaviors that demonstrate integrity and accountability. • explain contribution of the team and the system to integrity and accountability • state means of developing integrity and accountability of medical professionals • mention some current examples of Integrity and accountability of medical professionals	• Definition of integrity and accountability in medical practice • Importance of integrity and accountability in medical practice • Outline of doctors behaviors that demonstrate integrity and accountability. • Contribution of the team and the system to integrity and accountability • Means of developing integrity and accountability of medical professionals • Some current examples of Integrity and accountability of medical professionals	Interactive Lecture Or Seminar	One and half hour
Aspects of a good doctor	• list the qualities of a good doctor • explain the roles of a doctor in the society • mention expectation of the patient, attendance and society from a doctor • state the factors affecting the expectation of the patient, attendance and society from a doctor • describe means of developing as a good doctor • mention some current examples of a good doctor	• Qualities of a good doctor • Roles of a doctor in the society • Expectation of the patient, attendance and society from a doctor • Factors affecting the expectation of the patient, attendance and society from a doctor • Means of developing as a good doctor • Some current examples of good doctor	Interactive Lecture Or Seminar	One and half hour

Integrated Teaching in phase III

All the departments of Phase III (Community Medicine & Public Health, Pathology, Microbiology) must be present and take part in the integrated teaching while the faculty representatives from concerned clinical & others departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase III should be ensured. Students need to get some 'take home message' from every session. To ensure presence of the students Schedule for integrated teaching session will be set at the phase III committee meeting in collaboration with medical education unit (MEU).

Total -20 hour. Each session will be for at least 2 hour

Topics:

1. Occupational and Environmental hazard
2. Snake bite
3. Transportation injuries
4. Disaster management
5. Shock
6. Glomerulonephritis
7. Rheumatoid Arthritis/ Osteomyelitis
8. Different Viral Fevers (Covid-19, Dengue, Chikungunya)
9. Carcinoma Cervix

Topics	Learning Objective	Core contents	Discipline involved
Occupational and Environmental hazard	At the end of the session student will be able to: • define environment • explain concept of hazard • list of occupational and environmental health hazards • define occupational health and mention its objective • explain various occupational environment • describe preventive strategies of occupational and environmental hazard • mention the health care facilities and safety measures for workplace. • state work's man compensation act.1923 • describe existing law for environmental control	• Environment and its components • Concept about hazard, Risk and vulnerability • Environmental control strategy • Existing law about environmental control • Occupational health, and its objectives • Occupational environment • Occupational health hazards, ergonomics • Principles of prevention of occupational diseases • Employees' benefits • Existing health related occupational laws.	• Community Medicine & Public Health • Forensic medicine & Toxicology • Medicine/ Respiratory medicine. • Skin and VD • Microbiology • Pathology
Snake bite	• mention different types of snake in Bangladesh • state the natural habit of snake • mention different snake bite geographic area in Bangladesh • state the difference between poisonous and nonpoisonous snake and snake bite	• Epidemiology of snake bite in Bangladesh • Types of snakes • Habit of snakes • Geographic Area of snake bite in Bangladesh • Outcome of snake bite • Management of snake bite	• Community medicine & Public Health • Forensic medicine & Toxicology • Medicine/Neuron medicine • Pathology • Pharmacology

	• mention the sign symptom of poisonous and nonpoisonous snake bite • mention the composition of snake venom. • explain consequences of snake bite • select the anti venom and it's dose • state the treatment facilities in Bangladesh • outline the management of snake bite • state the preventive measures of snake bite	• Treatment facilities of snake bite in Bangladesh • Prevention and control measures of snake bites.	
Transportation injuries	• define transportation injuries. • mention the types of transportation injuries. • state the courses, consequences and epidemiology of RTA • describe problem statement of RTA • mention the identification of driver • describe the preventive measures of RTA • state the management of RTA	• Definition of TI • Epidemiology of TI including RTA • Causes of different TI • Consequences of RTA • Management of RTA Triage ABCDE • Preventive measures of RTA Safety education Safety measures Legislative measures	• Community medicine & Public Health • Forensic medicine & Toxicology • Orthopedic surgery • Neurosurgery • Physical medicine • Internal medicine
Disaster management	• define disaster • classify disaster • mention the consequences of disaster • describe the management of disaster including forensic aspect • mention the preventive measures. • Describe the technique of disaster victim identification	• Definition of disaster • Classification of disaster Natural Man made • Consequences of disaster • Management of disaster Injured Dead Medico legal aspects Media, VIP,crowd • Prevention of disaster	• Community medicine & Public Health • Forensic medicine & Toxicology • Medicine • Orthopdic surgery • Neurosurgery • Physical medicine
Shock	At the end of the session students will be able to: • define shock • mention different types of shock • describe the pathogenesis of shock • enumerate the clinical feature • list the required laboratory investigation • manage the shock	• Definition of shock • Types of shock • Clinical stages of shock • Compensatory mechanism of shock • Pathogenesis & complications of shock • Management of shock	• Pathology • Microbiology • Medicine • Pharmacology • Forensic Medicine & Toxicology

Glomerulonephritis	At the end of the session students will be able to: • define glomerulonephritis • classify the glomerular disease • describe the etiopathogenesis • mention clinical presentation • diagnose the disease • outline the management of the disease • state the prognosis of the disease	• Review of renal anatomy • Definition of glomerulonephritis • Pathogenesis • Types &clinical presentation (glomerulonephritis & nephrotic syndrome) • Diagnosis • Management & prognosis	• Pathology • Microbiology • Pharmacology • Medicine/ • Nephrology/ • Paediatrics • Forensic Medicine & Toxicology
Rheumatoid Arthritis	At the end of the session the students will be able to: • explain the immunopathogenesis of the disease • diagnose the disease by its clinical feature and investigation findings • list the complications of the disease • outline the management of this disease	• Immunopathogenesis • Clinical features • Investigation • Complications • Conventional NSAIDs • Disease modifying agents • Biological disease modifying agents	• Microbiology • Pharmacology • Pathology • Orthopaedic surgery/Surgery • Physical Medicine/Medicine • Forensic Medicine & Toxicology
Osteomyelitis	At the end of the session the students will be able to: • enumerate the causetive agents of osteomyelitis • explain pathogenesis of the disease • enumerate the site of involvement in the disease process • diagnose the disease • outline the management of this disease • describe the complications of this disease and their management	• Etiopathogenesis • Site of involvement • Diagnosis • Management • Complications & its management	• Microbiology • Pharmacology • Pathology • Orthopaedic surgery/Surgery • Forensic Medicine & Toxicology
Different Viral Fevers (Covid-19, Dengue, Chikunguny a)	At the end of the session the students will be able to: • mention the structure of the virus • explain the mode of transmission of the disease • explain the etiopathogenesis of the disease • mention the organ involved in this disease • explain the mechanism of organ involvement • list the complications of the disease • describe the laboratory diagnosis • outline the preventive measures of this disease	• Structure of the virus • Mode of transmission • Pathogenesis • Clinical stages • Investigations • Prevention • Complication • Management • Drug used with their site of action	• Microbiology • Pathology • Pharmacology • Community Medicine & Public Health • Medicine/Respiratory Medicine • Forensic Medicine & Toxicology

	• outline the management of this disease • mention the drug used with their site of action		
Carcinoma Cervix	At the end of the session students will be able to: • mention the clinical importance of disease • describe etiopathogenesis of Ca cervix. • enumerate clinical presentation & gross morphology • mention the complication of Ca cervix • diagnose Ca cervix • mention the precaution & screening of Ca cervix	• Prevalence of disease • Predisposing factor • Clinical feature • Etopathogenesis • Diagnosis(gross & morphological findings) • Management & cytotoxic drugs • Prevention	• Pathology • Microbiology • Pharmacology • Gynaecology • Oncology • Forensic Medicine & Toxicology

Community Medicine & Public Health

Departmental Objectives

General objective:

To produce medical graduates to meet community health needs and demands of the country.

Specific objectives:

At the end of the course, the students should be able to:

- provide comprehensive health care to the people
- deliver primary health care and essential services package (ESP)
- conduct epidemiological studies on common health problems
- organise health education sessions in the community / OPD
- provide health care with efficient communication skill to the community
- work as a member of the local health team
- co-ordinate with national and international health organizations and different national health programmes

List of Competencies to acquire :

1. Identify health needs and problems of the community and prioritise them.
2. Take measures to meet health needs and problems
3. Provide comprehensive health care to the community
4. Organize health education sessons at the level of community
5. Collect and compile sociodemographic data from the community
6. To manage mass casuality incident
7. Conduct community based research work and write report

Distribution of teaching - learning hours

Lecture	**Tutorial**	**Practical**	**Total**	Integrated Teaching hour for Phase III	**Formative Exam**		**Summative exam**	
					Preparatory leave	**Exam time**	**Preparatory leave**	**Exam time**
110 hrs	155 hours	COME (community based medical education):30 days (10 days day visit + 10 days RFST+ 10 days study tour)	265 hrs + 30 days	20 hrs	7 days	12 days	7 days	12 days
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase								
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions								

Teaching-learning methods, teaching aids and evaluation

Teaching Methods				**Teaching aids**	**In course evaluation**
Large group	**Small group**	**Self learning**	**Others**		
Lecture Video show	Demonstration Tutorial: Classroom exercise Question answering session Brain-storming and discussion Role play Problem solving exercise	Assignment, Self study	RFST, Day visit, Study tour	Multimedia, OHP, Slide projector Chalk board, Flip chart, Handout / Charts, Reading materials, Paper cutting /Film strip, Textbook Questionnaire, Video film or slide set.	• Item Examination • Card final • Term Examination • Term final (written, oral+ practical)

3rd Professional Examination :

Marks distribution of Assessment of Community Medicine & Public Health:
Total marks – 300

- Written = 100
  20 marks MCQ (50% Multiple True and False (MTF) + 50% Single Base answer (SBA),
  70 marks (25% Structred Eassy Question (SEQ) + 75% Short Ansewe Question (SAQ)
  10 marks: Formative assessment
- Structured oral examination= 100
- Practical (Conventional Practical / OSPE, RFST including Survey Report,
  Study Tour Report and Report on Day Visit) =100

Related Equipments:

Weighing machine, Sakip's tape/Measuring tape, Growth chart, Specimen and model, Posters and diagram, Laboratory equipment (to be procured)

Learning Objectives and Course Contents in Community Medicine & Publi Health

Concept of Public Health, Community Medicine, Health and Disease

Learning Objectives	Contents	Teaching hours
Students will be able to: • define: Community, Community medicine, Public Health, Comprehensive health care, Hygiene, Health, Disease, Preventive medicine, Social medicine, Family medicine 2. explain epidemiological triad in causation of disease 3. classify agents for causation of diseases 4. list the host factors responsible for diseases 5. describe the environmental factors of disease causation 6. illustrate the natural history of disease. 7. describe the multifactorial aetiology of disease 8. describe social factors related to health 9. mention the health indicators and their interpretations 10. describe common health and social problems of Bangladesh 11. Able to conduct health education session/counselling session	**CORE** • Concept of Public Health and Community Medicine • Concept of Health and Disease • Common Health and Social problems • Health Team Concept • Changing concepts of Public Health and Health • Natural history of disease • Indicators and Determinants of Health • Prevention and Intervention of Diseases • Characteristics of Ideal Health Care	L =12 T =12

Behavioural Science

Learning Objectives	Contents	Teaching hours
Students will be able to: define and describe Behaviour Behavioural science Psychology Sociology Society, Family, Culture Motive and Motivation ledership Personality and IQ	**CORE** **Concept of** Behaviour Behavioural science Psychology Sociology Society, Family, Culture Motive and Motivation ledership Personality and IQ perception, cognition, learning, motivation, emotion, attitude	L = 4 T = 8

Health Communication & Health Education

Learning Objectives	Contents	Teaching hours
<u>Health Communication</u> **Students will be able to:** • define and classify communication • state functions of communication • state the elements of communication • classify methods and media for communication • mention communication skills • describe barriers of communication **<u>Health Education</u>** **Students will be able to:** • define health education • state the objectives, principles, contents, approaches of health education • state the stages of adoption of new ideas and practices • conduct individual & group counseling session	**CORE** **Health Communications:** • Definition of communication • Classification of communication • Functions of communication • Elements of communication • Barriers of communication • Media and methods of communication **Health Education:** • Definition of health education • Objectives • Contents • Principles • Approaches • Stages of adoption of a new idea	L = 4 T = 8

Medical Entomology		
Learning Objectives	**Contents**	**Teaching hours**
Students will be able to: • define and classify arthropods of medical importance • describe the lifecycle of important arthropods • enumerate the vector borne diseases • describe the principles of vector control measures • use specific insecticides	• Classification of Arthropods of medical importance • Lifecycle of mosquito, sand fly • Arthropod-borne diseases. • Principles of Vector/Arthropod control measures • Insecticides	L = 4 T = 6

Research Methodology and Biostatistics

Learning Objectives	Contents	Teaching hours
Research methodology Students will be able to: • Define research • Identify defferent importance of research • Mention the research desigine • Develop research Protocol • Formulate research objective • Design research questionere • Mention the Methodes of data collection (quantitative and qualitative) • define: study population, sample, sample size; • describe sampling techniques • perpered research report writing	• definition of research • importence of research • types of research design • development and stapes of research protocol • formulation of research objective general and specific • preperatuon of research questionnaire • different methods of data collection • definition and difference of population and sample • calculation of sample size • types of sampling • preparation of report writing	L 10 T 13

Biostatistics **Students will be able to:** • define Bio-statistics and Vital statistics • define and classify data • define and classify variable • calculate central tendency: mean, median, mode • calculate measure dispersion: variance, standard deviation (SD) • analyse and present data accordingly such as: table and graphs etc. • describe normal distribution curve • Mention the Concept of health economics	• Introduction to Bio-statistics • Uses of Bio-statistics • Vital statistics • Data and Variable • Methods and Tools of data collection • Interpretation of data • Analysis and Presentation of data • Measures of central tendency • Measures of dispersion • Normal distribution curve. • Health economics	
Environment & Health		
Learning Objectives	**Contents**	**Teaching hrs**
Students will be able to: • define environment and describe its components • state climet changes and global worming **Water** • mention the criteria of safe and wholesome water • state the sources, uses and requirement of water • mention types of water impurities • explain the principles and methods of purification of water • state the water quality standards for drinking water • state the water borne diseases	• Environment and its components • climet changes and global worming **Water** • Safe and wholesome water • Sources, uses and requirement of water • Water impurities • Principles and methods of purification of water • Water quality standards for drinking water Water borne diseases	

Environment & Health

Learning Objectives	Contents	Teaching hrs
Students will be able to: **Air and ventilation** • state the composition of air and indicators of air pollution • state the air pollutants and their sources • describe the effects of air pollution on health • describe the methods of prevention and control of air pollution • define and classify ventilation • describe effects of ill ventilation on health • describe the impact of climate change and global green house effect **Light** • state criteria of good lighting • mention measurements of light • describe effect of improper lighting on health **Noise** • describe the sources and properties of noise • mention the acceptable noise levels • state effects of noise exposure • describe the control measures of noise **Radiation** • state the sources and types of radiation • state effects of radiation on health • describe measures of radiation protection	**Air and ventilation** • Composition of air • Air pollutants and their sources • Indicators of air pollution • Effects of air pollution on health • Methods of prevention and control of air pollution • Ventilation • Climate change and green house effect **Light** • Criteria of good lighting • Measurements of light • Effect of improper lighting on health **Noise** • Sources and properties of noise • Acceptable noise levels • Effects of noise exposure • Control measures of noise **Radiation** • Sources and types of radiation • Effects of radiation on health • Measures of radiation protection	L = 06 T = 08
Housing • state the criteria of healthful housing and housing standards • describe the effects of poor housing **Disposal of solid waste** • define solid waste and mention its sources • mention health hazards of solid wastes • state the methods of solid wastes disposal and medical biotechnology **Excreta disposal** • state the methods of excreta disposal • explain sanitation barrier • mention the diseases borne by human excreta	**Housing** • Criteria of healthful housing • Housing standards • Effects of poor housing **Disposal of solid waste** • Solid waste and its sources • Methods of disposal and medical biotechnology • Health hazards of solid wastes **Excreta disposal** • Methods of excreta disposal • Sanitation barrier • Diseases borne by human excreta	

Immunity, Immunization

Learning Objectives	Contents	Teaching hrs
Student will be able to 1. define and classify immunity 2. classify immunizing agents 3. state immunization schedule 4. list adverse effects ollowing immunization 5. explain herd immunity 6. describe EPI and NID 7. define cold chain and mention its equipments 8. explain the importance of maintaining cold chain at different levels 9. describe left out and drop out in EPI	**CORE** **Immunity and Immunization** • Immunization • Immunizing agents • Immunization schedule (EPI schedule) • Adverse Events following Immunization • Herd immunity • EPI and NID • Cold chain • Left out and drop out	L = 4 T = 8

Public Health Nutrition

Learning Objectives	Contents	Teaching hrs
Students will be able to: • classify food and its sources • identify deficiency disorder of nutration • assess nutritional status: • collect, record and interpret the data on Road to Health Card (growth chart) • estimate BMI • identify different types of Vitamin deficiency disorder • state minerals and trace elements essential for health assess the prevalence and types of malnutrition in the community by different methods: a. dietary survey b. anthropometry c. clinical examination • enumerate the food borne, milk borne diseases and food intoxication • state methods of milk purification, specially process of pasteurization • state the process of humanization of cow's milk ,explain balanced diet	• Types of foods and its sources • Balanced diet • Protein Energy Malnutrition (PEM) • Impotant Vitamins and their deficiency diseases. • deficiency disorder of Important Minerals and trace elements • Assessment of nutritional status • Calorie requirements of different groups • Food borne, milk borne diseases and food toxins • Pasteurization • Food adulteration, additives and fortification • Humanization of cow's milk	L = 8 T = 8

Principles of Epidemiology

Learning Objectives	Contents	Teaching hours
Students will be able to: • define epidemiology • state the aims and use of epidemiology • explain the components of epidemiology • define terms related to epidemiology: Communicable disease, Non-communicable disease, Infection, Infestation, Contamination, Infectious disease, Contagious disease, Period of communicability, Incubation period. Sporadic disease, Endemic disease, Epidemic disease, Pandemic disease, Zoonotic disease, Disease prevention, Disease control, Elimination, Eradication, Isolation, Quarantine • describe Epidemiological triad • state the approaches, measurments and tools of epidemiology • classify epidemiological studies • describe descriptive and analytical studies • state the characteristics of experimental studies • distinguish between cross-sectional and longitudinal; cohort and case-control studies • describe the steps of investigations of an epidemic Outbreak • define and classify screening • define specificity, sensitivity, validity, reliability and predictive value of a screening test • define and classify source and reservoir • explain modes of transmission of diseases • describe the interruption of modes of disease transmission • describe the criteria of a susceptible host • describe the host defence mechanism • explain the steps for controlling the reservoir of infectious diseases • define and explain community diagnosis and community treatment	Classification of epidemiological studies Description of descriptive and analytical studies Characteristics of experimental studies Different between cross-sectional and longitudinal; cohort and case-control studies Steps of investigations of an epidemic Outbreak Definition, classification ,types and uses of screening specificity, sensitivity, validity, reliability source and reservoir modes of transmission of diseases interruption of modes of disease transmission criteria of a susceptible host definition and explanation of community diagnosis and community treatment	L 14 T 16

Epidemiology of Communicable & Non-Communicable Disease (NCDs)

Learning Objectives	Contents	Teaching hours
The students will be able to: • Define and diferrentiate between communicable and non communicable disease • Identify the Impottant communical and non communicable disease in Bangladesh • Identify Emerging and reemerging disease in Bangladesh • state the epidemiological determinants • explain risk factors of NCDs • describe the preventive measures of common health problems in the community	**CORE** • Definition and difference between CD and NCD Epidemiology and Prevention of: • EPI diseases • Diarrhoeal diseases and Enteric fever • Malaria, Kala-azar, Filaria, Helminthiasis • TB and Leprosy • Viral hepatitis, Dengue, ARI, SARS (Covid 19), Bird flu, Rabies, Yellow fever • AST STDs • Emerging and Re-emerging Diseases Epidemiology and Prevention of common non-communicable diseases: • Hypertension, IHD • CVD (Stroke) • Rheumatic fever and RHD • Cancer • Diabetes • Obesity • Arsenicosis	L = 15 T = 30

MCH-FP & Demography

Learning Objectives	Contents	Teaching hours
MCH **Students will be able to** • define MMR, IMR • state the components of MCH • State factors influencing and measures for reducing maternal and infant mortality and morbidity • define low birth weight baby and mention its risk factors of LBW • describe ANC, intranatal and postnatal care • state Concept,mention the recommended feeding practices in IYCF • state the composition and preparation of complementary foods • explain advantages of breast feeding and disadvantages of formula feeding • advise for domiciliary and Institutional delivery • identify high risk mother and at risk child	**MCH** • IMR, MMR • High risk mothers and at risk child • Care of under-5 children, LBW • antenatal, intranatal and postnatal care, advices and investigations • Concept,mention the recommended feeding practices in IYCF • Advantage and contraindication of BF • Disadvantages of formula feeding • Impontance of colostrum • What is Complementary Feeding (CF) and its importances • Domiciliary and institutional delivery • EMONC: Emergency Obstetric and Neonatal Care	L= 10 T= 16

Learning Objectives	Contents	Teaching hours
Family planning **Students will be able to** • describe the history and objective of FP in Bangladesh; FP 2020 commitments and transition to FP 2030 • state the aims and objectives of family planning • list the contraceptive methods with their advantages and disadvantages • identify the candidates appropriate for different contraceptives • calculate safe period • define MR and abortion and state their indications • define eligible and target couples, CPR, TFR • discuss MCH based family planning **Demography** **Students will be able to** • define demography • state demographic processes • discuss demographic stages • define fertility and mention its influencing factors • define growth rate and population explosion • enumerate the factors responsible for high growth rate in Bangladesh • calculate GR, GFR, TFR,and NRR • describe population pyramid • define and classify census	**Family planning** • Concept of family planning • Aims and objectives of family planning • Contraceptive methods (OCP,ECP) • MR with use of medication(MRM) and difference with emergency crontraceptive pills • PPFP and post abortion /MR/MRM family planning • LAM-lactational amenorrhea method • Eligible and target couples, safe period • CPR,TFR,unmet need discontinuation rate • MCH based family planning **Demography** • Definition of demography • Demographic processes • Demographic transition and indices • Population pyramid • Census • Fertility and its influencing factors	

School Health Services

Learning Objectives	Contents	Teaching hours
Students will be able to: • state the objectives of school health programme • describe the aspects/components of school health service • mention the task of school health medical officer • state health problems of school children • state the school health emergencies • mention the activities of school health clinic	**CORE** • Objectives of school health service • Aspects/components of school health service • Task of school health medical officer • Common Health problems of school children • School health emergencies • School health clinic • Helpful school health environment • Different types of school desk and their importance	L = 4 T = 4
Occupational Health		
Students will be able to: • define occupational health and its objectives • explain various occupational environments • list the common occupational health hazards • list the locally prevailing common occupational diseases with preventive strategies of : a. Pneumoconiosis b. Occupational cancer c. Anthrax d. Occupational dermatoses • describe the general measures of health protection in different occupations • describe the health care facilities and safety measures for industries • state employees' benefits	• Occupational health and its objectives • Occupational environment • Occupational health hazards • Principles of prevention of occupational diseases • Employees' benefits	L = 4 T = 6

Health For All (HFA), Primary Health Care (PHC), Universal Health Coverage (UHC) & MDG, SDG

Learning Objectives	Contents	Teaching hours
Students will be able to: • define PHC and HFA, UHC • explain principles of PHC • list the components of PHC • list the components of ESP • involve community in identifying priority health problems • describe the organisational structure in delivery of PHC in Bangladesh • mention the goal of Health For All (HFA) in the context of Bangladesh • recognise important international health organizations and list their programmes • discuss the national and international health organizations • describe activities of UH and FWC/Community Clinics those rendering PHC • describe activities of GP/ Traditional healer in context of PHC • describe different levels of health care services • state health related MDGs, SGDs ESP • state the important existing National Health Programmes and there activities • state the global indicators of HFA • state the purpose and scope, evolution and diseases under International Health Regulations[IHR]-2005	• Definition: HFA and PHC, UHC • Principles and components of PHC • Health related MDG and SDG • Components of ESP • Name and Activities of important existing national health programmes • Organisational structure for the delivery of PHC • Goal and indicators of HFA by the year of 2000 AD • Levels of health care service delivery • Concept, purpose and scope, evolution and diseases under IHR-2005 • Impotant National organizations. • Important International health organizations: WHO, UNICEF, RED CRESCENT, ICCDRB, CARE etc.	L = 8 T = 8

Public Health Administration & Management

Learning Objectives	Contents	Teaching hours
Students will be able to: • define Management and Administration • state the Functions and Principles of Management and Administration and Systems Strengthening • define Planning • state the indication of Planning and Local Level Planning • describe the health care delivery system of Bangladesh • illustrate the organizational structures of health care delivery at different levels • state the health care referral system in Bangladesh • state the charter of duties of different health personnel	• Definition, Functions, Principles of Management and Administration • Definition, Indication and Process of Planning and Planning Cycle • Health Care Delivery System of Bangladesh • Organizational Structure of Health Care Delivery in Bangladesh including reporting, supervision, and monitoring • Health Care Referral System in Bangladesh • Charter of duties of different health personnel	L = 3 T = 4

Summative assessment of Community Medicine
3rd Professional Exam
Assessment systems and mark distribution

Components	Marks	Total Marks
WRITTEN EXAMINATION **MCQ (SBA+MTF)** **SAQ +SEQ** **FORMATIVE**	 20 70 **10**	100
PRACTICAL EXAMINATION **CONVENTIONAL PRACTICAL / OSPE** **(3 PROCEDURAL AND 7 QUESTION STATIONS)** **RFST, SURVEY REPORT ANDSTUDY TOUR REPORT** **REPORT ON DAY VISIT**	 **50** **30** **20**	100
ORAL EXAMINATION (Structured) **2 Boards each of 2 examiners**		100
Grand Total		**300**

- There will be separate Answer Script for MCQ
- Pass marks 60 % in each of theoretical, oral and practical

TIME SCHEDULE

Students' Time			
	TOPIC	**LECTURE**	**TUTORIAL**
1.	**Concept of Public Health, Community Medicine, Health and Disease**	12 hours	12 hours
2.	**Behavioural Science**	04 hours	08 hours
3.	**Health Communication and H Ed**	04 hours	08 hours
4	**Medical Entomology**	04 hours	06 hours
5	**Research methodology and Biostatistics**	10 hours	13 hours
	Part 1	**34 H**	**47 H**
6	**Environment and Health**	06 hours	08 hours
7	**Immunity, Immunization and Disinfection**	04 hours	08 hours
8	**Public Health Nutrition**	08 hours	08 hours
9	**Principles of Epidemiology**	14 hours	16 hours
10	**Epidemiology of CD and NCD**	15 hours	30 hours
11	**MCH-FP and Demography**	10 hours	16 hours
12	**School Health Service**	04 hours	04 hours
13	**Occupational Health**	04 hours	06 hours
14	**HFA, Primary Health Care, Universal Health Coverage and existing National Health Programmes, MDGs,SDG**	08 hours	08 hours
15	**Public Health Adminstration and Management**	03 hours	04 hours
	Part 2	**76 H**	**108 H**
	GRAND TOTAL	**110 hours**	**155 hours**

Subject: Community Medicine

1st part	:	Lecture	: 34 hours
		Tutorial	: 47 hours
2nd Part	:	Lecture	: 76 hours
		Tutorial	: 108 hours

COME (community oriented medical education):30 days
(1O Days day visit + 10 Days RFST+ 10 Days study tour)

Total (1st Part + 2nd Part):	Lecture	: 110 hours
	Tutorial	: 155 hours
	Integrated teaching	: 10 hours
	COME	: 30 days

Residential Field Site Training Program

- RFST Course for Fourth Year Students is an integral part of the curriculum of Community Medicine.
- Head of the Department of Community Medicine will implement the program as a co-ordinator.
- Teachers of Community Medicine assisted by UNHFPO will perform the responsibility for successful implementation of the program.
- Health Educator of Community Medicine will organize field level activities of the students.
- All categories of personnel involved in this program will be given remuneration as per WHO rules regulation approved by MOHandFW

Objectives of RFST

After completion of the Residential Field Site Training Program as future health care providers students will be able to:

- become accustomed with the environment and lifestyle of peoples of rural community.
- identify health needs and problems of the community people and prioretise them
- conduct survey based on health needs and problems of the community
- be acquainted with health care delivery system at PHC level in Bangladesh.
- develop intersectoral coordination.

Schedule Programme

Daily activities schedule will be designed by the Department of Community Medicine.

Thana Health Complex

The use of the teaching facilities, access to patient areas and employment of THC staff are all under the control of the Thana Health and Family Planning Officer (TH and FPO), and teachers from medical college must respect his/her authority in these matters.

Apart from the outdoor, ward and laboratory area two rooms are available for teaching sessions. These are the classroom and the Resident Medical Officer's room.

Transport

Two microbus having capacity of 25 seats would be engaged for taking students and teachers from the college campus to the Thana Health Complex during RFST Programme and preparatory period.

The driver of the micro-bus has a fixed schedule to follow. This is under the control of the Head of Department of Community Medicine.

Accommodation

There are two dormitories both with twenty beds for the students. In each dormitory there are two single seated rooms with sanitary facilities for teachers.

08 (eight) supporting staff (two drivers, two guards, two cook and two table boy) will be appointed for the conduction of the RFST Programme at Thana Health Complex.

The THFPO will support the programme by engaze in the working doctors and staffs.

Games

Arrangement for badminton, caromboards and volleyballs could be made available at the dormitories.
Students may take their own music player or Walkman. But no loud music will be allowed in the dormitories. No music is allowed after 10:00 p.m.

Student supervision

Supervision of the students is the responsibility of the Principal, teachers of Community Medicine and TH & FPO.

Community Medicine Teaching Programme

Residential Field Site Training Course

RFST Implementation Schedule

Day 1	Introduction to UHC and briefing on primary level health care activities and Upazila Health Profile Indoor patients care
Day 2 and Day 3	Community health survey
Day 4	MCH and FP Services • Health Education and counselling in MCH • Family Planning and • Immunisation
Day 5	Attending the OPDs and Investigation facilities at upazilla level Attending the emergency department
Day 6	Visit to health related sector working at upazilla level
Day 7	Visit to a local NGO
Day 8	Visit to Community Clinic and USC
Day 9	Visit to FWC and Sattelite clinic
Day 10	Evaluation of the programme and presentation Comments by students, teachers and local health authorities

Draft Structured Questionnaire
For
Field Site Epidemiological Survey

This questionnaire should be completed by students after interviewing the head of household or an adult. For some questions, may need to interview an adult female member of the family.

SECTION A: GENERAL DETAILS

1. Name of village : _____
2. Name of Union : _____
3. Name of Thana : _____
4. Name of Head of family : _____
5. Name of person interviewed : _____
6. Name of student (s) : _____

Batch / Group: _____ Roll : _____ Year : _____

SECTION B : HOUSEHOLD DETAILS

8. Please state number of people in the family (oldest member of family first)

	Name	Relationship to head of family	Sex	Age	Occupation	Education Level achieved
I						
II						
III						
IV						
V						
VI						
VII						
VIII						
IX						
X						

9. Type of housing? Pucca (building) / tin roof / thatched : _____

10. Family income per month : _____

If landowner, approx. amount of land owned : _____

11. Disposal of excreta? Sanitary latrine / Insanitary latrine / Open air latrine :

_____

12. Source of drinking water? Tubewell/ River / Pond / Others

Of others, please specify: _____

SECTION B: MATERNAL HEALTH AND FAMILY PLANNING

13. Any pregnancy in the household ending within the last 12 months (excluding current pregnancy) Yes / No: _____

If yes, outcomeof baby : normal alive/ abnormal alive / dead

Outcome of mother : alive / dead

Was there any complications?

a) During the pregnancy (before delivery)
e.g. anaemia, pre-eclampsia : Yes/ No

If yes, specify : _____

b) At the time of delivery: Yes / No

If yes, specify : _____

c) After delivery e.g. fever, painful perineum, urinary incontinence : Yes / No

If yes, specify : _____

14. Who attended the pregnant woman at the time of delivery?

TBA / FWV / others

If others, please specify : _____

If other why did the family not contact a health worker?

a) Not aware of any health worker (HW) in the village
b) Aware but did not wish to see the HW
c) Aware but HW too far to visit and she did not come to the village
d) Other reasons, specify: _____

15. Where was the place of delivery? : Home / Hospital

16. Is there any body currently pregnant in the family? : Yes / No
If yes, duration : _____ months

17. Any tetanus vaccine (TT) given to women during current or previous (within last 12 months) pregnancy? : Yes / No

If yes, numbers of doses : _____

If not given, because of :

a) Not necessary (already received 5 doses)
b) Not aware of the need for TT
c) Aware but did not wish to have it
d) Aware but clinic too far away
e) Other specify: _____

18. Practice of Family Planning
Male : Yes / No
If yes, type: Condom / Vasectomy / Other, specify: _____
If no, reason: _____
Female : Yes / No
If yes, type: Oral pill / Injection / IUCD / Ligation / Other, specify: _____
If no, reason : _____

SECTION D: CHILD HEALTH

19. Immunisation status of under 5 children (check immunisation card if available)

	Child 1	**Child 2**	**Child 3**	**Child 4**	**Child 5**
Penta 1, 2, 3					
OPV 1, 2, 3					
BCG					
Measles					
None given					

If none given, because of:

a) Not aware of the need for vaccine

b) Aware but not wish to have it

c) Aware but clinic too far away

d) Other, specify: _____

20. Breast feeding of under 5

	Age	Duration of suckling	Weaning time
a)			
b)			
c)			
d)			
e)			

21. Anthropometry of under 5:
Mid upper arm circumference (MUAC) and / or height and weight

	Age	Wt in Kg	Ht in Cm	MUAC Cm
a)				
b)				
c)				
d)				
e)				

SECTION E : MORBIDITY

22. Below is a list of diseases. Please indicate if anybody in your household currently suffers from any of these.

Diseases	No. of persons affected	Age
Diarrhoeal disease		
Helminthic infection		
Scabies		
Other skin infection		
Cataract		
Eye infection		
Vit, A deficiency (child night blindness)		
Dental caries		
Chronic suppurative otitis media		
Tuberculosis		
Acute respiratory infection		

23. Any physical disabilities in the family? : Yes/ No
If yes, please specify: _____

24. Who do you normally contact first if any of your family become ill?

Government doctor /Un-qualified doctor / Homeopath / Hakim (Kabiraj) / Others
If other, specify : _____

If not government doctor, give reason : _____

SECTION F: MORTALITY

25. Has there been any death in the household within the last 5 years?
If yes:

	Age at death	**Sex**	**Possible cause of death**
a)			
b)			
c)			
d)			
e)			

SECTION G: KNOWLEDGE, ATTITUDE AND PRACTICE

26. Illness related to smoking

27. ORS and its preparation / use

28. Personal hygiene

29. Transmission of infectious disease e.g. malaria, dysentery etc.

Glossary

AFB	=	Acid Fast Bacilli
AHI	=	Assistant Health Inspector
ARI	=	Acute Respiratory Infections
CPR	=	Contraceptive Prevalence Rate
EPI	=	Expanded Programme on Immunization
HI	=	Health Inspector
IPD	=	In-Patient Department
M.P.	=	Malarial Parasite
MCH	=	Maternal and Child Health
MCQ	=	Multiple Choice Questions
MO, MCH	=	Medical Officer, Maternal and Child Health
OHP	=	Over Head Projector
OPD	=	Out-Patient Department
ORS	=	Oral Dehydration Salt
SI	=	Sanitary Inspector
TH&FPO	=	Thana Health and Family Planning Officer
TFR	=	Total Fertility Rate
TFPO	=	Thana Family Planning Officer
RFST	=	Residential Field Site Training

Day Visit

Objectives of day visits:

- The students will be acquainted with the-
- organogram of the Organization
- objectives of the Organization
- goal and target of the Organization
- strategy settings by the Organization to fulfil the objectives
- existing resources available of the Organization
- activities of the Organization to reach the target and goal
- achievement of the Orgainization
- constrains of the Orgainization

Sites of Day Visit

(At least 8 visits)

- DOTS corner attached to Medical College Hospital
- ORT corner
- MCH clinic attached to Medical College Hospital
- Model FP Clinic attached to Medical College Hospital
- Upazilla Health Complex and Community Clinic
- Health related NGOs
- Pharmaceuticals Industries
- Industries
- Civil Surgeon Office
- Deputy Director of Family Planning (DDFP) office
- Superspecialized health care institutions: Cancer Hospital, ICDDRB, IPH, Leprosy Hospital, CRP, etc.

Guideline for Day visit

Sl. No.	Description
01.	Name of the Organization
02.	Type and date of establishment of the Organization
03.	Location of the Organization
04.	Organogra m of the Organization (use separate sheet)
05.	Objectives of the Organization
06.	Strategy settings by the Organization
07.	Existing resources available of the Organization
08.	Target and achievement of the Orgainization
09.	Activities of the Organization
10.	Social mobilization
11.	Problems/constraints of the Organization
12.	Personal observation and opinion regarding the visit of the Organization
13.	Conclusion

Study Tour

(For the duration of 10 days)

Objective

To observe different natural and health related organizations of the country for acquiring knowledge and developing skills in assessing health needs and demands of the population.

Sites of study tour

- Cox's bazar / Kuakata
- St. Martin's Island
- Seaport health: Chittagong / Mongla
- Chandraghona paper mill
- Sylhet: Tea Garden / Jaflong
- Health Organizations in Capital City
- Mental Hospital, Pabna

Financial support:

I. Ministry of Health will allocate budget in a revenue sector for individual Government Medical College to conduct RFST, Day Visit and Study Tour.

II. Governing body of private medical colleges will collect money from the students during 1st year admission for the implementation of RFST, Day Visit and Study Tour.

Pathology

Departmental Objectives

After completion of pathology course, undergraduate medical students will be able to:

- Explain basic mechanism of diseases: Etiology, pathogenesis, morphological changes with emphasis on common diseases prevalent in Bangladesh.
- Co-relate between clinical findings and pathological changes.
- Chalk out simple investigation plan for diagnosis and follow up of diseases.
- Interpret laboratory results and understand their implication.
- Demonstrate knowledge about the use of Histopathology, FNAC, Cytological examination, Pap smear, Frozen section and Immuno-histochemistry
- Develop attitude for further learning of the subject.
- Develop skills to perform
    - TC, DC, Eosinophil count, estimation of Hb% and ESR , Platelet count.
    - Semen analysis
    - Routine examination of Urine
    - Microscopic examination of body fluids
    - CSF examination
    - Preparation of preservative and fixative- 95% Alcohole, 10% Formaline.
    - Writing a requisition form for histo-pathological and cytological examination

List of Competencies to acquire:

1. Writing a histo-pathological requisition form
2. Preservation of surgical specimens in Upazila health complexes and district hospitals and preparation of fixative for surgical specimens in 10% formalin
3. Sending of surgical specimens from Upazila health complexes and district hospitals to nearby medical college and larger hospitals where histopathology service is available
4. Collection of Paps' smear/ FNAC from superficial mass lesions
5. Preservation of cyto-pathological smears
6. Sending of cytopathology specimens from Upazila health complexes and district hospitals to nearby medical college and larger hospitals where histopathology and cytopathology service is available
7. Preservation of surgical specimens for immunohistochemistry and immunofluorescence
8. Writing a requisition form for immunohistochemistry or immunofluorescence examination
9. Determination of Hb%, ESR, TC & DC of WBC, total count of eosinophil, BT and CT, Platelet count. preparation of stain and comment on PBF.
10. Performing routine urinary examination at health complexes
11. Handling and maintenance of Microscope
12. Performing semen analysis

13. Performing microscopic examination of fluid-CSF
14. Interpretation of pathology reports and data
15. Writing advice for pathological investigations

Distribution of teaching - learning hours and days

Lecture	Tutorial	Practical	Total Teaching hours	Integrated teaching hour for Phase II	Formative Exam		Summative exam	
					Preparatory leave	Exam time	Preparatory leave	Exam time
95 hours	94 hours	34 hours	223 Hours	15 hours	10 days	15 days	10 days	15 days
Time for examination preparatory leave and formative & summative assessment is common for all subjects of the phase)								
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions								

Teaching-learning methods, teaching aids and evaluation

Teaching Methods				Teaching aids	In course evaluation
Large group	Small group	Self learning	Others		
Lecture	Tutorial Practical	Assignment, Self study	Integrated Teaching	Computer & Multimedia Chalk & board White board & markers OHP Slide projector Flip Chart Models Specimens Projector Online media Study guide & manuals. etc.	• Item Examination • Card final (written) • Term final (written, oral+ practical)

2nd Professional Examination:
Marks distribution of Assessment of Pathology:
Total marks – 300

- Written=100 (MCQ (SBA+MTF) 20+(SAQ+SEQ) 70 + Formative Assessment Marks- 10)
- Structured Oral Examination= 100
- Practical and OSPE =100

Related Equipments:

Bino-ocular and teaching microscope, Microscope with projection, (magnified) system, Centrifuge machine, Colorimeter, Spectrophotometer, Auto-analyser, Incubator, Balance, Water bath, Cell Counter, Autoclave, Computer, Electrolyte and gas analyzer, Elisa reader, Haemocytometer, haemometer, Westergren ESR tube, ESR stand, Ayer's spatula, Coplin's jar, Microtome, Cryostat machine etc.

Contents of Term –I and **Term -II**

Term- ***I*** *will include all chapters of GP, fluid and electrolyte imbalance covering acid base balance, electrolyte disorders, Carbohydrate metabolic disorders, including hypo and hyperglycemia, lipid metabolic disorder, hematopathology and lymphoreticular system, examination of body fluid, obesity.*

Term –*II* *will cover the systemic pathology. Different item of clinical pathology will be incorporated in the relevant chapter of systemic pathology, such as urine examination and KFT can be included in renal system, semen analysis in male genital system, LFT in HBS, CSF examination in CNS.*

Learning Objectives and Course Contents in Pathology

Term I A- General Pathology, Haematolymphoid System (Term-1A)

Learning Objectives	Contents	Teaching hours
Introduction to pathology: Students will be able to • define pathology and its different branches • define aetiology, pathogenesis and morphology	**Introduction to pathology:** **Core**: • Introduction to different branches of pathology • Definition of aetiology, morphology and pathogenesis	L = 1 T = 1 P = 0
Cell injury: Student will be able to: • define reversible and irreversible injury. • identify the causes of cell injury. • describe the mechanisms of reversible and irreversible injury. • define cellular swelling and fatty change. • define necrosis and apoptosis. • describe types of necrosis and cite examples. • describe the morphological changes in necrosis and apoptosis. • describe the mechanism of different types of necrosis including gangrene • describe clinical effects of tissue necrosis.	**Cell injury:** **Core**: • Cause of cell injury • Reversible and irreversible injury: mechanism • Mechanism of hypoxic injury • Name of free radical , target of free radical and scavenging system (name of the anti-oxidant), definition of reperfusion injury • Definition of necrosis and apoptosis, types of necrosis and morphologic feature with examples **Additional:** • Mechanism of free radical injury and reperfusion injury, apoptosis • Consequences of mitochondrial dysfunction and loss of calcium homeostasis	L = 2,3,4 T = 2,3 P = 0
Pigments and calcification Students will be able to: • Define Hyaline changes, pathological calcification, Intracellular accumulation.	**Pigments and calcification** **Core**: • Pathological calcification- dystrophic and metastatic: definitions with examples. • Different intracellular pigmentation particularly their name **Additional:** Mechanism of calcification	L = 5 T = 3

Learning Objectives	Contents	Teaching hours
Acute Inflammation Student will be able to : • define inflammations • describe the sequence of vascular changes • define exudates and transudate and their mechanism of formation, clinical significance • describe the acute inflammatory cells and their functions. • name the various types of chemical mediators and their role • describe morphological types of inflammation • describe the local and general clinical features of acute inflammation • explain the local and general body response in acute inflammation • list the hazards and complications of acute inflammation. • explain the various fates of acute inflammation	**Acute Inflammation** **Core:** • Causes and cardinal signs or features of acute inflammation; • Vascular and cellular events Chemical mediators and their function • Morphological patterns of acute inflammation • Out come of acute inflammation • Local and systemic effect of acute inflammation **Additional:** • Recruitment of leukocytes • Role of complement , coagulation and kinin system • Mechanism of neutrophil recruitment • Recognition of microbes and dead tissue • Defects in leukocyte function • How the chemical mediator works	L = 6,7,8,9 T = 4,5 P = 1
Chronic inflammation: Student will be able to: • define chronic Inflammation • describe the characteristic features and types of chronic Inflammation • define granuloma • mention a etiological classification of granuloma with example • describe the morphological features of tubercular granuloma • describe clinical implications of chronic inflammations.	**Chronic inflammation**: **Core**: • Cause • Difference with acute inflammation • Role of macrophage • Examples of granulomatous lesion • Type of granuloma • Mechanism of granuloma **Additional-** Giant cells	L = 10 T = 6 P = 2

Learning Objectives	Contents	Teaching hours
Repair and healing: Student will be able to: • Define healing, repair and regeneration • Describe the mechanisms of primary and secondary wound healing • Distinguish the differences between healing by first and secondary intention • List the local and general factors influencing healing • List the complications of wound healing	**Repair and healing:** **Core:** • Definition of healing, repair and regeneration • Steps of cutaneous wound healing, • Factors influencing wound healing • Complications of wound healing, • Fracture healing • Nerve regeneration **Additional:** • Stem cell • Growth cycle • Extracellular matrix	L = 11,12 T = 7
Edema and electrolyte disorder Student will be able to: • define oedema and classify oedema • describe the pathogenesis and mechanism of inflammatory and noninflammatory oedema • describe various types of clinical oedema a) Cardiac b) Hepatic, c) Renal, d) Pulmonary, e) Nutritional • explain the clinical significance of oedema	**Edema and electrolyte disorder** **Core:** • Pathophysiology of oedema • Mechanism of oedema in cirrhosis, renal disease and heart failure • Examination of body fluids such as pleural effusion, ascitic fluid • Electrolyte disorder: causes of metabolic acidosis, metabolic alkalosis, respiratory acidosis & respiratory alkalosis **Additional:**	L = 13, 14 T = 8
Student will be able to: • define hyperaemia, congestion and hemorrhage • describe different types of hemorrhage and effects of acute and chronic haemorrhage • explain the mechanism of hyperaemia and congestion • describe the tissue changes of passive venous congestion of liver and lung. • define shock • list the different types of shock • describe the pathophysiology of shock with its various stages.	**Hyperemia, congestion and haemorrhage and Shock** **Core:** • Definition of hyperaemia, congestion and haemorrhage • Cause of passive Congestion in lung and liver • Shock: type, pathogenesis of septic shock, stages **Additional:** • Morphology of passive congestion in lung and liver • Mechanism of compensation in shock	L = 15,16 T = 9,10 P= 3

Learning Objectives	Contents	Teaching hours
Thrombosis and embolism: Student will be able to: • define thrombosis and thrombus • describe the pathogenesis of thrombosis • describe morphology of thrombus , difference with post mortem clot • list the effects of thrombi, DIC • list the fate of a thrombus	**Thrombosis and embolism**: **Core:** • Mechanism of thrombosis • fate of thrombus, • Clinical consequence of venous thrombosis, arterial and cardiac thrombosis • DIC	L = 17 T = 11,12
Embolism and infarction Student will be able to: • define embolism • list types of emboli • describe the pathogenesis of pulmonary and systemic embolism and their effects • list the fates of emboli • define infarct and infarction • describe the pathogenesis of infarction • list different types and common sties of infarct • describe morphological changes and fate of an infarct	**Embolism and infarction** **Core:** • Definition of embolism • Pulmonary embolism: source and consequence • Systemic thromboembolism: source and consequence • Air embolism, fat embolism, amniotic fluid embolism: source and consequence • Infarct: definition, types, factors influencing the formation of infarct	L = 18 T = 11,12
Growth disturbance and adaptive change Student will be able to: • define cellular adaptation • list the different types of cellular adaptations • describe the pathogenesis and morphological features of different types of cellular adaptations.	**Growth disturbance and adaptive change** **Core:** • Adaptive change • Definitions and examples of atrophy, metaplasia, hypertrophy, hyperplasia **Additional** : Mechanism of the adaptive changes	L = 19 T = 13 P = 4

Learning Objectives	Contents	Teaching hours
Neoplasia Student will be able to: • define neoplasia and different tumor like conditions • classify tumors • list the characteristic features of benign and malignant tumors • list the characteristic features of carcinoma and sarcoma • describe the mechanism of spread of malignant tumors • classify & enlist the different carcinogens. • describe the parameters required for grading and staging of malignant tumors • describe the significance of grading and staging • list the precancerous conditions • explain the difference between invasive carcinoma, carcinoma in situ, locally malignant tumors, latent cancer and dormant cancer. • list clinical effects of neoplasia. • list the various methods in the laboratory for diagnosis of cancer. • describe briefly principles of histo-pathological examination, cytological examination, tumor markers and immunocyto/ histochemistry.	**Neoplasia** **Core**: • Definition and characteristics of neoplasia • Nomenclature • Features of benign and malignant tumour • Spread of tumour • Genetic predisposition of cancer • Example of proto-oncogene, cancer suppressor gene • Precancerous conditions **Additional:** • Molecular basis of cancer • Multiple step of carcinogenesis,	L = 20,21,22,23 T = 14,15 P = 5,6,7
Carcinogenesis Student must be able to • list the major chemical carcinogens, radiant carcinogens and biological carcinogens • explain the initiation and promotion of carcinogenesis.	**Carcinogenesis** **Core:** • Chemical carcinogen: classification • Tumour: initiation and promotion • Microbiologlogical carcinogen: name and the cancer associated with them • Name of the radiant energy and the cancer associated with them **Additional:** Mechanism of the carcinogenesis of the viruses and radiant energy particularly of HPV and EBV and H pylori	L = 24, 25, T = 16

Learning Objectives	Contents	Teaching hours
Tumor immunity and clinical aspects of neoplasia and laboratory diagnosis of tumor Student will be able to: • define tumor antigen and immune surveillance • name the antitumor mechanism • list the local and systemic effect of cancer • mention the basis of grading and staging of tumor • give an out line of the laboratory diagnosis of cancer	**Tumor immunity and clinical aspects of neoplasia and laboratory diagnosis of tumor** **Core:** • Tumor antigen • Antitumor mechanism • Immune surveillance • Cancer cachexia • Paraneoplastic syndrome • Grading and staging of tumor : basis and their use • Laboratory diagnosis: role of FNAC, cytological examination, pap smear, frozen section and immunohistochemistry **Additional:** • Mechanism of immune surveillance • Praraneoplastic syndrome • Molecular diagnosis of cancer	L = 26 T = 17
Genetics Student will be able to: • explain the basic concepts of inheritance. • classify the different genetic disorders. •	**Genetics** **Core:** • Basic definitions, mutation, type, • Classification of genetic disease, • Mendelian disorder: characteristics and examples, • features of down syndrome, turner syndrome and Klinefelter syndrome and hermaphrodite • Name of the tools for diagnosis of genetic disease-karyotype,FISH, PCR. **Additional:** • Biochemical and molecular basis of single gene disorder, lysosomal storage disease • Single gene disorder non-classical inheritance • Indications of prenatal diagnosis	L = 27,28 T = 18

Learning Objectives	Contents	Teaching hours
Immunopathology Student will be able to: • Describe the basic mechanism of immunological disorders – hypersensitivity, autoimmune disease, immunodeficiency	**Immunopathology** **Core**: • Name of immune deficiency diseases • Autoimmune diseases: name of the organ specific auto immune diseases and the basic pathogenesis (name of the antibody) • Name of the diagnostic tools	L = 29, 30 T = 19
Infectious Disease Student will be able to: • Describe & classify the diseases caused by environmental hazards and infectious disease	**Infectious Disease** **Core**: • Lesions produced by tuberculosis, leprosy and syphilis • Name of the diagnostic tools	L = 31 T = 19
Nutritional disorders Student will be able to : • define and briefly describe PEM, Kwashiorkor, Marasmus & vitamin deficiencies with their clinical consequence	**Nutritional disorders** **Core**: • Bone changes in deficiency states • Features of vitamin A, Vit B_{12} and folic acid deficiency **Additional:** • Iron metabolism • Vitamin A and D metabolism • Vitamin B_{12} and folic acid deficiency mechanism	L = 32,33 T = 20
Environmental diseases and hazards Student will be able to : • describe and classify the diseases cost by environmental hazards	**Environmental diseases and hazards** **Core:** • Diseases associated with smoking, arsenicosis, radiation hazard	L = 34,35 T = 20

Total teaching hour in General Pathology (Term I A)
Lecture : 35 Hours
Tutorial : 20 X 2 = 40 Hours
Practical : 07x 1 = 07 Hours
Total teaching hours of General Pathology = 82 Hours

Term-1B - General Pathology, Haematolymphoid System (Term-1B)

Lymphoreticular Student will be able to: • list the causes of lymphadenitis and describe the morphological features. • classify Hodgkin and non-Hodgkin lymphomas. • describe the morphological features of Hodgkin's and non-Hodgkin lymphoma and correlate with clinical course.	**3. Lymphoreticular** **Core:** • Causes of lymphadenopathy, Outline of classification of NHL • Hodgkin and non-Hodgkin lymphomas : Classification, morphology **Additional:** • Immune diagnosis of Hodgkin lymphoma • Burkitt lymphoma: morphology • Follicular lymphoma: morphology • Causes of splenomegaly	L = 36,37 T = 21 P = 8
Student will be able to: • describe main findings in a peripheral blood film. • state the indications of bone marrow examination and describe normal bone marrow findings. • state normal haemoglobin level with age & sex variations and red cell indices (MCV, MCH , MCHC) • define and classify anaemia based on morphology and aetiology • list the causes of iron deficiency anaemia and state the laboratory investigations. • list the causes of megaloblastic anaemia and other conditions that leads to macrocytosis. • describe laboratory investigations for megaloblastic anaemia • classify haemolytic anaemia. • describe the findings on peripheral blood film and list further investigations to identify its aetiology. • list different types of haemoglobino-pathies and thalassaemia • describe the pathogenesis of sickle cell anaemia and thalassaemia. • list the causes of pancytopenia and describe peripheral blood film findings and bonemarrow findings of aplastic anaemia. • list the causes of haemorrhagic disorders and interpret its screening lists. • discuss haemophilia and ITP • define leukaemia, classify leukaemia and describe peripheral blood film and bone marrow findings in different leukaemias. • explain leukaemoid reactions. • define polycythemia and classify it. • define paraproteinaemia and describe the laboratory investigations of multiple myeloma	4. Hematopathology Core: • Hematopoiesis, different stages of RBC and WBC • Causes of Leukocytosis, leucopenia, eosinophilia, monocytosis and thrombocytopenia • Anemia: morphological and etiological classification • Lab. diagnosis of nutritional anemia, iron deficiency anemia, megaloblastic anemia, pernicious anemia • Hemolytic anemia: classification • Thalassemia and sickle cell anemia: lab diagnosis • Aplastic anemia: etiology and lab diagnosis • PNH, AIHA, Coombs test • Classification of bleeding disorder • ITP: causes and lab diagnosis • Hemophilia: causes and lab. investigation • Leukemia: classification and lab.diagnosis • CGL • Multiple myeloma: lab. Diagnosis Additional : • Constituents of blood and bone marrow Polycythemia Blood Group and blood transfusion Core: • Blood transfusion: grouping and cross matching, transfusion reaction, blood transmissible disease, Rh incompatibility, Blood transfusion products LECTURE ON INTERPRETATION OF RESPECTIVE REPORTING Instruments demonstrations	L = 38-47 T = 22-27 P = 9-15 L = 48,49 T = 28,29 L = 50 P=16

Total teaching hour in Haematolymphoid Pathology (Term-1B)
Lecture : 15 Hours
Tutorial : 9X 2 = 18 Hours
Practical : 08x 1 = 08Hours + 1 Hours (Instruments)
Total teaching hours of Haematolymphoid Pathology = 42 Hours
Integrated teaching = 05 Hours

(Term 1A- 82 Hours + Term 1B- 42 Hours =124 Hours)

Term-2A - Systemic Pathology (Term-2A)

Learning Objectives	Contents	Teaching hours
Blood vessels Student will be able to : • define arteriosclerosis and atherosclerosis • list the risk factors and discuss the pathogenesis of atherosclerosis • list the sites of involvement of atherosclerosis. • describe the complications of atherosclerosis.	1. **Blood vessels** **Core**: • Name of different vasculitis, and vascular tumor, **Core**: • Define arteriosclerosis and atherosclerosis, aneurysm and dissection, • Risk factors of atherosclerosis, site of involvement and complications • Lipid profile **Additional** : Pathogenesis of atherosclerosis	L = 1 T = 1
Heart • define ischaemic heart disease and describe the types. • describe the pathogenesis of ischaemic heart disease. • describe the morphological features of myocardial infarction. • describe the haematological and biochemical changes in myocardial infarction. • define rheumatic heart disease. • describe the pathogenesis and morphology of rheumatic heart disease. • define infective endocarditis. • define the aetiology and types of infective endocarditis. • define hypertension and list the causes of essential and secondary hypertension. • discuss the pathogenesis and describe the vascular changes in hypertension.	**2. Heart** **Must know** • Ischemic heart disease and myocardial infarction : pathogenesis, morphological features and biochemical indicators, complications • Rheumatic fever: pathogenesis, morphology and complications • Infective endocarditis: pathogenesis, morphology and complications • Causes of myocarditis, pericarditis **Additional**: Names of congenital heart disease.	L = 2,3,4 T = 2 P= 1

Learning Objectives	Contents	Teaching hours
Respiratory System Student will be able to: • mention the common inflammatory lung diseases. • define and describe the different types of pneumonia, tuberculosis and lung abscess. • list the causes and describe the pathogenesis of pneumonia, tuberculosis and lung abscess. • describe the morphology and enlist the complication of pneumonia, tuberculosis and lung abscess. • appreciate the clinical course and correlate it with the morphological features. • define the different types of chronic obstructive airway diseases. • describe the pathogenesis, morphological and clinical features of COPD. • classify lung tumours and describe aetiology and pathogenesis. • describe the morphological features and clinical course of common lung tumour. • list the causes of pleuritis and describe the various types of pleural effusion.	**5. Respiratory System** **Core:** • Cause of Pulmonary oedema • Define: ARDS, obstructive pulmonary disease and pneumoconiosis • Morphology of obstructive airway disease • Pathogenesis and morphology of Pneumonia • Lung abscess: pathogenesis and morphology • Pulmonary tuberculosis: pathogenesis, morphology, fate • Cause of pleural effusion • Classification of lung tumor **Additional**: • Congenital anomalies • Pathogenesis of obstructive airway disease, name of the granulomatous lesion of lung • Defense mechanism of lung • Definition of restrictive disease • Morphology and clinical effect of lung tumor	L = 5-9 T = 3,4 P = 2,3

Learning Objectives	Contents	Teaching hours
GIT Student will be able to: • define and list the causes of oral ulcer and leucoplakia • list the precancerous, benign and malignant tumour of the oral cavity and identify the predisposing factors. • classify histologically benign and malignant tumours of salivary glands. • list the tumours of oesophagus and describe their morphological features. • list the causes of acute and chronic gastritis. • define peptic ulcer and describe its pathogenesis, morphological features and clinical course. • list the various types of benign and malignant tumours of stomach and identify the predisposing factors for gastric carcinoma. • list the causes of acute appendicitis describe the morphological features and correlate with its clinical course. • name ulcero inflam matory diseas0es involving intestine. • differentiate ulcerative colitis from crohn's disease. • list the different types of polyp, benign and malignant tumour of intestine.	**6. GIT** **Core:** • Leukoplakia, , name of the carcinoma of oral cavity • Salivary gland tumor, morphology of pleomorphic adenoma • Oesophagus:causes of oesophagitis, Barretts oesophagus • Congenital anomalies of GIT – morphology of Hirschprung disease and hypertrophic pyloric stenosis • PU: pathogenesis, morphology, complications • Inflammatory bowel syndrome, difference between crohns and ulcerative colitis • Tumors of stomach • Gastric cancer: morphology and etiopathogenesis • Acute appendicitis Morphology • Ca colon: morphology and etiopathogenesis • Name of the different polyp of GIT **Additional:** • Pathogenesis of IBD • Diverticulosis • Infarction • Necrotizing enterocolitis • Ulcerative lesion of GIT	L = 10-16 T = 5,6 P = 4,5,6

Learning Objectives	Contents	Teaching hours
Hepato biliary system Student will be able to: • list the causes of hepatitis. • describe the various types of viral hepatitis and explain their modes of transmission and state their clinical outcome. • list the causes and describe the morphological features of liver abscess. • list the causes, pathogenesis and complications of cirrhosis. • lescribe the morphology of cirrhosis and correlate it with clinical features. • list the different types of benign and malignant tumours of liver and describe briefly the epidemiology. • identify the risk factors, describe the pathogenesis, morphological features and complications of cholelithiasis. • list the tumours of gall bladder.	**7. Hepato biliary system** **Core:** • Liver function tests & their interpretation • Jaundice: types, differences • Hepatitis: cause, morphology • Cirrhosis: etiology, pathogenesis, morphology and complication • Portal hypertension and hepatic failure: feature • Liver abscess: morphological features • Tumor of liver : types • Cholecystitis and cholelithiasis : etiology, pathogenesis, **Additional:** • Neonatal jaundice • Diseases of exocrine pancreas • Hepatic Cysts	L =17-22 T = 7,8 P = 7,8

Term-2B - Systemic Pathology (Term-2B)

Learning Objectives	Contents	Teaching hours
Renal system Student will be able to: • classify glomerular diseases. • list clinical manifestations of renal diseases. describe briefly aetiology, pathogenesis and clinical course of acute and chronic glomerulonephritis. • define nephrotic syndrome, list its causes and describe the pathophysiology. • define pyelonephritis, list the causes, describe the morphological features, and clinical course of acute and chronic pyelonephritis. • define and list the causes of acute renal failure and discuss briefly its clinical course. • list the different types of renal tumours and discuss briefly the morphological features. • discuss briefly uropathy and renal calculi. • describe different types of cystitis. • list the different types of urinary bladder tumour, describe its pathogenesis and morphological features.	**8. Renal system** **Core:** • Classification of renal disease and their clinical manifestation • Renal function test including examination of urine • Immune basis of glomerulonephritis • Classification of glomerulonephritis • Acute post streptococcal glomerulonephritis: etiopathogenesis, morphology, complications • Nephrotic syndrome: definition, causes • Pyelonephritis:etiopathogenesis, morphology and complications • Renal tumour: different types • Renal cell carcinoma • Urinary bladder tumor : different types **Additional:** • Congenital disease of kidney • Polycystic kidney disease • Urolithiasis: Types • Morphology of renal cell carcinoma • Morphology of different types of cystitis	L = 23-27 T = 9-10 P =9-10
Male genital system Student will be able to: • describe types and causes of prostatitis. • outline epidemiology, pathogenesis and morphological features of nodular hyperplasia. • describe types of pathology and methods of diagnosis of prostatic carcinoma • list the causes of orchitis and epididymitis. • classify testicular tumours and describe their morphological features and prognosis.	**9. Male genital system** **Core:** • Prostate: causes of prostatitis • Aetiopathogenesis and morphology of nodular hyperplasia • Role of PSA in prostatic carcinoma • **Testis** • Undescended testis: importance • Inflammatory diseases of testis • Testicular tumor : classification and clinical outcome • Morphology of seminoma, yolk sac tumor and embryonal carcinoma • Tumour markers for testicular tumors • Semen analysis	L = 28-30 T = 11 P = 11

Learning Objectives	Contents	Teaching hours
Female genital system Student will be able to: • list the causes of cervicitis and discuss briefly non-neoplastic lesions of cervix. • identify the risk factor for cervical carcinoma, discuss briefly the precancerous, and cancerous lesions of cervix and methods of diagnosis. • list the causes of endometriosis and discuss briefly neoplastic and non-neoplastic lesions of uterus. • list the non-neoplastic cysts of ovary. • describe ovarian tumours and describe briefly morphological features and clinical course of common tumour. • list the gestational trophoblastic tumours, name the type of hydatidiform mole, describe the morphological features and methods of diagnosis of hydatidiform mole. • identify the predisposing factors and discuss the morphological changes and prognosis of Choriocarcinoma.	**10. Female genital system** **Core:** • Causes of cervicitis, salpingitis • Risk factors of cervical cancer • Role of human papilloma virus –screening for cervical cancer • Different histological types of cervical cancer • Endometriosis : possible mechanism , sites and effect of endometriosis • Common tumor of the corpus of uterus : morphology of leiomyoma, • Endometrial hyperplasia : different types, their morphology and importance • Classification of ovarian tumor and role of tumor marker • Morphology of teratoma, dysgerminoma, choriocarcinoma and the different surface epithelial tumor, Krukenberg tumor • Hydatidiform mole and choriocarcinoma predisposing factors, morphology and diagnosis • Pregnancy test	L = 31-34 T =12-13 P = 12-13
Breast Students will be able to: • list the inflammatory diseases of breast. • describe the epidemiology, types and biological importance of fibrocystic disease. • list the benign and malignant tumours of breast, classify malignant breast tumour and discuss the risk factors.	**11. Breast** **Core:** • Name of the different inflammatory diseases of breast, cause of lump of breast • Fibrocystic disease: different types and their importance • Classification of breast tumor • Breast carcinoma: risk factors and the prognostic factors • Screening of breast carcinoma	L = 35,36 T = 14 P = 14

Learning Objectives	Contents	Teaching hours
Endocrine system—thyroid and endocrine pancreas diabetes mellitus Students will be able to: • list the causes of thyroiditis and describe briefly Hashimotos thyroiditis. • discuss pathogenesis and clinical course of diffuse and multinodular goitre. • describe the morphological features of goitre. • list the benign and malignant tumors of thyroid. • describe the morphological features of papillary, follicular carcinoma and the prognosis of thyroid tumors. • types of diabetes mellitus, pathogenesis, diagnosis and complications	**12. Endocrine system—thyroid and endocrine pancreas diabetes mellitus** **Core:** • Causes of goiter, name of the different auto immune disease of thyroid • Thyroiditis: types and morphology • Different types of thyroid tumor, their morphology and prognosis • Diabetes mellitus : different types, pathogenesis, and complications • Estimation of blood sugar • Glucose tolerance test and its interpretation **Additional**: Mechanism of ketoacidosis	L = 37-40 T = 14,15 P = 14,15
Student will be able to: • define the terms used in dermatology • list common papulo-squamous and visicobullous diseases of skin. • list the benign, premalignant and malignant epidermal tumors • describe briefly the morphological features of squamous cell carcinoma, basal cell carcinoma, malignant melanoma	**13. Skin** **Core:** • Terms used in dermatology • Cause of bullous lesions • Name of premalignant and malignant lesions of skin • Basal cell carcinoma, malignant melanoma and squamous cell carcinoma: morphology	L = 41 T = 16 P = 16
Student will be able to: • list the course of acute and chronic meningitis and encephalitis and describe CSF findings in different types of meningitis. • list the benign and malignant tumors of central nervous system and peripheral nerve sheath	**14. CNS** **Core:** • Indications of Examination of CSF and the findings in different types of meningitis • Name of the CNS tumor **Additional:** • Changes in cerebral infarction	L = 42 T = 17 P = 17

Learning Objectives	Contents	Teaching hours
Student will be able to: • list the tumors of eye • list the tumors of Nasal Cavity • classify the tumors of soft tissue • describe the pathogenesis of sinusitis/ otitis media • classify tumors of bone • describe causes & pathogenesis of osteomyelitis • list the disease skeletal muscle	**15. Bone, soft tissue, eye and ENT** **Core:** • Soft tissue tumor : names • Bone tumor : names and their histogenesis • Osteomyelitis: aetiopathogenesis, morphology • Name of the tumors of eye and nasal cavity **Additional:** • Morphology of retinoblastoma, giant cell tumor of bone, Ewings sarcoma, **Lecture on specimen and morphology based on different systems.**	L = 43,44 T = 18 P = 18 L= 45

Total teaching hour in systemic Pathology (Term 2A+2B);
Lecture- 45x1 = 45 hours
Tutorial- 18 x2 = 36 hours
Practical -18 x1= 18 hours
Total = 99 hours
(Grand total hours= General Pathology -82 Hours+ Haematolymphoid Pathology-42 Hours+Systemic pathology-99 hours= 223 Hours)
Common hour for integrated teaching 15hrs

CLASS PERFORMANCE CARD-1A: GENERAL PATHOLOGY

Sl.No	Name Of The Item	Full Marks	Marks Scored	Signature/Remarks
01.	Introduction of pathology, Histo-cytopathological sample collections, preservation, transport and processing of pathological samples.			
02.	Cellular adaptations: definitions, feature and clinical significance, Intracellular accumulation, calcification, Cellular Aging.			
03.	Cell injury: Definitions, injurious agents, types, reversible cell injury-features and morphology, Mechanism of hypoxic injury and Free radicals.			
04.	Irreversible cell injury-Necrosis & Apoptosis-features, example.			
05.	Inflammation: Definition, causes, cardinal signs, types, acute inflammation- cellular and vascular events; Chemotaxis, Phagocytosis.			
06.	Chemical mediators, morphological patterns of acute inflammation, outcome of acute inflammation, Systemic effects of inflammation.			
07.	Chronic inflammation: Definition, cells of chronic inflammation, Granulomatous inflammation – causes, examples and mechanism.			
08.	Healing and repair: Definition, types, mechanism, factors affecting wound healing, complications of wound healing.			
09.	Haemodynamics: Oedema, effusions, Electrolyte disorders			
10.	Hyperemia, congestion, Haemorrhage, Shock			
11.	Haemostasis, Thrombosis, Embolism, Infarction			
12.	Neoplasia: Definition, Nomenclature, Nature of tumor-Benign, Malignant, Borderline malignancy, Low malignant potential; Incidence & Predisposition.			
13.	Features of malignancy- Anaplasia, invasion, metastasis Molecular aspect of tumor-Oncoprotein, Oncogene, Tumor suppressor gene, cellular & molecular hallmarks of cancer.			
14.	Carcinogenesis- direct & indirect carcinogens, clinical aspects of cancer- cancer cachexia, paraneoplastic syndrome, Grading and staging of cancer.			
15.	Tumor immunity, laboratory diagnosis of cancer			

CLASS PERFORMANCE CARD-1B: HAEMATOLYMPHOID PATHOLOGY

SL. NO	NAME OF THE ITEM	FULL MARKS	MARKS SCORED	SIGNATURE /REMARKS
1.	Genetics: Types-Single Gene Disorders, Chromosomal disorders, Complex Multigenic Disorders. Cytogenic disorders- Down's, Turner's syndrome; Mutation: Definition, causes, types; Diagnosis- Clinical features, Investigations.			
2.	Immunopathology: Definition of Immunity, Types of immunity, Immune disorders- Hypersensitivity, Autoimmune disorders-types, Immunodeficiency disorders-types & causes, Rejection of tissue transplantation			
3.	Nutritional disorders: PEM, Obesity, Vitamins and Mineral deficiency, Childhood tumor and Environmental hazards- Effects of tobacco & alcohol; Occupational hazards- Arsenic, Radiation; Infectious disease-TB, Leprosy, Syphilis.			
4.	Introduction and Terminology: Haematological sample collection, Preservation and processing. Constituents of blood and bone marrow, Haematopoesis, Types of Hb and RBC indices, PBF, CBC.			

5.	RBC disorder: Anaemia, Classification- aetiological and morphological, Aetiopathogenesis and laboratory diagnosis of Iron deficiency anaemia and Megaloblastic anemia.			
6.	Haemolytic anaemia: Classification: Extracorpuscular and intracorpuscular, Aetiopathogenesis and laboratory diagnosis of Thalassemia, Sickel cell anaemia			
7.	Pancytopenia, Aplastic anemia- aetiopathogenesis and laboratory diagnosis			
8.	WBC disorder: Reactive proliferations- Neutrophilia, leukocytosis, Leukopenia, Eosinophilia, Lymphocytosis,			
9.	Leukaemia and related disorders-Leukaemia, Leukomoid reaction, Subleukaemic leukaemia and Myelodysplastic syndrome			
10.	Lymphoproliferative disorders: Lymphadenitis, Lymphoma- types, morphology of Hodgkin lymphoma and NonHodgkin lymphoma, Multiple myeloma.			
11.	Myeloproliferative disorders: Polycythemia, Myelofibrosis			
12.	Haemorrhagic disorders: Classification, aetiopathogenesis & laboratory diagnosis of ITP, Haemophilia and DIC; Screening tests (BT, CT, APTT, Tourniquet test)			
13.	Blood grouping-Types, Blood products, Screening tests, Hazards of blood transfusion,			

CLASS PERFORMANCE CARD-2A: SYSTEMIC PATHOLOGY

SL.NO	NAME OF THE ITEM	FULL MARKS	MARKS SCORED	SIGNATURE/REMARKS
1.	Blood vessels: Atherosclerosis, vasculitis and tumors, Lipid profile.			
2.	Ischemic heart diseases, hypertensive heart diseases and cardiac enzymes.			
3.	Congenital heart diseases, Rheumatic fever, Infective endocarditis, (Myocarditis, Pericarditis, Cardiomyopathy – Types and causes)			
4.	Respiratory System: Congenital diseases, Inflammatory diseases-TB, Lung abscess, Pneumonia			
5.	Respiratory System: COPD -Emphysema Chronic bronchitis, Bronchial asthma, Bronchiectasis, Bronchogenic carcinoma, Sputum examination			
6.	Urinary system: Congenital kidney diseases, clinical presentation of renal diseases, Glomerular diseases- AGN, NS.			
7.	Urinary system: Tubulo-interstitial diseases, pyelonephritis, Renal calculi and Renal function tests			
8.	Urinary system: Renal tumors & urinary bladder diseases-cystitis and urinary bladder tumors			
9.	GIT: Oral cavity, salivary gland- inflammation, classification of tumors (pleomorphic adenoma), Esophagus-precursor lesions, risk factors and tumors			
10.	Gastritis, Peptic ulcer diseases, gastric carcinoma.			
11.	Small and Large intestine: Congenital diseases, inflammatory bowel diseases, Polyps and ulcers of GIT,			

	Tumors. Acute appendicitis and tumour.			
12.	Hepatobilliary: Acute and Chronic hepatitis -Hepatitis-B & C, viral markers, liver function tests.			
13.	Hepatobilliary- Liver Cirrhosis, Portal hypertension, Hepatic failure & tumors.			
14.	Gall bladder-Calculi, aetiopathogenesis of cholecystitis, inflammation and tumors. Pancreas- Inflammation and tumors			
CLASS PERFORMANCE CARD-2B: SYSTEMIC PATHOLOGY				
15.	Male Genital System: Testis- inflammations and tumors; Semen analysis & Prostate- NHP, Tumors, PSA			
16.	Female Genital System: Vaginal diseases- vaginitis, cyst; Cervix-cervicitis, polyps, CIN, Cervical tumors, PAP smear test			
17.	Female Genital System: Corpus of uterus-DUB, adenomyosis, endometriosis and uterine tumors; placenta; Ovary-cysts and tumors. Pregnancy test			
18.	Breast- Inflammatory & fibrocystic diseases, benign & malignant tumors- epidemiology, risk and prognostic factors; Investigation protocols; IHC-ER, PR, HER-2			
19.	Endocrine: Thyroid- Hypo and hyperthyroidism; Thyroiditis-Hashimoto's thyroiditis, Graves' disease; Tumors- Types, Papillary carcinoma-morphology, Investigation protocols			
20.	Endocrine- Diabetes mellitus, OGTT, Benedicts test.			
21.	Eye & ENT: Tumor, sinusitis, Otitis media. CNS: Inflammation- Meningitis, brain abscess, Brain tumors- Glial tumors and others; Criteria of brain tumors, CSF examination			
22.	Bones: Inflammation-Osteomyelitis, Bone tumors classification-Osteosarcoma; Joints: Rheumatoid arthritis; Soft tissue: Soft tissue tumors			
23.	Skin: Common terms, Inflammation, Blistering diseases, Pigmented skin lesions, premalignant & malignant conditions (SCC, BCC and malignant melanoma)			
24.	An outline of autopsy, techniques in histopathology, gross examination, tissue processing.			
25.	Techniques in Cytopathology- FNAC, Pap smear, fluid cytopathology, miscellaneous.			
26.	Normal, increased and lower values of different haematopathological and chemical pathology investigations			

ORAL EXAMINATION BOX CONTENTS: GENERAL PATHOLOGY

A/1	A/2	A/3	A/4	A/5
Cell injury Cellular adaptation, Necrosis and apoptosis, Intracellular accumulation and pathological calcification	Inflammation, Healing and regeneration, Infectious diseases	Edema, Electrolyte disorders, Thrombosis and Embolism, Hyperemia and Congestion, Shock, Haemorrhage, Infarction, Examination of body fluids	Neoplasia, Childhood tumors	Problem based question on Items of General Pathology **Staining,** **Histopathology slides,** **Biopsy,** **FNAC,** **Frozen section** **Immunohistochemistry**

ORAL EXAMINATION BOX CONTENTS: GENERAL PATHOLOGY AND HAEMATOLYMPHOID SYSTEM

A/6	A/7	A/8	A/9	A/10
Hemopoiesis, Etiopathogenesis and lab diagnosis of iron deficiency anemia and Megaloblastic anaemia, Environmental and Nutritional deficiency disorders	Etiopathogenesis and lab diagnosis of Haemolytic anaemia, Aplastic anaemia, Genetic disorders: Classification, Mutation, Diagnostic tools	WBC disorders- Granulopoiesis Reactive disorders Leukaemia and related disorders Myeloproliferative disorders Polycythaemia, Infectious diseases Immunopathology: Hypersensitivity, Autoimmune disease, Immunodeficiency states	Haemorrhagic disorders Blood grouping and cross matching Blood transfusion products Transfusion reactions	Problem based questions on Haematolymphoid Pathology Practical Hematology: Anticoagulants Hb estimation, ESR, CBC, PBF, BT, CT, PT, Platelet count, Reticulocyte count, Coomb's test Bone marrow examination, Trephine biopsy

ORAL EXAMINATION BOX CONTENTS: SYSTEMIC PATHOLOGY

B/1	B/2	B/3	B/4	B/5
Atherosclerosis, Tumors of blood vessels, Ischaemic heart disease, Infective endocarditis, Myocarditis, Pericarditis and Rheumatic fever- Pathogenesis, morphology and complications **Lipid profile** **Cardiac enzymes**	GIT- Peptic ulcer diseases, Ulcers and tumors of GIT, Diarrhoeal diseases, Inflammatory bowel diseases Salivary gland Endoscopic biopsy, Colonoscopy	Hepatobiliary system Viral hepatitis, Cirrhosis of liver, Hepatocellular Carcinoma **Jaundice and Liver Function Tests** Breast- Inflammation and tumors, Risk factors and prognostic factors, Diagnostic protocol of breast lump **Pregnancy test**	Urinary system- Primary glomerular diseases, AGN, Nephrotic syndrome, Pyelonephritis, Renal stone, Tumors of kidney and bladder, Causes of uraemia, proteinuria Hematuria and Ketonuria **Renal function tests** **Urine examination**	Case history Histopathological Specimens

B/6	B/7	B/8	B/9	B/10
Respiratory system- Pneumonia, Pulmonary Tuberculosis, COPD, Bronchogenic carcinoma, Bronchial asthma **Pleural fluid Examination**	Male genital system- Testicular tumors, Nodular hyperplasia And tumors of Prostate, **Semen analysis** Female genital system- Tumors of uterus and ovary, endometriosis	Endocrine system Hypo and hyper Thyroidism Hashimoto thyroiditis, Tumors of thyroid gland **Diabetes mellitus and complications**	CNS, Eye, ENT, Skin Musculoskeletal system, Bones, Joints and soft tissue tumors **Examination of CSF fluid**	Problem Based questions of Systemic Pathology Integrated teaching

Case histories-

1. Rheumatic fever
3. Pneumonia
4. COPD
4. Lung carcinoma
5. Thalassemia
6. Leukemia
7. AGN
8. Nephrotic syndrome
9. Peptic ulcer
10. Breast carcinoma
11. Diabetes mellitus
12. Nodular goiter
13.Chronic liver disease
14.Tuberculosis

Teaching of Practical Histopathological Slides-

Name of the teaching slides	**Learning objectives**	**Example in clinical settings**
Acute appendicitis	Congestion	Lung, Ovary
	Suppuration	Soft tissue
	Ulcer	GIT, Skin
	Edema	GIT mucosa, Lung, Brain
Tubercular lymphadenitis	Granuloma	LN, Lung, GIT, Kidney, Bone, Brain
	Caseous necrosis	TB
Chronic cholecystitis	Chronic inflammatory cells, Fibrosis	Chronic tonsillitis, Salpingitis, Pyelonephritis
Nodular hyperplasia of prostate	Hyperplasia	Prostate, Endometrium, Liver, Thyroid
Squamous cell carcinoma	Anaplasia Invasion Dysplasia	Skin, Tongue, Esophagus, Cervix, Lung
Leiomyoma	Benign tumor	Lipoma, Fibroadenoma, Hemangioma, Neurofibroma
Cervical polyp	Polyp	GIT, Skin, Nasopharynx
Nodular goiter	Inflammation Hemorrhage Calcification	Fat necrosis, Tuberculosis
Rhinosporidiosis	Infection	TB, Leprosy, Leishmaniasis, Amebiasis, Hydatid cyst
Adenocarcinoma of colon	Adenocarcinoma	GIT, Breast, Lung, Liver, Ovary, Salivary gland

NOTE: TO LEARN THE GROSS MORPHOLOGICAL FEATURES OF DIFFERENT TYPES IN REPRENSTATIVE SPECIMENS-

16. **APPENDIX**- ACUTE APPENDICITIS/ACUTE INFLAMMATION
17. **GALL BLADDER**- CHRONIC INFLAMMATION
18. **POLYP**- GIT(STOMACH/COLON)
19. **CERVIX**- CARCINOMA
20. **UTERUS**- LEIOMYOMA
21. **BREAST**- CARCINOMA
22. **OBSTRUCTIVE BOWEL DISEASE**- GROWTH IN COLON
23. **THYROID**- NODULAR GOITER
24. **BONE**- OSTEOSARCOMA
25. **LIVER**- CIRRHOSIS
26. **OVARY**- CYST, TUMOR

Microbiology

Departmental Objectives

Undergraduate medical students after completing the course on Microbiology will become well versed about the behavior and etiology of microbial diseases, their pathogenesis, immunological responses involved and some important clinical illnesses that would enable them to plan and interpret necessary laboratory investigations for the diagnosis, treatment and prevention. The department will provide teaching-learning experiences to achieve the following learning objectives:

Knowledge

At the end of the course, students will be able to:

- describe and understand the morphology, antigenic structure, aetiopathogenesis of the diseases caused by microbes such as bacteria, virus, parasites and fungi and the diseases caused by them commonly prevalent in Bangladesh
- explain the host-parasite relationship, normal flora of the body, pathogens and opportunistic pathogens
- understand the principles and applications of immunology involved in the pathogenesis, diagnosis and prevention of microbial and immunological diseases.
- understand hospital acquired infection and its prevention
- understand the emerging and re-emerging microbial diseases in Bangladesh and their diagnosis, control and prevention
- understand antibiotic resistant pattern and selection of appropriate antibiotics and its rational use.
- understand the antimicrobial resistance and containment of antimicrobial resistance.
- understand infection prevention and control in the hospital and outside.
- understand biosafety and biosecurity measures particularly in the laboratory.
- understand about the medical wastes disposal system.

Skill:

Students will be able to:

- plan necessary laboratory investigations selecting appropriate clinical samples at the right time, using the right method of their collection and interpret the results of these laboratory investigations to arrive at laboratory diagnosis of microbial and immunological diseases.
- carryout media preparation, bacterial culture and antimicrobial sensitivity tests.
- perform simple laboratory tests available in Upazila Health Complex.
- Interpret the results of tests and can treat the patients accordingly.
- carry out the techniques of asepsis, antisepsis and sterilization in day to day procedures.
- under take universal precautions in laboratory and clinical practices.

Attitude:

Students will be able to:

- demonstrate the attitude for further learning, research and continuing medical education for improvement of efficiency and skill in the subject.
- demonstrate good behavior/dealings with the patients, attendances, relatives and other personnel involved in the medical services.

List of Competencies to acquire:

After completion of graduation, an MBBS doctor is expected to achieve the following competency in the area of Microbiology. An MBBS graduate will be competent to:

1. perceive the etio-pathogenesis of diseases caused by microbes commonly prevalent in Bangladesh
2. proceed for diagnosing a case caused by microbes in terms of :
    a. appropriate specimens necessary for diagnosis
    b. timing of specimen collection and appropriate transport
    c. appropriate diagnostic tests to advise
3. interpret the values of tests and the test results.
4. identify the basic problems of hospital acquired infection and its prevention
5. select appropriate antimicrobial agents for the treatment of common microbial diseases
6. use of antibiotics rationally
7. control infectious diseases in the hospital and outside.
8. manage patients having infectious diseases.
9. know biosafety, biosecurity and biohazards in medical practices.
10. know how to dispose off medical wastes.
11. know antimicrobial resistance and containment of antimicrobial resistance.
12. know and practice antimicrobial stewardship.
13. provide Counseling regarding vaccination against common diseases and chemoprophylaxis
14. appraise the need for research on common microbial diseases encountered in medical practice

Note: Microbial diseases include: bacteria, parasites, viruses and fungi.

15. Prepare disinfectants at their own for different purposes.
16. Practice personal protection by hand hygiene, wearing PPE and keeping hospital environment clean from infectious diseases (by practicing universal precautions).

Microbiology is now comprised of 6 subjects such as 1) Bacteriology, 2) Parasitology, 3) Virology, 4) Immunology, 5) Mycology 6) and molecular biology. All these are taught as an independent subject in the developed world. The medical students who are placed in the inpatients and outpatient departments have to know the clinical features, diagnosis of infectious diseases. They have to know the immunopathophysiology of the diseases and treatment (antibiotics, antiviral, anti-parasitic, anti-fungal and immunotherapies and biological therapy). In addition students have to observe the outcome of treatment and can change the treatment accordingly. This is the best way of integrated teaching which are being practiced. Moreover, antibiotic resistance containment program, infection prevention and control program and antibiotic stewardship program are introduced which are best understood while learning in wards with patents. Covid-19 has taught us the importance of emerging infectious diseases.

Distribution of teaching - learning hours

Lecture	Tutorial	Practical	Total Teaching hours	Integrated teaching hour for Phase II	Formative Exam		Summative exam	
					Preparatory leave	Exam time	Preparatory leave	Exam time
100 hrs	45 hrs	45 hrs	190 hrs	15 hours	10 days	15 days	10 days	15 days
Time for integrated teaching, examination, preparatory leave of formative & summative assessment is common for all subjects of the phase								
Related behavioral, professional & ethical issues will be discussed in all teaching learning sessions								

Teaching-learning methods, teaching aids and evaluation

Teaching Methods				Teaching aids	In course evaluation
Large group	Small group	Self learning	Others (integrated teaching)		
Lecture	Tutorial Practical	Assignment, Self study	Both vertical and horizontal integration	Computer and Multimedia Bino-ocular and teaching microscope Microscope with projection (magnified) system Multimedia Overhead projector Slide projector , Fixed Learning Module (FLM) Tape slide Video Coloured charts Hand out White board /chalk board	• Item Examination • Card final • Term Examination • Term final (written, oral+ practical)

2nd Professional Examination:
Marks distribution of Assessment of Microbiology:

Total marks – 300

- Written= 100 (MCQ 20+SAQ & SEQ 70+formative Assessment Marks 10)
- MCQ=20 (Multiple T-F 10 + SBA 10)
- SAQ + SEQ = 70
- Structured oral examination (SOE)=100
- Practical =100 (OSPE-50 +Traditional- 40+ Practical note book-05+ Integrated teaching-05).

[Students will prepare a short case report after each integrated teaching and will submit to all the departments of respective phase. If total 5 classes of integrated teaching occur, students will submit 5 such reports.]

Related Equipments:
Hot air oven, Bunsen burner, slide & cover slip, pipette, Micro pipette, Gram staining, Acid fast staining and other staining materials, different reagent, Bino-ocular and teaching microscope, Microscope with projection, (magnified) system, Centrifuge machine, Colorimeter, Spectrophotometer, Incubator, Balance, Water bath, Cell Counter, Autoclave, Computer, Electrolyte and gas analyzer, ElISA reader, Petri dish, automated blood culture machine, gene expert, PCR machine etc.

Learning Objectives and Course Contents in Microbiology

General Bacteriology

Learning Objectives	Contents	Teaching hours
Students will be able to : • describe historical background and outline the scope and importance of Microbiology as a whole and particularly in medical science. • describe the prokaryotic and eukaryotic cells. • describe different structures of bacterial cell and their functions. • classify bacteria based on different aspects including staining and morphology • explain the theoretical basis of staining and clinical significance of certain staining including Gram stain, Z-N stain and Albert stain.	**CORE:** **Introduction of Microbiology:** • Brief historical background • Branches of Microbiology • Legends in the field of Microbiology • Koch's postulate, molecular Koch's postulate, the limitations and new adjucts. • Concept of medical biotechnology in relation to Microbiology • Importance and scope of microbiology in medical science. **Bacterial cell:** • Prokaryotic and Eukaryotic cells with examples • Different structures of bacterial cell and their functions. • Brief description of cell wall of Gram positive and Gram negative bacteria. • Spores structure and clinical importance. • L-forms, protoplast, spheroplast, Clinical importance of L-form. **Bacterial classification and staining:** • Nomenclature of Bacteria. • Classification by staining, morphology, Oxygen requirement, temperature requirement. • Staining- Theoretical basis and clinical significance of Gram and Z-N stain, Albert stain, Auramin-Rodamin stain • Practical on staining: Gram, Z-N staining and Albert stain.	L–1 L –2, T – 2, L –2, T – 2,

NB: L = Lecture. T= Tutorial. P= Practical.

General Bacteriology

Learning Objectives	Contents	Teaching hours
Students will be able to: • describe the general requirements related to microbial growth • classify bacteriological media and describe their uses • define sterilization, disinfection and antisepsis • describe certain methods of sterilization and disinfection, and outline their application • select appropriate method of sterilization in their clinical practice. • explain the mechanism of action of certain anti-microbial agents and their resistance pattern. • select appropriate antimicrobial agents	**Nutrition and Cultivation of bacteria:** • Nutritional requirement for the growth of bacteria. • Growth curve: phases with clinical significance • Common bacteriological media: classification and uses. **Sterilization and Disinfection:** • Definition, classification and applications of sterilization, disinfection and antisepsis • Methods of sterilizations: details of autoclaving, hot air oven and chemical methods. • Sterilization of medical equipment and culture media. • Disinfection of body fluid spillage and equipment. • Preparation of disinfectants and their use. **Antimicrobial agents:** • Definition of antibiotics, antimicrobial agents, chemotherapeutics, bacteriostatic, bacteriocidal, synergism, antagonism, selective toxicity etc. • Classification of anti microbial agents • Mechanism of action on bacteria with examples • Drug resistance: origin, mechanism, transmission and prevention • Indication of combination of antibiotics in bacterial infection • Hazards of indiscriminate use of antibiotics • Defining MDR, XDR and PDR bacteria. • Definition and importance of ESBL, MBL, MRSA, VRSA, VRE. • Definition and importance of Biofilm.	L – 1, L – 2, T – 2, L –**3**, T-1,

General Bacteriology

Learning Objectives	Contents	Teaching hours
• describe the different aspects of host-parasite relationship differentiate between normal, opportunistic and pathogenic bacteria and explain their clinical importance. • enumerate the virulence factors and explain their role in pathogenesis • describe the bacterial genome, DNA, chromosome, plasmid etc. • describe how genetic materials are transferred in bacteria.	**<u>CORE:</u>** **Host-Parasite relationship:** • Terms and Definitions. • Parasite and Host attributes • Normal flora, opportunistic pathogens and their clinical importance. **Pathogenesis of bacterial diseases:** • Transmission of bacterial agents. • Virulence factors: e.g. antigens, toxins, enzymes, invasiveness and their role in pathogenesis of diseases with examples. **Bacterial Genetics:** • Bacterial genome, DNA, chromosome, plasmid, transpozon etc. • Gene transfer in bacteria. • Bacterial DNA replication. • DNA recombination, principles of Clonning and genetic engineering. **Septic Shock**	L–1 L – 1

Systemic Bacteriology

Learning Objectives	Contents	Teaching hrs
Student will be able to: • enumerate the common bacterial agents in Bangladesh: describe epidemiology, their morphology, classification and important cultural characteristics • mention their virulence factors and describe pathogenesis and brief clinical features and the diseases they produce. • describe the laboratory diagnosis: selection, collection, transportation and preservation of clinical samples, laboratory tests and their interpretation. • describe in short the management of infectious diseases. • list the important characteristics and diseases produced by bacteria	• Staphylococci: S. *aureus,* S. *epidermidis*, S. *saprophyticus*, Enterococcus(VRE), MRSA, VRSA. • Streptococci *:* Group A Streptococcus, Streptococcus agalactiae and Streptococcus *pneumoniae* • Neissreia: N. *gonorrhoea,* N. *meningitides* • Corynebacterium *diphtheriae* • Enterobacteriaceae: Classification: Salmonella, Shigella, Esch. *Coli* and other Enterobacteriaceae, definition and clinical significance of ESBL, MBL and NDM-producing bacteria. • Vibrio *cholerae* • Helicobacter *pylori* • Mycobacterium: M. *tuberculosis*, Atypical mycrobacteria and M. *leprae*. MDR, XDR TB. • Anaerobic bacteria: Clostridium: Cl. *tetani*, Cl. *botulinum*, Cl. *Perfringens* and other anaerobic bacteria • Bacillus: B. Anthracis, B. Cereus, B. Subtilis.. • Spirochaetes: Treponemma *pallidum* • Important characteristics and diseases produced by: Rickettssia Haemophilus influenzae, Haemophilus *ducrey*, Mycoplasma, Chlamydia, , Nocardia, Actinomycetes species **<u>Additional:</u>** • Streptococcus Group D • Klebsiella, Proteus , Pseudomonas: Ps. *aeruginosa* , Aeromonas, Plesiomonas, • Campylobacter *jejuni* • Bacteroides species • Clostridium *deficille* • Listeria • Barkholderia • G. vaginalis • Probiotics	L –2, T - 1 L –2, T -2 L –1, T - 1 L-1 L –**2**, T - 2 L –1, T - 1 L –1 L –**2**, T - **2** L –3, T - 1 L-1, T - 1 L-**2**, T - 2 L-**2**, T - **2**

Immunology

Learning Objectives	Contents	Teaching hrs
Students will be able to: • explain the importance of history and role of immunology in modern medicine • describe the basic components of immune system including classification • explain the normal defense mechanism • mention the disorders of the immune system • explain the immunological principles involved in different diagnostic tests • explain immunopathogenesis of SLE, RA, AHA, ABO incompetibility	**CORE:** **1. Introduction:** • Brief historical background • Basic concepts of immunity: Definition, classification, types and components with examples. **2. Immune system:** • Organs, cells and soluble components **3. Antigens and Immunogens:** • Terms and definitions: antigen, immunogen, hapten, epitope, paratope. Criteria of immunogenicity. **4. Major histocompatibility complex (MHC/ HLA):** • Terms and definitions, types and distribution, clinical and biological significance. **5. Immunoglobulins and Antibodies:** • Terms and definitions, classification, structure, biological properties and functions. • Monoclonal antibodies. **6. Complements:** • Terms and definitions, activation, biological functions and clinical significance, deficiency disorders. **7. Mechanisms of immune response :** • Antibody and cell mediated immune response. • Primary and secondary immune response **8. Hypersensitivity:** • Terms and definitions, classifications, mechanisms, clinical significance with examples. • Atopy, desensitization. • Tests for Type-I reaction: Patch test, RAST, serum IgE assay. **9. Transplantation and Tumour immunity:** • Terms and definitions, types and outline of prevention of graft rejection. • Tumour antigens, role in diagnosis and clinical significance. • Immunosurveillance **10. Tolerance and Autoimmunity:** • Definition and classification of tolerance • Terms and definitions, basic concepts and mechanism of development of autoimmuniy. **11. Immunodeficiency disorders and immunotherapy:** • Classification with examples **12. Agents of immunotherapy and biologics.** **13. Immunodiagnostic tests** • Terms and definitions, types and applications in diagnostic medicine • Agglutination, precipitation, ELISA, Western blot test, PCR and RT-PCR.	L-1 L-2, T-1 L-1 L-1 L-1, T-1, L-1 L -1 L – 2, T-1 L –2, T-1 L –1 L –1 L-1, L-1,

Parasitology

Learning Objectives	Contents	Teaching hours
Students will be able to: • mention the important characteristics and epidemiology of common parasitic diseases • describe pathogenesis • explain major complications and laboratory diagnosis of common parasites in Bangladesh. • Know the mode of treatment of common parasitic diseases of Bangladesh.	**CORE:** **Introduction:** Introduction to parasitology, common parasitic diseases of Bangladesh, Terms and definitions, classifications of parasites according to habitat, Host: definition, classification with examples. **Intestinal, luminal and free living protozoa:** **Entamoeba:** • Classification • Geographical distribution, morphology, disease, clinical features, pathogenesis, laboratory diagnosis and treatment. • Extraintestinal amoebiasis. ***Giardia intestinalis* and *Trichomonas vaginalis*:** • Morphology, transmission, disease, clinical features, pathogenesis, laboratory diagnosis and treatment. • Acanthemoeba, Negleria, Balamuthia and Sappinia **Blood and Tissue Protozoa:** **Leishmania species:** Classification, morphology, disease production. **Leishmania *donovani* and PKDL*:*** • Geographical distribution morphology, lifecycle, disease, clinical features, pathogenesis laboratory diagnosis and treatment. • Cutaneous leishmaniasis: Causative agents, pathogenesis, lab diagnosis and management. • Mucocutaneous leishmaniasis(MCL).	L –2, T-1 L –**1**, T-1, L –1, L –2, T-1,

Parasitology

Learning Objectives	Contents	Teaching hrs
	Plasmodium species: Epidemiology, morphology, lifecycle, disease, clinical features, pathogenesis, complications, laboratory diagnosis, treatment and prevention. **Acanthemoeba , Negleria, Balamuthia and Sappinia** **Toxoplasma *gondii*, Crytosporidium, Balantidium *coli*** **Cestodes and Trematodes:** • Classify according to habitat with examples • Common characteristics of Cestodes, Trematodes and Nematodes. • Morphology, lifecycle, diseases, clinical features, pathogenesis, laboratory diagnosis of Taenia *saginata* and Taenia *solium*, T. asiatica. **Echinococcus: Different species** • Morphology, lifecycle, disease, clinical features, pathogenesis and laboratory diagnosis and treatment. **Intestinal Nematodes:** • Geographical distribution, morphology, lifecycle, disease, clinical features, pathogenesis, laboratory diagnosis of Ascaris *lumbricoides*, Hook worm, *Trichuris trichiura*, *Enterobious vermicularis*, *Strongyloides stercoralis.* • Larva migrans and larva currens. • Hyperinfection syndrome **Tissue nematodes: Classification, morphology and mode of transmission, diseases produced.** **Wuchareria bancrofti, Brugia malayi, B. timori** • Morphology, lifecycle, disease (classical and occult filariasis, tropical pulmonary eosinophilia), clinical features, pathogenesis, complications, laboratory diagnosis and treatment of filariasis. Periodicity of microfilaria. Provocative test. • Parasites associated with cancer.	L –2, T-2, L –1, L –1, L-3, T- **1**, L –**2**, T-1,

Learning Objectives	Contents	Teaching hrs
	Additional: 1. Important characteristics and disease produced by: • Hymenolepes *nana*, Diphylobothrium *latum*, *Dipylidium* • Schistosoma • Trypanosoma • Loa *loa*, Onchosercous *volvulous* • D. medinansis • Fasiolopsis *buski*, Faciola *hepatica*: habitat, disease, clinical features, laboratory diagnosis and treatment. • Anisakis • Cyclospora, Cystoisospora, Sarcocystis • Trichinella	L –2, T-**1**

Virology

Students will be able to: • differentiate the basic structure of virus from bacteria. • mention epidemiology, diseases, important clinical features, pathogenesis and laboratory diagnosis of common viral diseases • identify the appropriate measures for prevention. • Know the treatment of viral diseases	**CORE**: 1. **General virology:** • Introduction to virology, common viral diseases in Bangladesh. • Basic structure of virus • Outline of viral replication • Classification • Lab diagnosis of viral diseases • Antiviral agents 2. **Herpes viruses:** • Classification, important characteristics, diseases, important clinical features, transmission, pathogenesis, complications, laboratory diagnosis, treatment and prevention. • Latency and reactivation of Herpes viruses. **3. Orthomyxo and paramyxo viruses** • Important characteristics, diseases, important clinical features, transmission, pathogenesis, complications, laboratory diagnosis and prevention, management. 4. **Hepatitis viruses:** • Classification, important characteristics, diseases, transmission, pathogenesis, complications, laboratory diagnosis, prevention and management.	L –2, T-1 L –**2**, T-1 L –**2**, T-1 L –1, T-1

Virology

Learning Objectives	Contents	Teaching hours
	5. **Polio virus** • Important characteristics, diseases, transmission, pathogenesis, laboratory diagnosis and prevention • Merits and demerits of oral and injectable polio vaccine 6. **Rabies virus:** • Important characteristics, diseases, transmission, pathogenesis, laboratory diagnosis and prevention and treatment, merits and demerits of different types of vaccines 7. **Rota virus:** • Diseases, transmission, pathogenesis, laboratory diagnosis, prevention and treatment 8. **HIV:** • Classification, important characteristics, diseases (AIDS), transmission, pathogenesis, laboratory diagnosis, prevention and treatment. 9. **Dengue** • Important characteristics, diseases (DHF, DSS), transmission, pathogenesis, laboratory diagnosis, prevention and treatment. 10. **Chikungunya:** Important characteristics, transmission, epidemiology, pathogenesis, laboratory diagnosis, prevention and treatment. 11. **Coronavirus:** Important characteristics, epidemiology, transmission, pathogenesis, organs involved, clinical features, laboratory diagnosis, prevention and treatment of COVID-19 and other Coronaviruses. **12. Other Emerging viral diseases** **Avian flue, SARS, MERS, Nipah, Swine flue, Zika, Ebola etc.** • Important characteristics of virus, important clinical features, transmission, pathogenesis, laboratory diagnosis and prevention 13. **Oncogenic virus**es • Definitions, list of oncogenic viruses with their associated tumours. 14. Latent and chronic viral infections.	L –1 L –1 L –1, L – 1 L – 1 L-1 L-1

Mycology

Learning Objectives	Contents	Teaching hours
Students will be able to: • describe morphology and classification of medically important fungal agents and the diseases caused by them • describe pathogenesis, important clinical features and laboratory diagnosis of superficial, cutaneous, subcutaneous and systemic mycosis	**CORE:** **1. Introduction:** • Introduction to Mycology, beneficial and detrimental effects, morphology, classification • Difference between fungus and bacteria • Antifungal agents and antifungal drug resistance 2. **Superficial and cutaneous mycoses:** • Aetiological agents and diseases • Transmission and pathogenesis, laboratory diagnosis of Pityriasis *versicolor*, Dermatophytosis, Candidiasis. **3. Subcutaneous** • Aetiological agents and diseases • Transmission, pathogenesis and Lab diagnosis. • Rhinosporiodiasis and Madura foot 4. **Systemic mycoses**: • Aetiological agents and diseases • Transmission, pathogenesis and lab diagnosis. • Histoplasmosis, Cryptococcal meningitis, Candidiasis, Pneumocystis jerovici, fungus ball, mycotoxin. **5. Opportunistic fungal diseases.**	L-1, L -2, T-1, L –**1** L – 2, T-1,

Clinical Microbiology

Learning Objectives	Contents	Teaching hrs
Student will be able to: • know organisms causing diseases, plan and select appropriate investigation for diagnosis • interpret the findings of the investigations • design appropriate steps for antimicrobial therapy and prevention	**CORE:** 1. Collection of samples, transportation and storage 2. Microbial diseases of Gastrointestinal and Hepatobiliary diseases and Food poisoning 3. Microbial diseases of Genito-Urinary system 4. Microbial diseases of upper and lower Respiratory Tract 5. Microbial diseases of CNS. 6. Hospital Acquired Infections 7. Microbial diseases of Bone and Soft Tissue 8. Microbial diseases of Cardiovascular System 9. Microbial diseases of eye, ear, nose and throat 10. Pyrexia of unknown origin (Microbial cause with emphasis on blood culture). 11. Infectious disease control and prevention. 12. Collection, transport, preservation and lab tests of samples collected from COVID-19 patients. 13. Use of different types of masks, sanitizers, PPE in the prevention of viral infections.	L –1, T-1 L –2, T-1 L –1, T-1 L –1, L –1 L –1, L –1 L –1 L – 1, L- 1, L-1, L-1, T-1 L-1, T-1

Practical

Learning Objectives	Contents	Teaching hours
Students will be able to: • perform and interpret Gram's stain, Z-N stain and Albert stain. • Observe the common bacteriological media with growth of *Staphylococcus aureus, Streptococcus pyogenes, Escherechia coli,Salmonella, Shigella, Klebsiella, Proteus, Pseudomonas* and MTB. • Observe the drug sensitivity test of bacteria. Students will be demonstrated: • autoclave and Hot air oven. • Doffing and donning • Wearing PPE • Hand wash/sanitization • Preparation of disinfectants and their uses.	1. Gram's staining 2. Z-N staining, Albert stain, Auramin-Rodamin stain. 3. Demonstration of culture media namely Nutrient agar, Blood agar, Chocolate agar, MacConkey's agar, Lowenstein Jensen, Robertson's cooked meat media, Blood culture media, transport media (Carry-Blair/Stuart/Peptone water) with and without bacterial growth 4. Demonstration of colony morphology of common bacteria: *Staphylococci, Streptococcus* Lactose fermenters, Lactose nonfermenters, *Proteus, Klebsiella, E. coli, Pseudomonas,* Mycobacterium. 5. Demonstration of inoculation, incubation (aerobic, CO2 and Anerobic condition) and plate reading. 6. Demonstration of catalase, coagulase, and oxidase, TSI, MIU and Simmon's citrate tests 7. Demonstration of in vitro antibiotic sensitivity test by disk diffusion method, 8. Demonstration of sterilization by chemical agents autoclaving and hot air oven. 9. Demonstration of donning and doffing, wearing PPE, hand washing/sanitization. 10. Preparation of disinfectants.	4 4 5 3 2 4 4 2 1 1

Learning Objectives	Contents	Teaching hours
Students will be able to: • prepare stool smear and examine under microscope • observe cyst/trophozoites of intestinal and luminal protozoa namely Entamoeba histolytica, Giardia intestinalis, Trichomonas • obsserve ova of *A. lumbricoides*, *T. trichiuria*, Hook worms and others.. • observe pus cell, macrophage and RBC in stool sample • examine blood slide under microscope for demonstration of Plasmodium species and microfilaria • examine bone marrow smear for LD body • Observe and interpret the results of immunological tests • Observe skin scrapping for fungus. • observe pus cells, RBCs, casts and parasites in urine. • Know about slit skin smear for M. leprae.	**Demonstration** • Microscopic examination of stool for demonstration of cyst/trophozoites of protozoa, ova/larva of intestinal helminthes, pus cells, macrophage and RBC. • Microscopic examination of urine for demonstration of epithelial cells, pus cells, RBCs, casts and parasites. • Examination of blood smear for demonstration of malarial parasites • Examination of bone marrow smear for LD body • Microscopic examination of Gram stain smear of throat swab, wound swab, urethral discharge. • Examination of throat swab by Albert stain. • Microscopic examination of sputum and urine by Z-N stain for AFB. • Modified Z-N stain for Cryptosporidium in stool. • Immunological tests: Demonstration and interpretation of Widal test, RPR, ICT for HBsAg, Dengue, Chikungunya, HIV, HCV, COVID-19, Plasmodium, LD body and Filaria. • Microscopic examination of skin scrapping for demonstration of fungal elements (dermatophytes and candida). • PCR and RT-PCR.	4 2 1 1 1 1 1 1 1 1

Consolidated teaching hours for Microbiology

Subject	Theoretical		Practical	Total
	Lecture	**Tutorial**		
1. General Bacteriology	**13**	**7**	**15**	**35**
2. Systemic Bacteriology	**20**	**15**	**15**	**50**
3. Immunology	**16**	**4**	**1**	**21**
4. Parasitology	**17**	**8**	**6**	**31**
5. Virology	**14**	**4**	**1**	**19**
6. Mycology	**6**	**2**	**1**	**9**
7. Clinical Microbiology	**14**	**5**	**6**	**25**
Total	**100**	**45**	**45**	**190**

1st Term Allotted time (106 Hours)				**2nd Term Allotted time (In 84 Hours)**			
Subject	Lecture 49 hours	Tutorial 26 hours	Practical 31 hours	**Subject**	Lecture 51hours	Tutorial 19 hours	Practical 14 hours
General bacteriology	**13**	**7**	**15**	Parasitology	**17**	**8**	**6**
Systemic Bacteriology	**20**	**15**	**15**	Virology	**14**	**4**	**1**
Immunology	**16**	**4**	**1**	Mycology	**6**	**2**	**1**
				Clinical Microbiology	**14**	**5**	**6**

Grand Total = 1st Term 106 hours + 2nd Term 84 hours = 190 hours

Academic Calendar for Microbiology

2nd Phase (In months)											
1	2	3	4	5	6	7	8	9	10	11	12
General Bacteriology Parasitology Immunology			Preparation + 1st Internal Assessment	Systemic Bacteriology Virology Mycology Clinical Microbiology			Preparation + 2nd Internal Assessment	Preparatory leave	2nd Professional Exam		

ITEM CARDS

There will be 2 (two) Cards

1. **Item card 1:** General Bacteriology, Parasitology, Immunology
2. **Item card 2:** Systemic Bacteriology, Virology, Mycology and Clinical Microbiology

DEPARTMENT OF MICROBIOLOGY
…….. MEDICAL COLLEGE
ITEM CARD

Batch : Tut. Batch Roll (Write in the boxes) ☐ ☐ ☐

A passport sized recent photograph of the student to be attached here

Student's Profile

Name: ……

Contact Phone No: ……

Address: ……

Guardian: ……

Contact Phone No: ……

Address: ……

GENERAL BACTERIOLOGY (First assessment Exam)

	Topic	Marks	Signature
1	Prokaryote and eukaryote, components of bacteria, cell wall of Gram positive and Gram negative bacteria, capsule, flagella, spore, classification of bacteria		
2	Growth and death of bacteria, growth requirements, classification of bacteria according to oxygen requirement, growth curve, generation time		
3	Pathogenesis of bacterial disease, exotoxin and endotoxin, Koch's postulates, their limitations, new adjuncts, molecular Koch's Postulates. Host defense against bacterial disease		
4	Sterilization, disinfection, antisepsis, different methods, their principles and uses		
5	Practical bacteriology: Use of microscope. Gram staining, Ziehl-Neelsen staining. Culture media – types, commonly used media with their use		
6	Antimicrobial drugs, their mechanism of action, resistance, selective toxicity, antibiotic combination, chemoprophylaxis, susceptibility test Bacterial genetics – plasmid, transposons, mutation, transfer of gene,		

	Multidrug resistant (MDR). Extensively drug resistant (DXR) and Pandrug rersistant (PDR) bacteria.		
7	Normal flora		
8	Biosafety and biosecurity, Biomedical waste disposal		

IMMUNOLOGY (First assessment Exam)

	Topic	Marks	Signature
1	Immunity, its type, components of innate immunity, comparison between active and passive immunity, immunocompetent cells		
2	Immunogen, antigen, properties of an ideal antigen, hapten		
3	Immunoglobulin, antibody, its structure, types, function		
4	Complements, major histocompatibility complex		
5	Cytokines, mechanism of immune response, primary and secondary immune response		
6	Tolerance, hypersensitivity, autoimmune diseases		
7	Tumour immunity, transplantation, immunodeficiency		
8	Immunological reactions- basic principles and examples		

MOLECULAR BIOLOGY (First assessment)

	Topic	Marks	Signature
1	Principle of PCR, RT-PCT, Realtime PCR,		
2	Definition of DNA Cloning, DNA recombination, Genetic engineering, biotechnology, gene therapy		

MYCOLOGY (Second assessment)

	Topic	Marks	Signature
1	Basic structure of fungi, classification of fungi, antifungul drugs		
2	Superficial & cutaneous fungi- *Malassezia furfur*, dermatophytes, *Candida*.		
3	Subcutaneous, deep &oppprtunistic fungi- *Madurella, Rhinosporidium, Cryptococcus,Aspergillus.*		

VIROLOGY (Second assessment)

	Topic	Marks	Signature
1	Basic virology, basic structure of a virus, defective virus, prion, replication, pathogenesis of viral disease, host defense against viral infection, antiviral drugs, general scheme of lab diagnosis of viral diseases, common viral infections in Bangladesh		
2	Herpesvirus, orthomyxovirus, paramyxovirus, rubella virus		
3	Hepatitis viruses, oncogenic viruses		
4	Human immunodeficiency virus		
5	Polio virus, rabies virus, dengue virus, rotavirus, chikungunyia virus, Zika virus		
6	COVID-19		

PARASITOLOGY (First assessment Exam)

	Topic	Marks	Signature
1	Basic concepts of host, parasites and their types, classification of medically important protozoa		
2	Entamoeba, free living amoeba, Giardia, Balantidium		
3	Leishmania, Trichomonas, Trypanosoma		
4	Plasmodium, Toxoplasma, Babesia		
5	Basic structure and classification of helminthes Cestode: Taenia, Echinococcus, Diphyllobothrium Trematodes: Schistosoma, Fasiolopsis		
6	Nematodes: Ascaris, Enterobius, Strongyloides, Trichuris		
7	Nematodes : Hookworm, Filariasis, Oncocerca Volvulus		

SYSTEMIC BACTERIOLOGY (Second assessment)

	Topic	Marks	Signature
1	Staphylococcus		
2	Streptococcus		
3	Neisseria, causes of pyogenic meningitis		
4	Corynebacterium, Bacillus		
5	Mycobacterium		
6	Entrriobacteriaceae – General properties & classification, Escherichia coli, Shigella		
7	Salmonella		
8	Vibrio, Campylobacter		
9	Pseudomonas, Proteus, Klebsiella		
10	Haemophilus, Helicobacter, Bordetella, Bacillus		
11	Anaerobic bacteria, anaerobic culture		
12	Spirocheates, sexually transmitted disease		
13	Rickettsia, Chlamydia, Mycoplasma		

CLINICAL MICROBIOLOGY (Second Assessment Exam)			
	Topics	**Marks**	**Signature**
1	Examination of stool, morphology of common parasites found in stool, diarrhea- causes and diagnosis		
2	Examination of urine, urinary tract infection- causes and diagnosis		
3	Examination of CSF, meningitis- causes and diagnosis		
4	Blood culture, pyrexia of unknown origin		
5	Examination of sputum, throat swab, pus, wound swab, pleural fluid, ascetic fluid, genital specimen. Causes of pneumonia, sore throat, wound infection, pleural effusion, ascites, vaginal discharge, urethral discharge,		
6	Basics of Hospital Acquired Infection		
7	Infection prevention and control, hand washing, donning and doffing, Preparation of disinfectants, Disposal of Medical wastes		

Phase IV

- Generic Topics on Medical Humanities to be taught in Phase-IV
- Integrated Teaching in Phase IV
- Subjects of Phase IV--
  - Medicine & Allied subjects
  - Surgery & Allied subjects
  - Obstetrics and Gynaecology

Generic Topics on Medical Humanities to be taught in Phase –IV

The following topics will be taught within 4th phase under supervision of Phase-IV coordination committee in collaboration with medical education unit (MEU). The sessions will be under the guidance of Principal & Vice-principal, coordinated by concerned departments and sessions will be delivered by concerned experts of the topics. Each session will be one and half hour. Attending these session will be mandatory and will be reflected in the formative & summative assessment of Phase-IV.

Topics:

1. Medical professionalism
2. Inter-professionalism
3. Patient Safety & Medical Error

Topics	Learning objective	List of Contents	Method	Time
Medical Professionalism	• explain the terminology: professionalism , medical professionalism • state the importance of medical professionalism • explain the professional responsibilities in health care • mention the ways and means of improving medical professionalism	• The terminology: professionalism , medical professionalism • Importance of medical professionalism • Professional responsibilities in health care • Ways and means of improving medical professionalism	Interactive Lecture Or Seminar	One and half hour
Inter-professionalism	• define Inter-professionalism (IP) • mention importance of IP in health care • list the members of the inter-professional collaboration • state the means of developing inter-professional collaboration among health team • mention some health service related areas requiring inter-professional collaboration	• Definition of Inter-professionalism (IP) • Importance of IP in health care • Members of the inter-professional team collaboration • Means of developing inter-professional collaboration among health team • Some health service related areas requiring inter-professional collaboration	Interactive Lecture Or Seminar	One and half hour
Patient Safety & medical error	• define patient safety • mention importance of patient safety • define medical errors and medical negligence • list common medical errors and medical negligence • explain responsibility of patient safety and rights of a patient • mention the common patient safety issues and goals • explain means of administration of quality care to the patient	• Definition and importance of patient safety • Definition and common medical errors and medical negligence • Responsibility of patient safety and rights of a patient • Common patient safety issues and goals • Means of administration of quality care to the patient	Interactive Lecture Or Seminar	One and half hour

Integrated Teaching In Phase IV

All the departments of phase iv (Medicine & allied Topics, Surgery & Allied Topics and Gynecology & Obstetrics) must be present and take part in the integrated teaching while the faculty representatives from concerned clinical and other departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students 10 (ten) marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of integrated teaching session will be set at the phase IV committee meeting in collaboration with medical education unit (MEU).

Each session will be for at least 3 hours

Topics :

1. Hypertension
2. Tuberculosis
3. Thyroid Disorder
4. Acute Kidney Injury(AKI)
5. Fever
6. Oedema
7. Chest pain
8. Acute respiratory distress
9. DM
10. Jaundice
11. Diarrhea and vomiting
12. Nutrition
13. Pediatric Emergency
14. Headache
15. Anxiety
16. Depression
17. Psychosis
18. Drug reaction
19. Generalised pruritus
20. Purpura
21. STI
22. Low Back Pain
23. Joint Pain
24. Osteoporosis
25. Acute abdomen
26. Thrombophlebitis/Phlebothrombosis
27. Sepsis
28. Infection Prevention & Control
29. Shock
30. Fluid and Electrolytes-
31. Burn
32. Per rectal bleeding-
33. Vertigo
34. Congenital anomalies
35. Wound infection
36. Urinary Tract Infection (UTI)
37. AUB
38. Convulsion
39. Abdominal Lump
40. Anaemia
41. Unconsciousness
42. Delirium & Dementia

Topic	Learning Objective	Core Contents	Other Discipline Involved
Hypertension	At the end of the session students will be able to - • define hypertension • classify hypertension • mention causes of secondary hypertension • mention complications • mention accelerated and malignant hypertension • plan Investigations • manage hypertension as well as complications • evaluate and manage hypertension in pregnancy • manage of hypertension before, during and after surgery	• Definition • Classification • Etiology • Secondary hypertension • Approach to newly diagnosed hypertension • Measurement of blood pressure in different posture with importance • History and physical examination • Target organ damage • Investigation • Management • Anti-hypertensive drugs • Hypertension in pregnancy • Hypertension and surgery	• Internal Medicine/ Cardiology • General Surgery • Obstetrics and Gynaecology • Ophthalmology
Tuberculosis	At the end of the session students will be able to - • mention epidemiology • explain pathology and pathogenesis • enumerate organ involvement • describe the natural history of untreated primary TB • mention clinical features of pulmonary TB • mention clinical features of extra pulmonary TB • perform necessary investigations • manage a case of TB • manage TB in pregnancy • diagnose and manage drug reaction to Anti TB drugs • evaluate role of surgery in TB	• Epidemiology • Pathogenesis & Pathology • Clinical features – pulmonary, extra pulmonary • Investigations • Management • TB in pregnancy • Drug reaction to Anti TB drugs • TB and surgery	• Internal Medicine • General Surgery • Obstetrics and Gynaecology • Dermatology • Ophthalmology • Otolaryngology • Orthopedics • Pediatrics
Thyroid Disorders	At the end of the session students will be able to - • list common thyroid disorders • mention hypo function of thyroid with etiology • mention hyperfunction of thyroid with etiology • state the causes of thyroid enlargement • enumerate the clinical features of hypothyroidism and hyperthyroidism • perform necessary investigations for suspected case of thyroid dysfunction and their interpretation	• Thyrotoxicosis ○ Definition ○ Causes ○ Clinical features ○ Investigations ○ Management ○ Crisis • Hypothyroidism ○ Definition ○ Causes ○ Clinical features ○ Investigations ○ Management ○ Crisis • Thyroid lump/swelling ○ Causes	• Internal Medicine • General Surgery • Obstetrics and Gynaecology • Otolaryngology • Skin and VD

	• manage hypothyroidism and hyperthyroidism	○ Clinical assessment ○ Investigations • Transient thyroiditis • Autoimmune thyroiditis • Thyroid disorder in pregnancy • Surgery and thyroid dysfunction	
Acute Kidney Injury(AKI)	At the end of the session students will be able to - • define AKI • list causes of AKI • describe the pathophysiology of AKI • mention clinical features • plan Investigations • manage cases • mention complications of AKI • identify and manage AKI in paediatics • evaluate and manage pregnancy with AKI • diagnose and manage AKI related with surgery	• Definition of AKI • Causes of AKI • Pathophysiology of AKI • Clinical features • Investigations • Management • Complications of AKI • AKI in paediatics • AKI in Pregnancy • AKI related with surgery	• Internal Medicine/ Nephrology • General Surgery • Obstetrics and Gynaecology • Paediatrics
Fever	At the end of the session students will be able to - • list the etiology of fever • Investigate a case • mention management of cases & management of complications both in adults and in children. • evaluate and manage fever during pregnancy • mention the role of surgery in management of a case of fever • list the consequences of fever	• etiology of fever • Investigation of a case of fever • management of fever and management of complications both in adults and in children. • management of fever during pregnancy • the role of surgery in management of a case of fever • consequences of fever	• Internal Medicine/ Gastroenterology • General Surgery • Obstetrics and Gynaecology • Paediatrics
Oedema	At the end of the session students will be able to - • define oedema • explain the pathophysiology • list the causes • mention clinical assessment of a case of oedema • investigate a case • plan management both in adults and in children. • evaluate and manage oedema during pregnancy • mention the role of surgery in selective cases of oedema	• Definition of oedema • Pathophysiology • Causes of oedema • Clinical assessment of a case of oedema • Investigations • Management both in adults and in children. • Evaluation and management of oedema during pregnancy • Role of surgery in selective cases of oedema	• Internal Medicine • General Surgery • Obstetrics and Gynaecology • Paediatrics

Chest pain	At the end of the session students will be able to- • mention the causes of chest pain • outline the Systematic approach to most of the common causes chest pain (History and clinical exam) • interpret the findings in term of diseases, possible causes, and plan of investigations • make emergency decision regarding management • plan treatment	• Causes of chest pain • Systemetic approach to chest pain • Clinical features of chest pain • DDs of chest pain • Lab diagnosis of chest pain • Treatment of chest pain	• Internal Medicine/Respiratory Medicine • General Surgery • Obstetrics and Gynaecology • Cardiology
Acute respiratory distress	At the end of the session students will be able to- • mention the causes • outline the systematic approach to most of the common causes of respiratory distress(history and clinical exam) • outline the plan of investigations • interpret the findings to reach the cause and to exclude differential diagnosis • plan treatment approach	• Causes • Systemetic approach • Clinical features • Lab diagnosis • Treatment	• Internal Medicine • General Surgery • Obstetrics and Gynaecology • Cardiology • Respiratory Medicine
Diabetes Malaitus(DM)	At the end of the session students will be able to: • define DM • classify DM • describe brief pathophysiology • state presenting features • mention short term and long term complications. • outline laboratory diagnosis • mention WHO guideline • manage DM in different clinical settings (in pregnancy, children, in kidney disease)	• Definition of DM • Classification of DM • Pathophysiology of DM • C/F of DM • Complications of DM • Lab. diagnosis of DM • Management of DM (Including Special situation)	• Internal Medicine • General Surgery • Obstetrics and Gynaecology • Endocrinology • Skin and VD
Jaundice	At the end of the session students will be able to: • define jaundice • classify jaundice • explain the pathophysiology of different type of jaundice • outline systematic approach to differentiate different types of jaundice • plan relevant investigations • outline treatment approaches.	• Definition • Causes • Classification • Pathophysiology • C/F • Diffential diagnosis • Lab.investigations • Treatment	• Internal Medicine • General Surgery • Obstetrics and Gynaecology • Gastroenterology • Paediatrics

Diarrhea and vomiting	At the end of the session students will be able to: • define diarrhea • mention causes • describe pathogenesis • classify dehydration • assess dehydration • describe clinical presentation and consequences • plan investigations and interpretation • outline management • mention preventive measures	• Vomiting and causes • Diarrheal disease- a. Acute watery diarrhea b. Persistent diarrhea c. Dysentery • Assess dehydration and appropriate management • Composition of ORS , cholera saline • Complication • Prevention	• Paediatrics • Internal Medicine • General Surgery • Obstetrics and Gynaecology
Nutrition	At the end of the session students will be able to: • define IYCF • define nutrition • mention common nutritional problem • define malnutrition • classify malnutrition • explain growth chart • assess malnutrition • mention principals of management • describe vitamin deficiency • describe briefly the micronutrient deficiency • define obesity and malnutrition	• Nutrition • IYC • Definition • Common • nutritional • problems • Malnutrition • definition • classification • Growth chart • Assessment of malnutrition • Principals of • Management • Vitamin • Deficiency- common vit deficiency like A, D, K. • Micronutrient • Deficiency- Iron deficiency anemia • Obesity- definition, BMI, cause, clinical presentation, Investigations and interpretation • Complications	• Paediatrics • Internal Medicine • General Surgery • Obstetrics and Gynaecology
Pediatric Emergency	At the end of the session students will be able to: • mention the type of Poisoning • outline management of drowning, burn, dog bite, snake bite & status epilepticus • mention the preventive measures	• Poisoning- a) common house b) hold poisoning, c) kerosene poisoning, d) OPC poisoning, e) drug poisoning • Drowning • Burn • Dog bite • Snake bite • Status epilepticus	• Paediatrics • Internal Medicine • General Surgery • Obstetrics and Gynaecology
Headache	At the end of the session students will be able to:	• Definition of headache • Epidemiology of headache	• Psychiatry

	• define headache • mention the types of headache • perform the history taking of headache • state the clinical features of headache • mention the symptoms of headache related to intracranial causes • explain the symptoms of headache due to ophthalmic or ENT causes	• Common causes of headache • Types of headache • Tension headache • Migraine • Differential diagnosis of headache • Management of headache	• Internal Medicine • Neurology • Eye • ENT
Anxiety	At the end of the session students will be able to: • define anxiety • classify anxiety disorders • state the clinical features of anxiety disorder • diagnose GAD • mention the organic causes of anxiety • manage a case of anxiety disorder	• Definition of anxiety, anxiety disorder • Neurotransmitter involve in anxiety • Epidemiology of GAD • Signs and symptoms of anxiety disorders • Treatment of Anxiety disorder • Postpartum blue anxiety	• Psychiatry • Internal Medicine • Pediatrics • Obstetrics and Gynaecology
Depression	At the end of the session students will be able to: • define depression • classify depressive disorder • state the clinical features of depressive disorder • diagnose depressive disorder • mention the organic causes of depression • manage a case of depressive disorder	• Definition of depression & depressive disorder • Neurotransmitter involves in depression • Epidemiology of Depressive disorder • Sign symptoms of depressive disorder • Treatment of depressive disorder • Postpartum blue depression in children	• Psychiatry • Internal Medicine • Pediatrics • Obstetrics and Gynaecology
Psychosis	At the end of the session students will be able to: • define Psychosis • classify Psychotic disorder • state the clinical features of Psychotic disorder • diagnose Schizophrenia • diagnose Bipolar Disorder • manage a case of Schizophrenia • manage a case of Bipolar Disorder • state the prognosis of Psychotic disorder	• Definition of Psychosis, Hallucination, Delusion • Classification of Psychosis • Neurotransmitter involve in Psychosis • Epidemiology of Schizophrenia • Epidemiology of Bipolar disorder • Sign symptoms of Psychosis • ICU Psychosis • Postpartum Psychosis • Diagnostic criteria of schizophrenia	• Psychiatry • Internal Medicine • Obstetrics and Gynaecology

		• Diagnostic criteria of Bipolar Disorder • Treatment of Schizophrenia • Treatment of Bipolar disorder	
Delirium & Dementia	At the end of the session students will be able to: • define delirium & dementia • mention the causes of delirium & dementia • classify dementia • state the clinical features of delirium & dementia • diagnose a case of delirium & dementia • manage a case of delirium & dementia • state the prognosis of dementia	• Definition of delirium • Definition of dementia • Causes of delirium • Causes of dementia • Classification of dementia • Clinical feature of delirium • Clinical feature of dementia • Diagnosis of delirium • Diagnosis of dementia • Management of delirium • Management of dementia • Prognosis of dementia	• Psychiatry • Internal Medicine • Neurology
Drug reaction	At the end of the session students will be able to • define drug reaction • explain the pathogenesis of drug reaction • state the clinical features of drug reaction • differentiate drug reaction from other diseases • outline the investigations of drug reaction • outline the management of drug reactions	• Definition of drug reaction • Types of drug reaction • Pathogenesis of drug reaction • Clinical features of drug reaction • Differential diagnosis of drug reaction • Investigation of drug reaction • Management of drug reaction	• Department of Skin & VD, • Internal Medicine, • Paediatrics, • General Surgery, • Obstetrics and Gynaecology • Pharmacology, • Pathology
Generalised pruritus	At the end of the session students will be able to • define pruritus • mention the causes of generalized pruritus • mention the pathway of pruritus • explain pathophysiology of pruritus • outline the investigation of pruritus • outline the general and specific management of pruritus	• Definition of pruritus • Pathway of pruritus • Causes of pruritus • Pathophysiology of pruritus • Differential diagnosis • Investigation of pruritus • Management of pruritus	• Department of Skin & VD, • Internal Medicine, • Paediatrics, • General Surgery, • Obstetrics and Gynaecology
Purpura	At the end of the session students will be able to • define purpura and related terms • mention the causes of purpura • explain the pathogenesis of purpura • mention the types of purpura	• Definition of purpura • Types of purpura • Pathogenesis of purpura • Investigation of purpura • Management of purpura	• Department of Skin & VD, • Internal Medicine, • Haematology, • Paediatrics, • General Surgery, • Pathology

	• mention the investigation of purpura • describe the management of purpura		

STI	At the end of the session students will be able to • define STI and related terms • classify STI • clinical features of STI • mention the laboratory investigation of STI • differentiate STI from other diseases • describe the management of STI • outline prevention and control measures	• Definition of STI • Classification of STI • Clinical feature of STI • Laboratory investigations of STI • Differential diagnosis of STI • Management of STI • Prevention and control of STI	• Department of Skin & VD, • Internal Medicine, • General Surgery, • Microbiology , • Community • Medicine
Low Back Pain	At the end of session students will be able to: • define Low Back Pain • mention different types of Low Back Pain • describe the pathogenesis of Low Back Pain • enumerate the clinical features • list the required laboratory investigations • management with prevention.	• Definition of Low Back Pain • Types of Low Back Pain • Clinical stages of Low Back Pain • Pathophysiology • Clinical feature • Complication • Indication of operative and non-operative treatment.	• Pathology • Pharmacology • Physical Medicine • Radiology • Orthopedics
Joint Pain	At the end of session students will be able to: • explain the etiopathogenesis of the disease. • mention the causes of joint pain • list the types of arthritis • outline the management of the disease according to the causes	• Types of arthritis • Stages of all types of arthritis • Complications • Conservative vs surgical treatment	• Anatomy • Pathology • Pharmacology • Physical Medicine
Osteoporosis	At the end of session students will be able to: • mention basic physiology of the bone and pathology of osteoporosis • explain the consequences of osteoporosis • describe social and economic burden in the society • outline the management with a protocol of prevention	• Causes and types of Osteoporosis • Pathophysiology of osteoporosis • Complication • Drug used for Preventions	• Physiology • Pathology • Pharmacology • Endocrinology • Radiology • Obstetrics & Gynaecology
Acute abdomen	At the end of the session students will be able to: • define acute abdomen • list the common causes of acute abdomen	• Definition of acute abdomen • Causes and examples of acute abdomen • Surgical causes of acute abdomen • Medical causes of acute abdomen	• Internal Medicine • General Surgery • Obstetrics and Gynaecology

	• mention the surgical, medical & gynecological causes of acute abdomen • state the specific management protocol of acute abdomen	• Gynecological causes of acute abdomen • Specific management of acute abdomen	• Paediatrics,
Thrombophlebitis/Phlebothrombosis	At the end of the session students will be able to: • define thrombophlebitis • define phlebothrombosis • mention the etiology of thrombophlebitis & phlebothrombosis • explain the pathogenesis of thrombophlebitis & phlebothrombosis • state the clinical features of thrombophlebitis & phlebothrombosis • differentiate between thrombophlebitis & phlebothrombosis • state the name of procoagulant & anticoagulant • mention the complications of thrombophlebitis & phlebothrombosis • outline the management of thrombophlebitis & phlebothrombosis • state the measures of physiotherapy for prevention of thrombophlebitis & phlebothrombosis	• Definition of thrombophlebitis & phlebothrombosis • Etiology of thrombophlebitis & phlebothrombosis • Pathology of thrombophlebitis & phlebothrombosis • Clinical features of thrombophlebitis & phlebothrombosis • Names procoagulant & anticoagulant • Complications of thrombophlebitis & phlebothrombosis • Management of thrombophlebitis & phlebothrombosis • Preventive measures	• Internal Medicine • General Surgery • Obstetrics and Gynaecology • Pathology
Sepsis	At the end of the session students will be able to: • define sepsis, MODS, SIRS, bacteremia, pyemea, septic shock • mention the etiology of sepsis • explain the pathophysiology of sepsis • state the clinical features of sepsis • differentiate the stages of sepsis • state the investigations for sepsis • outline the general management of sepsis • assess the need of HDU and ICU support in sepsis • state the fate of sepsis	• Definition-MODS, SIRS, bacteremia, pyemea, septic shock • Etiology of sepsis • Pathophysiology of sepsis • Clinical features of sepsis • Investigations of sepsis • General management of sepsis • Fate of sepsis	• Internal Medicine, • General Surgery, • Obstetrics and Gynaecology • Pathology • Pharmacology

Infection Prevention & Control	At the end of the session students will be able to: • define sterilization • state the concept of disinfection • mention universal precaution of infection prevention & control • define hospital acquired infection • describe the cross infection • describe infection control in emerging diseases • mention prevention of hospital infections	• Concept of sterilization • Concept of disinfection • Universal precaution • Hospital acquired infection • Cross infection • Infection control in emerging diseases • Prevention of hospital infection	• Internal Medicine, • General Surgery • Obstetrics and Gynaecology • Pathology • Anaesthesiology • Critical care Medicine
Shock	At the end of the session students will be able to: • define shock • state the types of shock • explain the pathogenesis of shock • list the clinical features of shock • state the complications of shock • outline the general management of shock • state the indications of HDU and ICU	• Definition of shock • Types of shock • Pathogenesis of shock • Clinical features of shock • Complications of shock • General management of shock	• Internal Medicine, • General Surgery • Obstetrics and Gynaecology • Pathology • Anaesthesiology • Critical care Medicine
Fluid and Electrolytes	At the end of the session students will be able to: • state the daily input/output of fluids and electrolytes • mention the normal level of common electrolytes • define hypo and hyper natraemea • list the causes of hypo and hyper natraemea • mention the clinical feature of hypo and hyper natraemea • outline the treatment of hypo and hyper natraemea • define hypo and hyper kalaemea • state the causes of hypo and hyper kalaemea • mention the clinical feature of hypo and hyper kalaemea • outline the treatment of hypo and hyper kalaemea • define hypo and hyper calcimea • state the causes of hypo and hyper calcimea • mention the clinical feature of hypo and hyper calcimea • state the treatment of hypo and hyper calcimea	• Daily input/output • Normal level of common electrolytes • Definition of hypo and hyper natraemea, • Causes of hypo and hyper natraemea • Clinical features of hypo and hyper natraemea • Treatment of hypo and hyper natraemea • Definition of hypo and hyper kalaemea, • Causes of hypo and hyper kalaemea • Clinical features of hypo and hyper kalaemea • Treatment of hypo and hyper kalaemea • Definition of hypo and hyper calcimea , • Cuses of hypo and hyper calcimea • Clinical features of hypo and hyper calcimea • Treatment of hypo and hyper calcimea	• Internal Medicine, • General Surgery • Obstetrics and Gynaecology • Pathology • Anaesthesiology • Critical care Medicine • Biochemistry • Physiology

Burn	At the end of the session students will be able to: • define burn • state clinical feature of burn according to depth • explain the pathogenesis of burn • state the complications of burn • mention the assessment criteria of surface area of burn • state the assessment criteria of fluid requirement of burn • outline the general management of burn • state the compartmental syndrome and fasciotomy • define contracture • state the prevention of contracture • mention the reconstructive measures of contracture	• Definition of burn • Clinical features of burn according to depth • Pathogenesis of burn • Complications of burn • Surface area assessment of burn • Fluid requirement assessment of burn • General management of burn • Compartmental syndrome and fasciotomy • Contracture, prevention and reconstructive measures	• General Surgery • Plastic Surgery, • Paediatrics, • Anaesthesiology • Critical care Medicine
Per rectal bleeding	At the end of the session students will be able to: • define per rectal bleeding • state the types of per rectal bleeding • list the causes of per rectal bleeding • mention the clinical features of per rectal bleeding • state the investigation protocol of per rectal bleeding • outline the management of per rectal bleeding	• Definition of per rectal bleeding • Types of per rectal bleeding • Causes of per rectal bleeding • Clinical features of per rectal bleeding • Investigation protocol of per rectal bleeding • Management of per rectal bleeding	• Internal Medicine, • General Surgery • Obstetrics and Gynaecology • Pediatric surgery
Vertigo	At the end of session students will be able to: • define vertigo • classify vertigo • explain anatomy & physiology of balance • describe pathophysiology of vertigo • explain causes of vertigo • state sign & symptoms of vertigo • mention the investigations of vertigo • describe the management of vertigo • state rehabilitation procedure of patient with chronic vertigo	• Definition of vertigo • Classification of vertigo • Anatomy & physiology of balance • Pathophysiology of vertigo • Causes of vertigo • Symptoms & signs of vertigo • Investigation of vertigo • Management of vertigo • Rehabilitation of chronic vertigo	• **Otolaryngology** • **Medicine** • Ophthalmology • Orthopedics • Anatomy • Physiology
	At the end of session students will be able to: • define congenital anomalies / birth defects	• Definition of congenital anomalies / birth defects • Classification of congenital anomalies	• **Pediatrics** • **Orthopedics** • **Cardiology**

Congenital Anomalies	• classify congenital anomalies • mention the causes and risk factors of congenital anomalies • state the screening of congenital anomalies • list the common congenital anomalies • state epidemiology of common congenital anomalies • outline manage congenital anomalies • explain prevention of congenital anomalies • describe rehabilitation of a patients with congenital anomalies	• Causes & risk factors of congenital anomalies • Screening of congenital anomalies • Epidemiology of congenital anomalies • Common congenital anomalies • Management of congenital anomalies • Prevention of congenital anomalies • Rehabilitation of patients with congenital anomalies	• Plastic surgery • Otolaryngology • Anatomy
Wound Infection	At the end of session students will be able to: • define wound infection, surgical site infection & nosocomial infection • mention the causes and risk factors of wound infection and nosocomial infection • describe the pathophysiology of wound infection • list the clinical features of wound infection • describe the management of wound infection • explain prevention of wound infection and nosocomial infection • state the consequences of untreated wound infection	• Definition of wound infection, surgical site infection & nosocomial infection • Causes and risk factors of wound infection and nosocomial infection • Pathophysiology of wound infection • Clinical features of wound infection • Management of wound infection • Prevention of wound infection and nosocomial infection • Consequences of untreated wound infection	• **Surgery** • **Obstetrics & Gynecology** • **Otolaryngology** • Pathology • Microbiology
Urinary Tract Infection (UTI)	At the end of the session students will be able to: • define UTI • enumerate the micro-organisms responsible for UTI • explain the signs and symptoms of UTI • enumerate different investigations for UTI • explain the effects of pregnancy (hormonal) on UTI • explain the complications of UTI especially on pregnancy and fetus • list the drugs used for treatment of UTI • mention appropriate referral criteria for UTI	• Definition of UTI • Micro-organisms responsible for UTI • Signs and symptoms of UTI • Investigations for UTI • Effects of pregnancy (hormonal) on UTI • Complications of UTI on pregnancy and fetus • Drugs used for treatment of UTI • Criteria ofr referral for UTI	• **Medicine / Nephrology** • **Obstetrics & Gynecology** • Microbiology • Pharmacology

Abnormal uterine bleeding (AUB)	At the end of the session students will be able to : • define different types abnormal uterine bleeding (AUB) • explain the causes and pathophysiology of AUB • state the clinical features of AUB • mention the investigations for AUB • name the differential diagnosis of different causes AUB • outline the management approach of the cases of AUB	• Definition of different types AUB (like-menorrhagia, polymenorrhoea, oligomenorrhoea, amenorrhoea etc.) • Causes & Pathophysiology of AUB • Clinical features of AUB • Investigations for AUB • Differential diagnosis of different causes AUB (like- hypothalamic pituitary dysfunction, ovarian dysfunction, thyroid dysfunction, diabetes mellitus, haemoginopathies, thrombocytopenia & dengue) • Management approach of the cases of AUB	• **Obstetrics & Gynecology** • **Medicine** • Endocrinology • Haematology
Convulsion	At the end of the session students will be able to: • define convulsion • state the magnitude & patient profiles of convulsion • mention the causes of convulsion • list the clinical features convulsion • mention D/Ds of different types of convulsion • list the investigations for convulsion • outline the treatment of convulsion • state the prevention of convulsion • state complications of convulsion	• Definition of convulsion • Magnitude & patient profiles of convulsion • Causes of convulsion • Clinical features convulsion • D/Ds of different causes of convulsion (like- Head Injury, Brain Abscess, Brain Tumour, Tuberculosis, Epilepsy, Sepsis, Poisoning, Eclampsia) • Investigations for convulsion • Treatment of convulsion • Prevention of convulsion • Complications of convulsion	• Paediatrics • Obstetrics & Gynecology • Medicine / Neuro-medicine • Surgery /Neuro-surgery
Abdominal Lump	At the end of the session students will be able to- • define abdominal lump • mention the causes of different forms of abdominal lump • state the magnitude & patient profiles of abdominal lump • mention the clinical presentation abdominal lump • mention the investigations for abdominal lump • explain differential diagnosis of different form of abdominal lump • outline treatment of abdominal lump	• Definition of abdominal lump • Causes of abdominal lump (Different forms of abdominal lump like - GIT lumps, Lymphoma, Mesenteric Cyst, Enlarged liver, Enlarged Spleen, Fibroid Uterus, Benign Ovarian Tumor, Malignant Ovarian. Tumor & TO mass) • Magnitude & patient profiles of abdominal lump • Clinical presentation abdominal lump • Investigations for abdominal lump • Differential diagnosis of different form of abdominal lump • Treatment of abdominal lump	• **Obstetrics & Gynecology** • **Surgery** • Medicine • Oncologist

	• explain follow up of abdominal lump	• Follow up of abdominal lump	
Anaemia	At the end of session students will be able to: • define anaemia • classify anaemia • list common causes of anaemia in Bangladesh • explain clinical approaches (history taking, physical examination & investigations)) a patient with anaemia • describe treatment of anaemia • state management of anaemia before surgery • outline management of anaemia during pregnancy • mention prevention of anaemia	• Definition of anaemia • Classification of anaemia • Common causes of anaemia in Bangladesh • Approach (history taking, clinical examination and lab investigation) towards an anaemic patient • Treatment of anaemia • Management of anaemia before surgery • Management of anaemia during pregnancy • Prevention of anaemia	• **Medicine**/ Hematology • **Obstetrics & Gynecology** • Surgery
Unconsciousness	At the end of session students will be able to: • define unconsciousness • mention the level of unconsciousness. • list the causes of unconsciousness. • explain clinical approaches (history taking, physical examination & investigations)) towards an unconsciousness patient • outline emergency management of an unconscious patient. • describe general management of unconscious patient • mention indications emergency surgery for unconscious patient • mention emergency obstetrics care for unconscious patient.	• Definition of unconsciousness • Level of unconsciousness(including Glasgow Coma Scale) • Approach to an unconscious patient (history taking ,clinical examination, lab investigation and bedside investigation) • Responsibility of an emergeny medical officer(ABC) • General management of unconscious patient • Indications emergency surgery for unconscious patient • Emergency obstetric care for unconscious patient.	• **Medicine-** Neuro-medicine • **Surgery** • **Obstetrics & Gynecology**

Medicine & Allied Subjects Departmental Integrated Teaching-Phase-IV

Medicine and Allied subjects of phase IV will organized the departmental integrated teaching on the following topics where faculty members of internal medicine and concerned allied subjects must be present and take part in the integrated teaching. While the faculty representatives from concerned clinical and other departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students few marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of the departmental integrated teaching session will be set by the department in coordination with the phase IV committee.

Each session will be for at least 2 hours

Topics :

1. Heart Failure
2. Congenital Heart Disease
3. Bronchial Asthma
4. Liver Abscess
5. Malabsorption syndrome
6. Irritable bowel syndrome(IBS)
7. Psoriasis
8. Leprosy
9. Autism spectrum disorder (ASD)
10. Somatoform disorder

Topic	Learning Objective	Core Contents	Other Discipline Involved
Heart Failure	At the end of the session students will be able to • define heart failure • classify heart failure • mention causes of heart failure • explain the pathophysiology of heart failure • state the clinical features • plan Investigations • outline management • mention complications	• Definition • Classification • Etiology • Pathophysiology • History and physical examination (clinical feature) • Investigation • Management • Complications	• Medicine • Cardiology • Pediatrics • Pharmacology • Pathology
Congenital Heart Disease	At the end of the session students will be able to • classify congenital heart diseases • mention the causes, pathogenesis and pathology of congenital heart diseases • state the clinical features • plan necessary investigations • outline management plan • evaluate role of surgery	• Classification • Aetiology • Pathogenesis & Pathology • Clinical features • Investigations • Management	• Medicine • Cardiology • Pediatrics
Bronchial Asthma	At the end of the session students will be able to • define Asthma • mention pathophysiology	• Definition • Pathophysiology • Clinical features • Diagnosis	• Medicine • Respiratory Medicine • Pediatrics

	• state clinical features • outline diagnosis measures of Bronchial asthma • outline management plan • outline diagnosis & management of acute severe asthma.	• Management • Acute severe asthma	• Cardiology • Dermatology • Psychiatry
Liver Abscess	At the end of the session students will be able to • define Liver Abscess • mention causes • describe pathophysiology of Liver Abscess • mention clinical features • plan Investigations • outline management of a case • outline plan to manage complications	• Definition • Causes • Pathophysiology • Clinical features • Investigations • Management • Complications	• Medicine • Gastroenterology/Hepatology • Paediatrics • Microbiology
Malabsorption syndrome	At the end of the session students will be able to • define malabsorption • explain pathophysiology • mention eitiology • state clinical features • outline investigation of a case • plan management of malabsorption syndrome	• Definition • Pathophysiology • Clinical features in adults & in children • Investigations • Management of malabsorption both in adults and in children.	• Medicine • Gastroenterology • Paediatrics
Irritable bowel syndrome(IBS)	At the end of the session students will be able to • define IBS • describe pathophysiology • mention clinical features • outline investigation of a case • plan management	• Definition of IBS • Pathophysiology • Clinical features • Investigations • Management of IBS	• Medicine • Gastroenterology • Psychiatry
Psoriasis	At the end of the session students will be able to • define psoriasis • classify psoriasis • mention the causes and aggravating factors of psoriasis • explain the pathogenesis of psoriasis • mention the pathology of psoriasis • describe the clinical features of psoriasis • differentiate psoriasis from other mimicking diseases • mention the laboratory investigations of psoriasis • describe the management of psoriasis including special situations (pregnancy, children, kidney and liver diseases) • mention the complications and their managements	• Definition of psoriasis • Classification of psoriasis • Aetio-pathogenesis of psoriasis • Pathology of psoriasis • Clinical features of psoriasis • Differential diagnosis of psoriasis • Laboratory investigations of psoriasis • Management of psoriasis • Complications of psoriasis	• Department of Skin & VD • Immunology & Microbiology • Pathology • Rheumatology • Medicine • Psychiatry

Leprosy	At the end of the session students will be able to • define leprosy • mention the epidemiology of leprosy • classify leprosy • mention the clinical features of leprosy • mention the laboratory investigations of leprosy • differentiate leprosy from other mimicking diseases • describe the management of leprosy • mention the management of complications of leprosy • mention the prevention and control measures of leprosy	• Definition of leprosy • Epidemiology of leprosy • Classification of leprosy • Pathology of leprosy • Clinical features of leprosy • Differential diagnosis of leprosy • Laboratory investigation of leprosy • Management of leprosy • Complications of leprosy • Prevention and control of leprosy • Patient Education	• Department of Skin & VD • Medicine • Neuromedicine, • Community Medicine, • Microbiology, • Orthopedics
Autism spectrum disorder (ASD)	At the end of the session students will be able to • define ASD • classify ASD • explain pathophysiology • mention the epidemiology of ASD • state the aetiology of ASD • mention the presentation of ASD • list the clinical features of somatoform disorder • mention the differential diagnosis of ASD • differentiate the DDs of ASD • outline the management of a case of ASD • plan counseling • state the prognosis of ASD	• Definition of ASD • Classification of ASD • Pathophysiology • History and physical examination • Epidemiology of ASD • Aetiology of ASD • Clinical feature of ASD • Differential diagnosis of ASD • Difference between DDs • Management of ASD • Prognosis of ASD • Counselling	• Department of Psychiatry • Pediatrics • Neuromedicine • Medicine
Somatoform disorder	At the end of the session students will be able to • define somatoform disorder • mention the epidemiology of somatoform disorder • classify somatoform disorder • enumerate the aetiology of somatoform disorder • state the clinical features of somatoform disorder • mention the differential diagnosis • differentiate the different somatoform disorders • diagnose somatoform disorder • mention the management of a case of somatoform disorder	• Definition of somatoform disorder • Epidemiology of somatoform disorder • Classification of somatoform disorder • Aetiology of somatoform disorder • Clinical feature of somatoform disorder • Differential diagnosis of somatoform disorder • Different type of somatoform disorder • Management of somatoform disorders • Counseling	• Department of Psychiatry, • Medicine, • Neuromedicine • Physical medicine

Surgery & Allied Subjects: Departmental Integrated Teaching- Phase-IV

Surgery and Allied subjects of phase IV will organized the departmental integrated teaching on the following topics where faculty members of General Surgery and concerned allied subjects must be present and take part in the integrated teaching. While the faculty representatives from concerned clinical and other departments will also participate actively. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students few marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of the departmental integrated teaching session will be set by the department in coordination with the phase IV committee.

Each session will be for at least 2 hours

Topics :

1. Malignant Bone Tumour
2. Inflammatory Bowel Disease
3. Gastric Outlet Obstruction
4. Sub acute Intestinal obstruction
5. Neck Swelling
6. Epistaxis
7. Stridor in Children
8. Bladder Outflow Obstruction
9. Metabolic Bone Disease
10. Spinal Injury.
11. Proptosis

Topic	Learning Object.	Core Content	Discipline Involved
Malignant Bone Tumour	At the end of the session the students will able to- • define bone tumour • classify bone malignancy • mention the Clinical features of bone malignancy • state the Investigations protocol of bone malignancy • outline different treatment options of bone malignancy	• Definition of bone tumour • Classification of bone malignancy • Clinical features of bone malignancy • Investigations protocol of bone malignancy • Treatment modalities of bone malignancy	• Orthopaedics • Histopathology • Radiology & Imaging • Oncology • Physical Medicine
Inflammatory Bowel Disease	At the end of the session the students will able to- • define inflammatory bowel diseases • mention the Clinical features of inflammatory bowel diseases • state the Investigations protocol of inflammatory bowel diseases • outline the management protocol of inflammatory bowel diseases	• Definition of inflammatory bowel diseases • Variants Clinical features of inflammatory bowel diseases • Investigations of inflammatory bowel diseases • Management of inflammatory bowel diseases	• General Surgery • Internal Medicine • Radiology & Imaging • Skin & VD
Gastric Outlet Obstruction	At the end of the session the students will able to- • define gastric outlet obstruction • mention the causes of gastric outlet obstruction • state the clinical features of gastric outlet obstruction • list the metabolic changes in gastric outlet obstruction • state the Investigations protocol of gastric outlet obstruction	• Definition of gastric outlet obstruction • Causes of gastric outlet obstruction • Clinical features of gastric outlet obstruction • Metabolic changes in gastric outlet obstruction • Investigations of gastric outlet obstruction	• General Surgery • Radiology & Imaging • Oncology • Biochemistry

	• mention the preoperative preparation of gastric outlet obstruction • outline the different treatment options of gastric outlet obstruction	• Preoperative preparation of gastric outlet obstruction • Treatment of gastric outlet obstruction	
Sub acute Intestinal obstruction	At the end of the session the students will able to- • define sub-acute intestinal obstruction • list the causes of sub-acute intestinal obstruction • mention the clinical features of sub-acute intestinal obstruction • state the investigations protocol of sub-acute intestinal obstruction • outline the treatment of sub-acute intestinal obstruction	• Definition of sub-acute intestinal obstruction • Causes of sub-acute intestinal obstruction • Clinical features of sub-acute intestinal obstruction • Investigations of sub-acute intestinal obstruction • Treatment of sub-acute intestinal obstruction	• General Surgery • Radiology & Imaging
Neck Swelling	At the end of the session the students will able to- • define neck swelling • list the midline & lateral neck swelling types • enumerate the causes of neck swelling • mention the common clinical presentations of neck swelling • state the investigations of neck swelling • outline the management protocol of neck swelling	• Definition of neck swelling • Midline & lateral neck swelling types, • Causes of neck swelling • Clinical presentations of neck swelling • Investigations of neck swelling • Management protocol of neck swelling	• E N T • General Surgery • Vascular Surgery.
Epistaxis	At the end of the session the students will able to- • define epistaxis • describe the anatomy of nasal septum • state the sites of epistaxis • list the causes of epistaxis • outline the step wise management protocol of epistaxis	• Definition of Epistaxis • Anatomy of nasal septum • Sites of epistaxis • Causes of epistaxis • Step-wise management of epistaxis	• E N T • Anatomy • Medicine
Stridor in Children	At the end of the session the students will able to- • define stridor • list the causes of stridor in children • enumerate the causes of pyrexial & apyrexial stridor in children • state the investigations of stridor in children • outline the management protocol of stridor in children	• Definition of stridor • Causes of pyrexial & apyrexial stridor in children • Investigations of stridor in children • Treatment of stridor in children	• Paediatrics • Paediatric Surgery • E N T
Bladder Outflow Obstruction	At the end of the session the students will able to- • define bladder outflow obstruction	• Definition of bladder outflow obstruction	• Urology • Radiology & Imaging

	• mention the causes of bladder outflow obstruction • explain the patho-physiology of bladder outflow obstruction • list the clinical feature of bladder outflow obstruction • state the investigations of bladder outflow obstruction • outline the treatment of bladder outflow obstruction	• Causes of bladder outflow obstruction • Patho-physiology of bladder outflow obstruction • Clinical Features of bladder outflow obstruction • Investigations of bladder outflow obstruction • Treatment of bladder outflow obstruction	• Gen. Surgery
Metabolic Bone Disease	At the end of the session the students will able to- • define metabolic bone disease • enumerate the types of metabolic bone disease • list the causes of metabolic bone disease • state the clinical feature of metabolic bone disease • state the complications of metabolic bone disease • list the investigations of metabolic bone disease • outline the management protocol of metabolic bone disease • mention the prevention of metabolic bone disease	• Definition of metabolic bone disease • Types of metabolic bone disease • Causes of metabolic bone disease • Clinical Features of metabolic bone disease • Complications of metabolic bone disease • Investigations of metabolic bone disease • Management of metabolic bone disease • Prevention of metabolic bone disease	• Orthopaedics • Physiology • Radiology • Physical Medicine
Spinal Injury.	At the end of the session the students will able to- • define spinal injury • state the types of spinal injury • list the causes of spinal injury • mention the clinical features of spinal injury • state the complications of spinal injury • list the investigations of spinal injury • outline the management protocol of spinal injury • outline the rehabilitation process of spinal injury	• Definition of spinal injury • Types of spinal injury • Causes of spinal injury • Clinical Features of spinal injury • Complication of spinal injury • Investigations of spinal injury • Treatment of spinal injury • Rehabilitation process of spinal injury	• Orthopaedics • Surgery • Radiology & Imaging • Anatomy • Neurology • Urology • Neurosurgery
Proptosis	At the end of the session the students will able to- • define proptosis • state the types of proptosis • list the causes of proptosis • mention the clinical feature of proptosis • state the effects of proptosis • list the investigations of proptosis • outline the management protocol of proptosis	• Definition of proptosis • Types of proptosis • Causes of proptosis • Clinical features of proptosis • Effects of proptosis • Investigations of proptosis • Treatment of proptosis	• Ophthalmology • E N T • Endocrinology • Internal Medicine.

Obstetric & Gynecology : Departmental Integrated Teaching-Phase-IV

Obstetric & Gynecology of phase IV will organized the departmental integrated teaching on the following topics where faculty members of Obstetric & Gynecology and concerned other subjects must be present and take part in the integrated teaching. Teachers will be the speakers in each session. Participation of the students of phase IV should be ensured. Students need to get some take home message from every session. To ensure presence of the students few marks will be allocated from practical part of the professional examination as a part of integrated teaching and submission of write up on what was learned by the student as summary. Schedule of the departmental integrated teaching session will be set by the department in coordination with the phase IV committee.

Each session will be for at least 2 hours

Topics :

1. Pelvic Inflammatory Disease (PID)
2. Vaginal Discharge
3. Ovarian Tumour
4. Contraceptives
5. Pelvic tuberculosis
6. Normal labour
7. Antenatal care
8. Vital statistics (maternal & perinatal mortality)
9. Puerperium
10. Puberty

Topic	Learning Objective	Core Contents	Discipline involved
Pelvic Inflammatory Disease (PID)	At the end of the session students will be able to : • define PID • explain the etiology of PID • describe clinical presentations of PID • differentiate between PID from other DDs • manage a case of PID • describe consequences of PID	• Definition of PID • Etiology of PID • Clinical presentations (Pt. Profile and Clinical sign symptoms) • D/Ds • Investigations • Treatment • Complications of PID	• Gynecology • Microbiology • Pathology • Pharmacology • Radiology imaging • Surgery
Vaginal Discharge	At the end of the session students will be able to : • define Vaginal discharge • list causes of Vaginal discharge • identify clinical types of Vaginal discharge • differentiate between different types of vaginal discharge • describe management approach of a patient with Vaginal discharge	• Definition of vaginal discharge • Natural defence of Genital tract • Important causative organism of vaginal discharge • Differential diagnosis • Investigation • Management	• Gynecology • Microbiology/ Pathology • Pharmacology • Skin & VD
Ovarian Tumour	At the end of the session students will be able to : • classify ovarian tumour • describe Clinical presentations of ovarian tumour • differentiate ovarian tumour from other abdominal lumps • outline the investigations	• Classification of ovarian tumour • Clinical presentation of ovarian tumour • Differential diagnosis (fibroid, mesenteric cyst, other abdominal lump) • Investigations	• Gynecology • Pathology • Pharmacology • Oncology • Radiology & Imaging • Surgery

	• describe treatment outline • mention the complications	• Treatment • Complications	
Contraceptives	At the end of the session students will be able to : • describe national status and targets of Family planning • describe importance of contraceptives • classify contraceptives • list advantages and disadvantages of different contraceptives • mention mechanism of action of each method • state complications of each method • mention counselling about contraceptive	• Contraceptive prevalence rate • Unmet need • Importance of contraceptives • Classification of contraceptives • Advantages and disadvantages of each method(natural,barrier,hormonal,non hormonal IUCD, sterilization) • Mechanism of action of hormonal and non hormonal method • Complications of each method • Counselling about contraceptive • Follow up of user	• Obstetrics & Gynecology • Community Medicine • Pharmacology
Pelvic tuberculosis	At the end of the session students will be able to : • define pelvic tuberculosis • state magnitude of the problem (Nationally & Globally) • state pathogenesis & pathology of pelvic tuberculosis • mention clinical presentations of pelvic tuberculosis • mention differential diagnosis • list investigation • mention treatment of pelvic tuberculosis • discuss complication of pelvic tuberculosis	• Definition of pelvic TB • Magnitude of the problem • Aetiopathogenesis • Clinical presentations • Lab investigations • Treatment outline of pelvic tuberculosis • Complications of pelvic tuberculosis	• Obstetrics & Gynecology • Pharmacology • Community Medicine • Pathology
Normal labour	At the end of the session students will be able to : • define normal labour • describe anatomy & physiology of uterus • list the hormones involved in labour • mention the criteria of normal labour • mention onset and stages of normal labour • describe mechanism of normal labour • state monitoring and progress of normal labour • mention management in different stages of normal labour	• Definition of normal labour • Anatomy &physiology of uterus • Hormones involved in labour • Criteria of normal labour • Stages of normal labour • Mechanism of normal labour • Monitoring and progress of normal labour(partograph) • Management in different stages of labour	• Obstetrics & Gynecology • Physiology • Community medicine • Pharmacology

Antenatal care	At the end of the session students will be able to : • define antenatal care • mention objective of antenatal care • mention physiological changes during pregnancy • describe management of an antenatal patient • identify high risk patient • state nutrition during pregnancy • describe counselling of antenatal patient	• Definition of antenatal care • Objectives of antenatal care • Physiological changes during pregnancy • Management of antenatal patient (history,examination,investigation,treatment) • High risk pregnancy • Calculation of calorie intake for a pregnant lady • Counselling of antenatal patient	• Obstetrics & Gynecology • Physiology • Community Medicine • Pharmacology
Vital statistics (maternal & perinatal mortality)	At the end of the session students will be able to : • define MMR &perinatal mortality • mention current situation of MMR &perinatal mortality in Bangladesh • list important causes of maternal and perinatal mortality • describe measures to reduce maternal and perinatal mortality • Govt. initiatives to prevent maternal and perinatal mortality	• Definition of maternal and perinatal mortality • current situation of MMR &perinatal mortality in Bangladesh • Causes of maternal and perinatal mortality • Measures taken to reduce maternal and perinatal mortality • Govt. initiatives to prevent maternal and perinatal mortality	• Obstetrics & Gynecology • Community Medicine
Puerperium	At the end of the session students will be able to : • define normal puerperium • mention the anatomical and physiological changes in normal puerperium • describe process of involution • mention management of normal puerperium • describe abnormal puerperium • mention complications of puerperium • state management of abnormal puerperium	• Definition of normal puerperium • Anatomical and physiological changes in puerperium • Process of involution • Management of normal puerperium(rest,diet,ambulation,care of breast,care of genital organ,contraceptive) • Abnormal puerperium • Complications of puerperium • Management of abnormal puerperium	• Obstetrics & Gynecology • Physiology • Pharmacolgy • Microbiology
Puberty	At the end of the session students will be able to : • define puberty • mention physiological changes of puberty • list complications of puberty • describe clinical management of puberty problems	• Definition of puberty • Physiological changes of puberty • Complications/problems during puberty • Clinical management of puberty problems	• Obstetrics & Gynecology • Anatomy • Physiology • Endocrinology

Medicine &Allied Subjects

Departmental Objectives

At the end of clinical postings in Medicine, the under graduate medical students will be able to:

- acquire appropriate knowledge, attitude and skill to become an effective doctor for the society
- elicit an appropriate clinical history, and physical findings, identify the clinical problems based on these and identify the means of solving the problems
- Plan relevant investigations considering socioeconomic perspective
- outline the principles of management of various diseases considering the patient's socio-economic circumstances
- diagnose and manage medical and pediatric emergencies
- diagnose and manage common psychiatric disorders
- recognize& provide competent initial care and refer complicated cases to secondary and tertiary care centers at appropriate time
- perform common clinical procedures
- possess knowledge to consider the ethical and social implications of his/ her decision
- demonstrate the art of medicine involving communication, empathy and reassurance with patients
- develop an interest in care for all patients and evaluate each patient as a person in society
- have an open attitude to the newer developments in medicine to keep abreast of new knowledge
- learn how to adapt new ideas in situations where necessary
- learn to keep the clinical records for future references
- make them oriented to carry out clinical research in future

List of competencies to acquire

At the end of the course of Medicine the undergraduate medical students will be able to:

1. Gather a history and perform a physical examination
2. Prioritize a differential diagnosis following a clinical encounter
3. Recommend and interpret common diagnosis and screening tests
4. Enter and discuss orders and prescriptions
5. Document a clinical encounter in patient record
6. Provide an oral presentation of clinical encounter
7. Form clinical questions and retrieve evidence to advance patient care
8. Give or receive a patient handover to transition care responsibility
9. Collaborate as a member of an inter-professional team
10. Recognize a patient requiring urgent or emergent care and initiative evaluation and management
11. Obtain informed consent for test and/or procedures
12. Perform general procedures of a physician
13. Understand preventive perspective of disease
14. Identify system failures and contribute to a culture of safety and improvement

Distribution of teaching - learning hours

Subject	Lecture (in hours)				Small group teaching (in hours)	Departmental integrated teaching of Medicine & Allied Subjects (in hours)	Phase IV common integrated teaching (in hours)	Clinical/Bedside teaching (in weeks)			Total weeks	Block posting (in weeks)	Formative examination (in days)		Summative examination (in days)	
	2nd Phase	3rd Phase	4th Phase	Total	PBL, Practical demonstration, Instrumental demonstration, Skill lab, Tutorial & etc.			2nd Phase	3rd Phase	4th Phase						
Internal medicine	22	25	90	137	199 hours	(10 topics ×2 hours) = 20 hours	(42 topics × 3 hours) = 126 hours	14	06+ 2 (OPD)	12	34	04 wks	Preparatory leave-10 days	Exam time-15days	Preparatory leave-10 days	Exam time-30days
Psychiatry	02	-	18	20				-	02	03	05					
Dermatology	-	-	17	17				-	02	03	05					
Pediatrics	04	20	22	46				04	-	06	10					
Transfusion medicine	-	03	-	03				01	-	-	01					
Physical Medicine	-	-	04	04				02	-	-	02					
Nuclear Medicine	-	-	02	02				-	-	-	-					
Emergency	-	-	-	-				-	02	-	02					
Total	28	48	153	229	199	20	126 hours	20	14	24	59	04 wks	25 days		40 days	
Grand Total	**448 hours**						**126 hours**	**63 weeks**					**65 days**			
Time for integrated teaching, examination preparatory leave and formative & summative assessment is common for all subjects of the phase																
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.																
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions																

Medicine & Allied Subjects: hour distribution for Clinical/Bedside teaching in 2nd, 3rd & 4th phases in details

Subject	Clinical/Bedside & Ambulatory care teaching (in hours)						Total hours (in three phases)	Total weeks {(2nd phase wks + 3rd phase wks + 4th phase wks = Total three phases wks) × (6 days × 4 or 2 hours)}
	2nd Phase		3rd Phase		4th Phase			
	Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching			
	Morning	Evening	Morning	Evening	Morning	Evening		
	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency		
	20 weeks		14 weeks		22 weeks			
Internal medicine	168 h (14w)	168 h (14w)	96 h (8w)	96 h (8w)	144 h (12w)	144 h (12w)	816 h	{14+(6+2)+12}= **34 w**× (6 days × 4 hrs)
Psychiatry	-	-	24 h (2w)	24 h (2w)	24 h (2w)	24 h (2w)	96 h	(0+2+2)= **04 w**× (6 days × 4 hrs)
Dermatology	-	-	24 h (2w)	24 h (2w)	24 h (2w)	24 h (2w)	96 h	(0+2+2)= **04 w**× (6 days × 4 hrs)
Pediatrics	48 h (4w)	48 h (4w)	-	-	72 h (6w)	72 h (6w)	240 h	(4+0+6)= **10 w** × (6 days × 4 hrs)
Physical Medicine	24 h (2w)	-	-	-	-	-	24 h	(2+0+0)= **02 w** × (6days × 2hrs)
Emergency	-	-	24 h (2w)	24 h (2w)	-	-	48 h	(0+2+0)= **02 w** × (6days × 4hrs)
Total	**240 hrs**	**216 hrs**	**168 hrs**	**168 hrs**	**264 hrs**	**264 hrs**	**1320 hrs**	**56 weeks**

Teaching-learning methods, teaching aids and evaluation

Teaching Methods				Teaching aids	In course evaluation
Large group	**Small group**	**Self learning**	**Others**		
Lecture Integrated Teaching	Bed side clinical teaching in ward, emergency room, OPD, Clinical teaching in CCU/ ICU. Clinical case presentation. Demonstration of Xray, CTscan ,MRI ,ECG ,Instruments, Photos, Data etc. Practice in medical skill centre Practical Demonstration Writing case problem Practical Skills (Video)	Self-directed learning, assignment, self test/assessment	Integrated teaching, With other dept.	Laptop, Computer, OHP/ Multimedia presentation, Slide Projectors, Video, Slide, Dummy (Manikins), Model, Real patients, attendants, Simulation, Charts e.g. growth chart, IMCI Chart, Others e.g. ECG machine, X-ray, photographs, Black board, White board, Flow chart, X-rays, ECG Reports, Samples, Audio, Instrument, Photographs Reading materials o Modules &national guidelines on different childhood /adult illnesses o Study guide o Books, journals	Item Examination Card final (written), Term Examination Term final (written, OSPE, oral+ practical+ clinical)

Related Equipments:
Stethoscope, BP Machine, Hammer, Fluid bags, Blood bags, I.V sets & cannula, Transfusion sets, Feeding tubes (Ryles tube , Catheter, airway, X-rays, ECG, Appliances, Water seal drainage bottle ESR tube. LP needle, BM needle, Tongue depressor etc. face mask, nonrebreather (NRB) mask, nasal cannula, pulse oxymeter, DOTs medicine strip (for TB, leprosy), glassslide, wood's lamp, ORS packet ,micro burette, manikin, Thermometer, ORS packet, MUAC tap (padeatric and adult)

Final Professional Examination:
Marks distribution:
Total marks – 500 (Summative)

- Written = 200
  - MCQ: MTF-20+SBA-20,
  - SAQ -105+SEQ-35(SAQ-75%, SEQ-25%)
  - Formative assessment -20
- Oral and Clinical= 250
  - Oral -150
  - Clinical=100
- OSPE = 50

Learning Objectives and Course Contents in Medicine

Learning Objectives	Contents	Teaching Hours
Students will be able to: • value Doctor-Patients relationship • define, differentiate, diagnose diseases • demonstrate clinical skills required for history taking, physical care and laboratory tests, care for diagnosing a disease stepwise and participate in the management plan of a patient under doctor supervision • differentiate clinically (History & Physical examination) one DD from other. • participate in patient education and counseling	**Introduction to Medicine (to be covered in 3rd year classes)** Overview of Medicine as a discipline and subject Learning Clinical Approach 1. Doctor- Patient Relationship, Medical Ethics, Patient's safety. 2. Communication Skills 3. Behavioural Science Approach to common symptoms of disease: • General concept of Pain, chest pain and abdominal pain • Fever • Dyspnoea • Cough, expectoration, and Haemoptysis • Anorexia, Nausea, Vomiting, Weight loss and Weight gain • Haematemesis, Melaena, Haematochezia • Diarrhea, Dysentery and Constipation • Edema and Ascites • Jaundice • Syncope and Seizures • Fainting and Palpitations • Headache and Vertigo • Paralysis, movement disorders & disorders of gait • Coma and other disturbances of consciousness • Common urinary symptoms including anuria, oliguria, nocturia, polyuria, incontinence and enuresis • Anaemia and Bleeding • Enlargement of Lymphnodes, Liver and Spleen • Joint pain, neck pain and back ache	L- 22 hrs. 4 hrs(1x4) 2 h for medicine 2h for psychiatry 20 hrs.(1x20)

Learning Objectives	Contents	Teaching Hours
The students will be able to : • define nutrition and its importance • describe normal requirement of nutrients for maintaining health at various periods of human life including healthy adult, pregnancy, infancy, childhood and adolescence • classify nutritional disorders • define protein energy malnutrition and explain its associated factors, precipitating factors • list the clinical features, describe treatment of protein-energy malnutrition • list and recognize the clinical features, provide treatment and advise for prevention and treatment of vitamin deficiency diseases • list and recognize the clinical features, provide treatment and advise to be given for prevention and treatment of deficiency diseases • list and recognize the clinical features, provide treatment and advice to be given for prevention of obesity • apply basic principles of nutrition in clinical medicine	3rd phase (4th year) –Lecture-25 hrs **Clinical Medicine: Nutritional Factors in diseases** **CORE :** • Energy yielding nutrients • Protein energy malnutrition in adult • The vitamins- deficiency **Additional** • Nutrition of patients in hospital • Obesity ***Lectures to be covered on*** 1.Nutrients and vitamin deficiency 2.Obesity	L - 2hrs.
The students will be able to : • list the clinical features, describe principles treatment and advise for prevention of heat hyperpyrexia, heat syncope and heat exhaustion and hypothermia • list the clinical features, describe principles of treatment and advise for prevention of pollution related to : • Arsenic problem • Lead poisoning • Environmental radiation	**Climatic and environmental factors in disease** **CORE :** • Disorders related to temperature • Disorders related to pollution • Drowning, electrocution and radiation hazards • Health hazards due to climate change	L –2 hr.

Learning Objectives	Contents	Teaching Hours
The students will be able to: • diagnose infectious diseases. • explain principles of management of infection • describe general principles and rational use of antibiotics and other chemotherapy against infectious and parasitic diseases • list the clinical features, describe principles of treatment and advise for prevention of common infectious and tropical diseases.	**Diseases due to infections** **CORE :** • Approach to infectious diseases-diagnostic and therapeutic principles • General principles and rational use of antibiotics • Enteric fever • Acute Diarrhoeal Disorders • Cholera & food poisoning • Amoebiasis, Giardiasis • Tetanus • Influenza and infectious mononucleosis • Malaria • Kala-azar • Filariasis • **Helminthic diseases** ▪ Nematodes ▪ Cestodes ▪ Trematodes • HIV and infections in the immunocompromised conditions • Rabies • Herpes simplex & herpes zoster • Chickenpox • Viral haemorrhagic fever: dengue • Anthrax • Brucellosis • Covid -19,Influenza,MARS,SARS	L-14 hrs.

Learning Objectives	Contents	Teaching Hours
The student will be able to define, describe prevalence, aetiologic factors, pathophysiology, pathology, investigations and principles of treatment of the common problems in haematology.	**Diseases of the blood** **CORE:** • Anemia • Leukaemia • Lymphoma • Multiple myeloma • Bleeding disorders • Coagulation disorders • Transfusion medicine **Additional:** • Bone marrow transplantation	L - 7hrs.
The students will be able to: • describe applied anatomy and physiology & explain lung function tests; • describe prevalence, aetiologic factors, pathophysiology, pathology, investigations and principles of treatment of common respiratory diseases.	4^{th} phase(5^{th} year)- Lecture 90 hrs **Diseases of the respiratory system** **CORE :** • Applied anatomy and physiology • Investigations for respiratory diseases • Upper respiratory tract infections • Pneumonias • Tuberculosis: 1(Pulmonary) • Tuberculosis:2 (Extra-pulmonary) • Lung abscess and bronchiectasis • Diseases of the pleura: Pleurisy, Pleural effusion & empyema, Pneumothorax • Chronic Obstructive lung diseases and corpulmonale • Bronchial asthma & pulmonary eosinophilia • Acute and chronic respiratory failure • Neoplasm of the lung **Additional:** • Common occupational lung disease with DPLD	L - 10hrs.

Learning Objectives	Contents	Teaching Hours
The student will be able to : • describe applied anatomy, applied physiology and investigations for the diseases of cardiovascular system • describe etiology, pathophysiology, clinical features, investigations and treatment of Ischemic heart disease • describe etiology, pathophysiology, clinical features, investigations and treatment of acute rheumatic fever & rheumatic heart diseases • describe etiology, pathophysiology, clinical features, investigations and treatment of valvular diseases • describe etiology, pathophysiology, clinical features, investigations, treatment and complications of infective endocarditis • describe etiology, pathophysiology, clinical features, investigations, treatment and complications of systemic hypertension • define and describe cardiac arrhythmias	**Diseases of the cardiovascular system** **CORE :** • Applied anatomy and physiology and investigations • Ischemic heart disease ▫ Angina pectoris ▫ Myocardial infarction ▫ Sudden (cardiac) death • Rheumatic fever • Valvular diseases of heart ▫ Mitral stenosis & regurgitation ▫ Aortic stenosis & regurgitation ▫ Tricuspid & pulmonary valve diseases • Infective endocarditis • Hypertension • Cardiac arrhythmias (common) ↓ Sinus rhythms ↓ Atrial tachyarrhythmias ↓ Ventricular tachyarrhythymias ↓ Cardiac arrest ↓ Anti arrhythmic drugs • Heart block and pacemakers. • Heart failure – acute and chronic • Acute and chronic pericarditis, pericardial effusion, & cardiac tamponade **Additional :** • Peripheral arterial diseases • Common congenital heart diseases in child and adult • Venous Thrombosis and Pulmonary Thromboembolism	L – 10 hrs .

Learning Objectives	Contents	Teaching Hours
• describe congenital heart diseases • define, describe patho-physiology, types, clinical features, investigation and treatment of heart failure • define, describe patho-physiology, causes, clinical features, and treatment of acute circulatory failure • describe etiology, pathophysiology, clinical features, investigations, treatment and complications of diseases of the pericardium	Congenital heart diseases ▪ ASD ▪ VSD ▪ PDA ▪ TOF ▪ Coarctation of Aorta Acute circulatory failure Diseases of pericardium ▪ Acute pericarditis ▪ Pericardial effusion Cardiac tamponade Cardiomyopathies	
The student will be able to • define, describe the etiology, pathophysiology, investigation, complications and management. of peptic ulcer disease • define, describe the etiology, pathophysiology, investigation and management. of gastrointestinal haemorrhage • describe Investigations of the alimentary tract. • define, describe the causes, pathophysiology, investigation and management. of gastro-oesophageal reflux disease • define, describe the etiology, pathophysiology, investigation and management of dysphagia. • define & describe the etiology pathophysiology, investigation and management of malabsorption disorders • define& describe the etiology, pathophysiology, investigation and management of Inflammatory bowel disease - Crohn's disease, Ulcerative colitis. • define & describe the etiology, pathophysiology, investigation and management of acute pancreatitis • define & describe the etiology, pathophysiology, investigation and management of functional disorders of GIT • define & describe the etiology, pathophysiology, investigation, complications and management of acute and chronic liver disease	**Diseases of the Gastro-intestinal and Hepato-billiary system**s **CORE :** • Applied physiology and investigation of the alimentary tract. • Stomatitis and Mouth Ulcers • Peptic Ulcer disease and non-ulcer dyspepsia • Malabsorbption syndrome • Irritable bowel syndrome • Inflammatory bowel disease • Acute viral hepatitis • Chronic Liver Diseases and its complications • Acute and chronic Pancreatitis **Additional:** • Dysphagia • Hepatotoxicity of drugs • Carcinoma of stomach/colon,Hepatocellular carcinoma	L – 10 hrs.

Learning Objectives	Contents	Teaching Hours
The students will be able to • define, diagnose, investigate and treat different nephrological diseases • make differential diagnosis • mention basic/ initial treatment • name the conditions for referral & follow-up care • describe preventive measures • explain the reasons for gender differences & issues, e.g. UTI in males & females • describe the special dietary modulations & Nutrition • outline of RRT • mention indications for RRT • list the special renal medicines & their interactions with commonly used medicines • describe nephrotoxicity of drugs • list indication for Renal biopsy and patient preparation • provide patient education about renal disorders • list the common disorders with renal sequel e.g., malaria, diabetes, hypertension, pregnancy • explain appropriate use of therapeutic tools • use interpretation of charts & lab data • orientation& care of modified anatomy & physiology, e.g. A-V Fistula, renal allograft.	**Nephrology & Urinary System** **CORE :** • Nephritic &Nephrotic Illness • UTI/ Pyelonephritis • ARF/Acute Kidney Injury • Chronic Kidney Disease • Renal manifestations of systemic diseases **Additional:** • Adult polycystic kidney disease	7 hrs.

Learning Objectives	Contents	Teaching Hours
Student should be able to: • identify syndromes of CNS & PNS diseases • identify signs of CNS & PNS diseases • identify clinical syndromes of brain, spinal cord & peripheral nerve. disorders • plan investigations in neurological disease • identify Vascular neuralgic syndromes. • define where? & What? is the lesion • describe the risk factors for CVD's • performacute management & Subsequent management. • identify complicating, management • value the importance of rehabilitation / return of function • identify clinical syndrome of meningeal infection • plan immediate and subsequent investigations including confirmation of diagnosis. • provide give empiric therapy or clinical judgement. • provide Diagnosis & exclusion • identify& treats complications. • able to make a D/D of coma & differentiate structural cause of diseases from others • plan investigations in a suspected V. encephalitis. • describe general management of patient with fever, coma & convulsion. • state the specific Diagnosis of encephalitis & treatment • identify acute & chronic syndromes of P.N.S. • identify emergencies and manage • make D/D • describe management & Rehabilitation	**Neurology** • Concept of neurological diagnosis including investigations • Cerebrovascular diseases(I &II) • Headache • Meningitis: viral, bacterial and tuberculous • Encephalitis • Peripheral neuropathy • Disorder of cranial nerves	9 hrs.

Learning Objectives	Contents	Teaching Hours
Student should be able to: • identify a seizure & elicit history from an eyewitness. • identify common clinical syndrome of Epilepsy • plan management • advise to the patient and attendants. • identify syndrome of EP system • mention etiologic agent(s) • plan investigations • decide for initial and subsequent treatment. • provide explanation, motivation and rehabilitation advises to patient. • identify common syndromes of motor system disease. • plan investigations • identify primary muscle diseases and differentiate from primary neurologic diseases • identify clinical syndrome of Neuromascularjunctional defect. • plan investigations in a suspected muscle diseases • provide treatment for myasthenia gravis. • advises& genetic conselling for muscular dystrophy.	• Epilepsy • Extrapyramidal diseases • Common compressive and non compressive spinal cord syndromes • Myasthenia gravis • Myopathies and skeletal muscle disease	

Learning Objectives	Contents	Teaching Hours
The students will be able to : • describe causes, clinical features and management of fluid and electrolyte disorders including ❑ Hyponatremia ❑ Hypernatremia ❑ Hyperkalemia ❑ Hypokalemia • describe causes, clinical features and management of disorders of acid-base balance in particular relevance to vomiting, diagnoses of uremia and diabetic ketoacidois.	**Water and electrolytes and acid-base homeostasis** CORE : • Disorders due to Sodium and Potassium imbalance • Disorders of acid-base balance	L – 4 hrs.
The student will be able to : • describe applied anatomy, physiology and investigations of endocrine disorders • describe epidemiology, etiology, pathophysiology, clinical features, complications, investigation, treatment and management of diabetes mellitus • describe epidemiology, etiology, pathophysiology, clinical features, complications, investigation, treatment and management of disorders of thyroid including ❑ Hyperthyroidism ❑ Hypothyroidism ❑ Solitary thyroid nodule ❑ Parathyroid disorders and calcium metabolism • describe epidemiology, etiology, pathophysiology, clinical features, complications, investigation, treatment and management disorders of adrenal gland including ❑ Cushing's syndrome ❑ Addison's disease • describe epidemiology, etiology, pathophysiology, clinical features, complications, investigation, treatment and management of disorders of hypothalamus and pituitary gland including ❑ Acromegaly, Sheehan's syndrome	**Endocrine and Metabolic diseases** CORE : • Diabetes mellitus(I & II) • Thyrotoxicosis • Hypothyroidism. • Cushing's syndrome and Addisons disease. • Hypo- and Hyperparathyroidism • Calcium and Vitamin –D related disorders ***Additional*** • Acromegaly and Sheehan's syndrome	L – 8 hrs.

Learning Objectives	Contents	Teaching Hours
The students will be able to: • classify diseases of the connective tissues, joints and bones • mention the epidemiology, etiology, pathology, clinical features, complications, investigation, treatment and management of Inflammatory joint diseases . • mention epidemiology, etiology, pathogenesis, clinical features, investigation, diagnosis, treatment and management of osteoarthritis. • mention the epidemiology, etiology, pathogenesis, clinical features, investigation, diagnosis, treatment and management of connective tissue diseases including systemic lupus erythematosus& systemic sclerosis • mention the epidemiology, etiology, clinical features, investigation, diagnosis, treatment and management of gout • mention the causes, clinical features, investigations, treatment and management of back disorders including low back pain & spondylosis	**Connective tissue Disorder** **CORE :** • Rheumatoid arthritis • Degenerative joint diseases • Gout • Ankylosing spondylitis and other spondyloarthropathies. • The collagen vascular diseases including systemic lupus erythematosus, systemic sclerosis • Osteoporosis	L - 7 hrs.

Learning Objectives	Contents	Teaching Hours
The students will be able to : • take history of elderly patients • perform physical examination • perform mental status examination • evaluate functional capacity of the elderly • interpret the report of laboratory examinations & imaging • state the general principles of treating the elderly.	**Geriatric medicine** **CORE :** • General Principles of treating the elderly/senior citizen • Health problems of the elderly/ senior citizen • Four Geriatric Giants – Acute confusional State, Falls, Incontinence and Frailty. • Healthy aging • Rehabilitation and Physical medicine.	L – 3 hrs.
The students will be able to describe medical genetics including ❑ Genes and chromosomes ❑ Mutation ❑ Genes in individual ❑ Genes in families ❑ Disorders of multifactorial causation ❑ Chromosomal aberrations The student will be able to describe the techniques of Medical genetics including ❑ Cyto genetics ❑ Biochemical genetics ❑ Molecular genetics ❑ Prenatal diagnosis ❑ Neoplasia : chromosomal & DNA analysis	**Genetic Disorders** **CORE :** • General concept of genetic diseases and management of genetic disorder • Single gene disorder • Clinical aspects of medical biotechnology • Chromosal disorder (Down, Turner, klinefelters)	L -2 hrs.

Learning Objectives	Contents	Teaching Hours
The students will be able to describe basic facts of immunology including • Immunoglobulins& antibodies • Cellular immunity • Autoimmunity The students will be able to describe aetiology, pathogenesis, pathology, clinical features, investigations and treatment of • Immunologic deficiency diseases • Autoimmune disease • Allergic disease	**Immunologic disorders** **CORE :** • Immunologic deficiency diseases • Auto immunity, Allergy & hypersensitivity and immunogenetics& transplantation • Immunosuppressive drugs	3 hrs.
The students will be able to describe : • prevention and early detection of common cancers • primary cancer treatment including ▫ Surgery and radiation ▫ Chemotherapy ▫ Adjuvent therapy • evaluation of tumour response including ▫ Tumour size ▫ Tumour markers ▫ General well being and performance status • role of nuclear medicine in diagnosis and treatment in Medical conditions.	**Oncology, Principles** **CORE :** • General principles of diagnosis and management of neoplastic diseases • Palliative care	4 hr.

Learning Objectives	Contents	Teaching Hours
The students will be able to describe : • initial evaluation of the patient with poisoning or drug overdose • general principles of management including ❑ Care of unconscious patient ❑ Respiratory support ❑ Cardiovascular support ❑ Special problems such as hypothermia, hypertension, arrhythmia, convulsions • management of common specific poisonings including ❑ organophosphorus compound ❑ sedative and hypnotic,(benzodiazepines) ❑ detergents, kerosene, pesticides etc. ❑ datura, methylalcohol • acute and chronic effects of alcohol and their management • venomous stings, insect bites, poisonous snakes and insects .	**Poisoning and drug overdose** **CORE :** • Initial evaluation of the patient with poisoning or drug overdose and general principles of management • Treatment of common specific poisonings a) Organophosphorous compounds b) Sedatives and Hypnotics c) Household Poisons • Venomous stings, insect bites, poisonous snakes and insects. **Additional:** • Acute and chronic effects of alcohol and Methanol and their management • Copper sulphate, Paracetamol, Kerosene etc	6 hrs.
The students will be able to describe : • general principles of intensive care • acute disturbances of haemodynamic function including Shock • aetiology, pathogenesis, clinical features, investigations, and management in acute medical emergency	**Emergency medicine** **CORE :** • Cardiac Arrest – ALS, BLS • Acute pulmonary oedema and severe acute asthma • Hypertensive emergencies • Diabetic ketoacidosis and hypoglycaemia • Status epileptics • Acute myocardial infarction, shock and anaphylaxis • Upper G.I bleeding and hepatic coma • Diagnosis and management of comatose patient	5 hrs.
	Environmental disease & heat illness **Global warming & Health hazards**	2 hrs

Learning Objectives	Contents	Teaching Hours
The students should be able to : • use a humane approach during history taking and performing a physical examination • examine all organs/systems in adults and children including neonates • arrive at a logical working diagnosis after clinical examination (General & Systemic) • order appropriate investigations keeping in mind their relevance (need based) and cost effectiveness • plan and institute a line of treatment which is need based, cost effective and appropriate for common ailments taking into consideration : ❑ patients ❑ disease ❑ socio-economic status ❑ institutional / government guidelines • recognise situations which call for urgent or early treatment at secondary and tertiary centres and make a prompt referral of such patients after giving first aid or emergency treatment • assess and manage fluid / electrolyte and acid-base balance • interpret abnormal biochemical laboratory values of common disease • interpret skiagram of common diseases • identify irrational prescriptions and explain their irrationality • interpret serological tests such as VDRL, ASO, Widal, HIV, Rheumatoid factor • demonstrate interpersonal and communication skills befitting a physician in order to discuss the illness and its outcome with patient and family • write a complete case record with all necessary details	**Clinical Methods in the Practice of Medicine** **CORE :** • History Taking • Physical Examination • Investigations • Diagnosis • Principles of treatment • Interpersonal skills • Communication skills • Doctor - Patient relationship • Ethical Behaviour • Patient's Safety • Referral services • Medical Certificate • Common Clinical Procedures ❑ Injections ❑ IV infusion and transfusion ❑ FIRST AID ❑ Intubation ❑ CPR ❑ Hyperpyrexia ❑ ECG ❑ Skin Sensitivity Test	W-14 weeks (3^{rd} year) See Appendix-1 W – 6 weeks (4^{th} year) See Appendix-2 W - 12weeks (5^{th} year) See Appendix-3 Opd-2 weeks

Learning Objectives	Contents	Teaching Hours
• write a proper discharge summary with all relevant information • write an appropriate referral note to secondary or tertiary centres or to the physicians with all necessary details • assess the need for and issue proper medical certificates to patients for various purposes • record and interpret an ECG and be able to identify common abnormalities like myocardial infarction, arrhythmias • start I.V. line and infusion • performe venous cut down • give intradermal / SC / IM / IV / injections • insert and manage a C.V.P. line • conduct CPR (Cardiopulmonary resuscitation) and first aid in new born/ children including endotracheal intubation. • introduce a nasogastric tube • manage hyperpyrexia	**Procedural skill** **CORE** • Lumbar puncture • Bone marrow aspiration • Thoracocentesis / paracentesis • Oxygen Therapy • Oropharygeal suction • Shock management • Brochodilator inhalation technique, nebulization • Urethral Catheterisation **Additional** • Administration of Enema • Postural drainage • Dialysis • Electro convulsive therapy	
Attitude : The student should: 1. develop a proper attitude towards patients, colleagues and the staff. 2. demonstrate empathy and humane approach towards patients, relatives and attendants. 3. maintain ethical behaviour in all aspects of medical practice. 4. develop a holistic attitude towards medicine taking in social and cultural factors in each case 5. obtain informed consent for any examination / procedure 6. appreciate patients right to privacy 7. adopt universal precautions for self protection against HIV and hepatitis and counsel patients 8. be motivated to perform skin sensitivity tests for drugs and serum	Attitudes to be supervised by clinical teachers.	

Appendix -1

Clinical Teaching

2nd Phase **1st Round** **14 Weeks**

Learning Objectives	Contents	Teaching Hours
The student will be able to : • narrate the role of ward duties in learning clinical medicine. • develop interpersonal and communication skills befitting a physician in order to discuss illness and its outcome with patient and family • elicit different components of history and understand its importance – particulars of the patient, the presenting symptoms, the history of the present illness, H/O previous illness, Family history, Personal & Social history, Drug history, & allergy, menstrual history (in female) • record and analyze symptoms of presentation **History taking** The student will be able to ask patients about : • cough- nature, relation with chest pain, time of the day, any particular condition aggravates or relieves: • shortness of breath- onset, duration, relation with exertion, episodic or not etc. • haemoptysis- amount, is it rusty or fresh blood • sputum- amount, colour, odour, associated with wheezing.	**Introduction to clinical ward duties and approach to a patient** ❑ Art of Medicine ❑ Doctor patient relationship ❑ Different component of history ❑ Symptom analysis in relation to diseases of different systems: • Respiratory System ❑ Shortness of breath ❑ Haemoptysis ❑ Cough ❑ Sputum ❑ Chest pain ❑ Fever	

Learning Objectives	Contents	Teaching Hours
• The student will be able to ask patients about symptoms mentioned in contents in detail e.g. site, nature, aggravating or relieving factor of chest pain. • The student will be able to elicit informations related to the symptoms of presentation e.g. frequency of bowel, nature of stool, amount, blood in stool, tenesmus etc. if complaining of diarrhoea. The student will be able to ask patients about : • H/O vaccination, transfusion • Chronology of development of symptoms with different parameters.	**<u>CVS</u>** • Palpitation • Chest pain • Leg oedema • Shortness of breath **<u>GIT</u>** • Abdominal pain • Haematemesis and Melaena • Loss of appetite • Diarrhoea & Constipation • Haematochezia • Nausea, Vomiting • Weight loss • Difficulty in swallowing **Hepatobiliary** • Jaundice • Abdominal swelling • Impaired consciousness **<u>Rheumatology</u>** • Multiple joint pain • Monoarticular joint pain	

Learning Objectives	Contents	Teaching Hours
The student will be able to: • ask the patient about the symptoms e.g. seizure – duration, interval between attack, any injury during attack, sphincter disturbance, aura, • define fit, syncope, hemiplegia, monoplegia, paraplegia etc. The student will be able to: • ask the patients about the presenting symptom • define – oliguria, anuria, polyuria, dysuria Students will be able to take relevant history, related to disorders of Haemopoetic system The student will be able to : • take detail history about fever and different tropical & infection diseases, animal bite diseases, animal bite like snakebite, dog bite.	**Nervous System** • Loss of consciousness • Fit or convulsion • Syncope • Paralysis • Headache • Vertigo **Urinary System** • Puffiness of face • Oliguria & anuria, Polyuria • Dysuria • Incontinence • Nocturnal enuresis • Loin pain • Pus per urethra **Endocrine System** • Swelling of neck • Weight gain • Weight loss **Haemopoetic system** • Pallor • Bleeding **Other** • Tropical and infections diseases	

Learning Objectives	Contents	Teaching Hours
The student will be able to • perform general physical examination and observe record and interpret findings.	**General examination** • Appearance ⇐Facies • Built • Nutrition • Hydration status • Decubitus • Anthropometric measurement • Anaemia, Jaundice, Cyanosis • Clubbing, Koilonychia, leukonychia • Oedema, Dehydration, Pulse, BP, Temperature, Respiration • JVP • Lymph node • Thyroid, salivary gland • Skin, Hair, Nail • Skin (Petichae, purpura, echymosis, bruise, haematoma, rashes), pigmentation etc • Hair distribution • Nail • Breast • Eye – Proptosis	

Learning Objectives	Contents	Teaching Hours
Students will be able to : • record pulse e.g. radial pulse and peripheral pulse and observe Jugular Venous Pressure • record Blood Pressure • inspect chest shape, symmetry, movement, type of breathing • palpate apex beat, trachea, thrill • percuss cardiac outline, liver dullness and areas of resonance • auscultate the heart sounds, murmur, pericardial rub Students will be able to : • inspect the chest, palpate trachea, chest for expansion, vocal fremitus • percuss the lungs. • auscultate for breath sounds, rhonchi, creps, pleural rub.	**Systemic examination** **CVS** • Pulse, BP, JVP • Pericardium ❑ Inspection ❑ Palpation ❑ Percussion ❑ Auscultation of heart ❑ Auscultation of lung base • Related G/E of CVS e.g. clubbing, cyanosis,edema. **Respiratory System** • Respiration rate /Type • Inspection • Palpation • Percussion, Auscultation • Examination of sputum • Lung function test • Pleural fluid aspiration	

Learning Objectives	Contents	Teaching Hours
Students will be able to: • assess levels of consciousness • identify the facial expression • examine cranial nerves Students will be able to: • examine motor system • examine sensory system • observe different types of gait • elicit signs of meningeal irritation • perform SLR test • observe lumbar puncture • examine Fundus by ophthalmoscope	**<u>Nervous System</u>** • Higher mental function ❑ Co-operation ❑ Appearance ❑ Level of consciousness ❑ GCS ❑ Memory ❑ Speech ❑ Orientation of time, space, person ❑ Hallucination, Delusion, Illusion • Cranial nerves. (1^{st} -12^{th}) • Motor function • Sensory function • Gait • Signs of meningeal irritation • Examination of peripheral nerves • Involuntary movement **CSF Study** **<u>Ophthalmoscopy</u>** • Ophthalmoscope	

Learning Objectives	Contents	Teaching Hours
Students will be able to: • assess joints and muscles by inspection, palpation • test range of movement • test muscle around joints • assess posture Students will be able to: • inspect oral cavity, orpharynx. • palpate abdomen e.g. Liver, spleen, kidney • demonstrate fluid thrill, shifting dullness • perform PR examination • observe aspiration of peritoneal fluid Students will be able to: • detect general signs of renal disease • perform bimanual palpation of kidney, renal tenderness • examinational gthitalia • examine urine for sugar, albumin. • prepare and read blood film (eg. Malarial parasite) The student will be able to do: physical examination and certain minor procedures e.g. blood film, ESR, Hb%, Urine – albumia, Sugar, Stool ME.	**Rheumatology** • Joints ⇐ (Look & feel) • Inspection • Palpation • Movement Muscle • Wasting • Swelling Skeleton • Survey **GIT** • Inspection of oral cavity & oropharynx • Abdomen Inspection / Palpation • Test for ascites • Percussion/ auscultation ❑ Per-rectal examination ❑ Examination of stool, vomitus, groin, genitalia, perianal region ❑ Aspiration of peritoneal fluid **Urinary system** • Kidneys • Bladder • Uretheral orifice • Urine analysis **Haemopoetic system** **Tropical and infectious illness** **Animal bite – snakebite, dog bite**	

Annex - 1

Department of Medicine CARD - 1

_____ Medical College (3rd Year)

Clinical Registration No. _____

Name : _____

Roll No. _____ Batch _____

Medicine unit : _____

Professor : _____

Grading
A = 75 - 100
B = 60 - 74
C = 50 - 59
D = 40 - 49
E = 00 - 39

Duration of Placement (1st Round) from _____ to _____

No.	Items	Marks Obtained	Signature of teacher
1.	Procedure of History taking and writing and questions related to elaboration of different systems.		
2.	General examination and questions related to general examination.		
3.	Systemic examination of the Alimentary system and related questions.		
4.	Systemic examination of the Respiratory system and related questions.		
5.	Systemic examination of the Cardiovascular system and related questions.		
6.	Systemic examination of the Renal system and related questions.		
7.	Systemic examination of the Nervous system and related questions.		
8.	Examination of the haemopoietic system and related questions.		
9.	Examination of the musculoskeletal system and related questions.		
10.	Miscellaneous e.g. examination of the hands, lower limbs, neck etc.		
11.	Teaching learning on basic concept of behavioral science with the expectation of demonstration by learners in all systems (mandatory to pass)		

Total attendance _____ days, out of _____ days

Marks obtained in all items (%) _____ & in Card final Examination _____

Comment_____

_____

Professor
Department of Medicine

Registrar
Department of Medicine

Appendix -2

Clinical Teaching

3rd Phase 2nd Round 6 Weeks

Learning Objectives	Contents	Teaching Hours
Continue to develop skills in history taking & physical examination. Students will be able to: • interpret the findings in terms of diseases, possible causes, make a differential diagnosis & plan investigations.	**Approach to Sign & Symptom** **<u>GIT & HBS</u>** • Ascites • Hepatosplenomegaly • Oral ulcer • Abdominal swelling • Abdominal pain • Vomiting &diarroehea • Haematemesis, melaena • Jaundice **<u>CVS</u>** • Respiratory distress • Chest pain • Jugular Venous Pulse (JVP) • Hypertension • Abnormal heart sound & murmur • Pulse **<u>Respiratory System</u>** • Haemoptysis • Cough • Pleural effusion • Pneumothorax • Collapse, Consolidation, Fibrosis • Breath sound • Sputum analysis	

Learning Objectives	Contents	Teaching Hours
Students will be able to: • interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations. Students will be able to: • be acquainted with instruments commonly used for medical procedure observe the doctors performing the procedures	<u>Urinary System</u> Approach to patient with : • Oliguria, polyuria, anuria • Anasarca • Urine analysis <u>Nervous System</u> • Unconscious patient • Hemiplegia, monoplegia, paraplegia • Upper Motor Neuron Lesion (UML) • Lower Motor Neuron Lesion (LML) • Cerebellar sign • Extrapyramidali sign • Involuntary movement • Vertigo & Headache <u>Haematology</u> Approach to patient with : • Bleeding disorder • Anaemia • Lymphadenopathy <u>Rheumatology</u> Approach to patient with • polyarthiritis • oligoarthiritis <u>Clinical skills</u> • Lumbar puncture • Bone marrow aspiration • Aspiration of serous fluid/ synovial fluid • Ryles tube • Catheterization • I/V fluid, IV Canula • Stomach wash	

Annex - 2

Department of Medicine

Card - II
(4th Year)

Grading
A = 75 - 100
B = 60 - 74
C = 50 - 59
D = 40 - 49
E = 00 - 39

Name of the student: _____

Roll No. _____

Medicine unit: _____

Name of Professor: _____

Duration of Placement (2nd Round) from _____ to _____

Total attendance _____ days, out of _____ days

No.	Items	Marks obtained	Signature of Teacher
1.	Review of clinical methods (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		
2.	Respiratory diseases (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		
3.	Cardiovascular diseases (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		
4.	Alimentary & Hepatobiliary disorders (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		
5.	Renal diseases (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations0		
6.	Endocrine disorders (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		

7.	Haemopoietic disorders (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		
8.	Diseases of Nervous system (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		
9.	Infectious diseases (interpret the findings in terms of diseases, possible causes, to make a differential diagnosis & plan investigations)		
10.	Common Laboratory investigations		
11.	Basic knowledge on X-ray & ECG		

Marks Obtained:
Comments:

Professor
Department of Medicine

Registrar
Department of Medicine

Appendix -3

Clinical Teaching

4th Phase **3rd Round** **12 Weeks**

Learning Objectives	Contents	Teaching Hours
Students will be able to : • take detailed history from a patient • carry out detailed general and systemic clinical examination • present long cases on different body system including Respiratory System Cardiovascular System Gastro-intestinal System Endocrine System Urinary System Haematology system Nervous System Rheumatology Infections • plan appropriate investigations • plan appropriate treatment of common medical conditions	**Review of history taking & clinical examinations (3rd year, 4th year)** ***Case discussion*** ❑ Long cases <u>Respiratory System</u> ❑ COPD ❑ Bronchogenic carcinoma ❑ Pneumonia ***CVS*** ❑ CCF ❑ CHD ❑ IHD ❑ VHD ❑ Rheumatic heart disease ❑ Hypertension ❑ Pericardial diseases	

Learning Objectives	Contents	Teaching Hours
Students will be able to: • evaluate the patients by follow up and monitoring • assist in managing critically ill patients • interpret various common investigation reports – ECG, X-rays, Biochemical tests, etc. • assist doctors in counselling patients and their families about treatment, follow up and prevention.	***GIT*** • Haematemesis&mealena • PUD • V. Hepatits • CLD • Carcinoma of Liver • Pancreatitis • Heapatic failure ***Endocrine*** • Hyperthyroidism • Hypothyroidism • DM ***Rheumatology*** • Rheumatoid arthritis • Seronegative arthritis • Osteoarthritis • Gout ***Urinary*** • Glomerulonephritis • Nephrotic Syndrome • Acute Kidney Injury • Chronic Kidney Disease • Urinary Tract Infection ***Haematology*** • Anaemia • Leukaemia • Bleeding diathesis	

Learning Objectives	Contents	Teaching Hours
Students will be able to: • demonstrate in-depth skills, in history taking, clinical examination, diagnosis and management of NS diseases & infectious diseases.	**Nervous System** • CVD • Multiple Sclerosis • Myasthenia Gravis • Parkinsonism • Peripheral neuropathy • GBS • Cranial neuropathy **Infection** • Enteric fever • Malaria • Kala Azar • Filarisis • Amoeabiasis • Tetanus • Rabies • Poisoning • Snake bite • Tuberculosis • Diarroehea & Dysentery • Shock • Dengue	

Learning Objectives	Contents	Teaching Hours
Students will be able to: • present short cases on different body system	**Short Cases :** ❑ Hepato or Splenomegaly or both ❑ Pleural effusion ❑ Pneumothorax ❑ Consolidation ❑ Collapse ❑ Fibrosis ❑ Hemiplegia ❑ Paraplegia ❑ Facial nerve palsy (UMN + LMN) ❑ Ascites ❑ Lymphadenopathy ❑ Thyroid ❑ Examination of knee ❑ Examination of precordium ❑ Auscultation of lung	
Students will be able to: • demonstrate certain skills • carry out certain procedures e.g. lumbar puncture under supervision, IM injection, IV injection, Infusion	**Clinical skills :** • Bone Marrow aspiration • Aspiration of serous fluid ❑ Pleural ❑ Peritoneal ❑ Pericardial • Foley's catheterization • Intercostal tube • I/V canula • Lumbar puncture • Venesection • CPR	

Learning Objectives	Contents	Teaching Hours
Students will be able to : • interpret routine examination findings for Blood, Stool, Urine • interpret FBS, GTT and HbA1C • interpret certain specific laboratory tests e.g. Liver Function Tests etc. Students will be able to: • interpret common radiological findings on plain skiagrams of chest, skull, sinuses, neck, abdomen, pelvis, upper and lower extremities	**Interpretation of Laboratory Data** • **General :** ❑ Blood for R/E ❑ Urine for R/E ❑ Stool for R/E ❑ FBS / GTT • **Specific :** ❑ Liver function test (LFT) ❑ Thyroid function test (TFT) ❑ Kidney function test ❑ Pulmonary function tests (PFT) ❑ Test for malabsorption ❑ Test for rheumatology ❑ Test for neurology ❑ Cardiac function test ❑ Haematological test ❑ Test for certain infectious diseases, e.g. Widal test. • **Radiology :** ❑ X-ray chest ❑ X-ray • Bones • Skull • Joints ❑ X-ray abdomen	

Learning Objectives	Contents	Teaching Hours
Students will be able to: • interpret findings on certain contrast X-rays e.g. Barium Meal etc. • establish a good-student patient relationship • communicate with patients in understanding manner. • observe and assist in terminal care • observe in care of death & dying patient	• Contrast X-rays : ❑ Barium Meal ❑ Barium Follow through ❑ Barium Enema ❑ ERCP ❑ Myelogram) ❑ IVU. • USG • CT & MRI • Communication Skills • Terminal Care • Care of death and dying	

Note:

1. Each student will be able to get certain number of beds, they will write down their history, physical examination, follow-up, observe the management and follow-up including counselling.
2. Each student will submit a complete case history per week of placement in every assignment in medicine.

Annex - 3

Department of Medicine

Card - III
(5th Year)

Grading
A = 75 - 100
B = 60 - 74
C = 50 - 59
D = 40 - 49
E = 00 - 39

Name of the student : _____

Roll No. _____

Medicine unit : _____

Name of Professor : _____

Duration of Placement (3rdRound) from _____to_____

Total attendance _____days, out of_____days

No.	Items	Marks obtained	Signature of Teacher
1.	Respiratory diseases		
2.	Cardiovascular diseases		
3.	Alimentary &Hepatobiliary disorders		
4.	Renal diseases		
5.	Endocrine disorders		
6.	Bones, joints & connective issue diseases		
7.	Diseases of nervous system		
8.	Haemopoietic disorders		
9.	Interpretation of X-ray		
10.	Interpretation of ECG		
11.	Instrumental uses in clinical practice		
12.	Interpretation of laboratory investigations		

Marks obtained (%):

Professor
Department of Medicine

Registrar
Department of Medicine

Physical Medicine & Rehabilitation

Learning Objectives	Contents	Teaching Hours
Students will be able to: • describe historical aspect, spectrum of physical medicine & rehabilitation • describe rehabilitative management of certain conditions including: ❑ Low back pain and common spinal disorder ❑ Rheumatoid Arthritis and other inflammatory arthritides ❑ Stroke and other common neurological conditions ❑ Arthritis and allied conditions ❑ Degenerative Joint diseases ❑ Cerebral palsy and other paediatrics conditions ❑ Chronic pain and palliative care ❑ Common geriatric disorders ❑ Orthopedic conditions and sports injury ❑ Cardiopulmonary rehabilitative conditions • identify the various modalities of physical therapy • plan to apply physical therapy for certain clinical conditions	**CORE:** • Principles of management and rehabilitation of musculoskeletal and neurological disorders	5th year 5 hours lecture

Appendix-4

Physical Medicine and Rehabilitation
Clinical Attachment (WARD DUTY)
4th Year- 2 weeks

Learning Objectives	Contents	Teaching Hours
Students will be able to: • outline the role and importance of Physical Medicine & Rehabilitation • identify the various modalities of Physical Medicine & Rehabilitation management • plan to apply physical therapy for certain clinical conditions	• Introduction to Physical Medicine & Rehabilitation ❑ History ❑ Background ❑ Spectrum ❑ Visit to Physical Medicine & Rehabilitation Ward • Modalities of Physical Therapy • Management and Rehabilitation of ❑ Neck pain & Back pain ❑ Soft tissue Rheumatism ❑ Painful Conditions of upper & lower extremities ❑ Neurological conditions including Stroke ❑ Spinal cord injuries ❑ Arthritis & allied conditions ❑ Orthopaedic conditions ❑ Cerebral Palsy ❑ Non-surgical & post-operative complications ❑ Cardiopulmonary rehabilitations	2 hr 2 hrs 12 hrs

Annex-4

CARD for Physical Medicine and Rehabilitation

ITEM	MARKS	Signature
Definition, Historical aspects, background, spectrum of Physical Medicine & visit in Physical Medicine ward		
Various modalities of Physical therapy		
Management and Rehabilitation of Neck Pain & Back Pain		
Management and Rehabilitation soft tissue metabolism		
Management and Rehabilitation of painful conditions of upper & lower limbs		
Management and Rehabilitation of stroke and other Neurological conditions		
Management and Rehabilitation of Spinal cord injuries		
Management and Rehabilitation of Arthritis and allied conditions		
Management and Rehabilitation of non surgical orthopaedic & post operative complication		
Management and Rehabilitation of Cerebral Palsy and other paediatric neurological conditions		

Time Schedule
Medicine & Allied Subjects (lecture)

Discipline	2nd phase (In hrs.)	3rd phase (In hrs.)	4th phase (In hrs.)	Total hours
Internal medicine	22	25	90	137
Psychiatry	02	-	18	20
Dermatology	-	-	17	17
Pediatrics	04	20	22	46
Physical Medicine	-	-	04	04
Emergency	-	-	-	-
Total	28hrs	45 hrs	151 hrs	224 hrs

Ward duty
Subjects (weeks)
Time: 9.30-11.30am & 7.00pm- 9.00pm (4 hours)

Phase	Medicine (weeks)	Emergency (weeks)	Pediatrics (weeks)	Psychiatry (weeks)	Skin & VD (weeks)	Physical Medicine (weeks)	Total weeks
2nd	14	-	04	-	-	02	20
3rd	6+2 (OPD)	02	-	02	02	-	14
4th	12	-	06	02	02	-	22
Total	34 wks.	2 wks.	10 wks.	04 wks.	04 wks.	02 wks	56

Note: Teachers for supervising the evening duties must be available

Final professional examination

Assessment of Medicine

Assessment systems and mark distribution

<table>
<tr><th>Components</th><th colspan="3">Marks</th><th>Total Marks</th></tr>
<tr><td>WRITTEN EXAMINATION
Paper – I- Internal Medicine
a) MCQ (Format- 10 multiple true false and 10 single best response)
b) SAQ+ SEQ
c) Marks from formative assessment</td><td colspan="3">20

70
10</td><td rowspan="3">100

100</td></tr>
<tr><td>Paper - II- Internal medicine with allied subjects & Paediatrics
Psychiatry, Dermatology& Veneral disease, Neurology, Poisoning, Infections, Geriatrics, Genetics, Cardiology, Nephrology and Paediatrics</td><td>Int.Me. & Allied</td><td>Paediatrics</td><td>Total</td></tr>
<tr><td>a) MCQ (Format-10 multiple true false and 10 single best response)
b) SAQ+SEQ
c) Marks from formative assessment</td><td>10

35
05</td><td>10

35
05</td><td>20

70
10</td></tr>
<tr><td></td><td colspan="3">Total</td><td>200</td></tr>
<tr><td>OSPE</td><td colspan="3">10 stations x 05</td><td>50</td></tr>
<tr><td colspan="5">Continued (P.T.O)</td></tr>
</table>

ORAL & CLINICAL **<u>8 Examiners in 4 boards</u>**. **Day -1** Board- A- 1 examiner from internal Medicine 1 examiner from internal Medicine Board-B- 1 examiner from Internal Medicine 1 examiner from allied subjects **Day-2** Board- A- 1 examiner from Paediatrics 1 examiner from Paediatrics Board-B- 1 examiner from Skin & VD/Internal medicine 1 examiner from Psychiatry/ Internal medicine NB: Where there is availability of teachers of Dermatology & Psychiatry there must be one examiner from Dermatology and one from Psychiatry for Board-B. NB: Allied subjects means- Cadiology, Neurology, Nephrology, Gatroenterology, Haematology, Hepatology, Rheumatology, Pulmonology/ Respiratory Medicine, Endocrinology etc. Examiner will be selected according to seniority. For each board during oral examination Xrays, ECG, photographs, lab data etc. are to be included and 40 marks are to be allotted for this purpose No temp. Chart, slides, specimen in Practical Exam.	**Oral** **40** Marks for Each Board (10 marks for each board for Xray, ECG, lab data, photographs etc and **30** marks for each board for structured oral examination) **Clinical** **a) Day-1:** i) 1 Long case =**20** Marks (IM) ii) 3 Short cases=30 Marks (IM) **b) Day-2:** i) 1 Long case =**20** Marks (Paed) ii) 2 Short case s=20 Marks (1 for Paed)+(1 for Skin & VD/ Psychiatry)	**160** *(Oral- 30 marks x 4 boards) =120* *(Practical-10 marks x 4 boards) =40* **90**
	Grand Total	**500**

There will be separate Answer Script for MCQ. Pass marks 60% in each of written, oral and practical examinations. After aggregating obtained marks of **4** oral boards (comprising of SOE & Practical) students pass or fail will be finalized in oral section.

INTEGRATED TEACHING EXERCISE

- The integrated teaching should be established as a routine
- It should be on selected topics
- It should be started from year 3 M.B.B.S Class
- It should involve teachers of pre-clinical, para-clinical & clinical subjects
- It should be on theoretical, clinical & Paraclinical aspects aided by audio-visual devices
- Programme should be made well ahead of commencement of the course & concerned persons shall be informed in time
- It should be mostly community, Primary Health Care & National Health problems oriented
- It should be held preferably twice a year ,each for two hours between 9 - 11 am
- It should involve all clinical students & teachers and the site, lecture theatre & attendance must be recorded

Some examples of Multi-Disciplinary Integrated Exercise topics are:

Trauma
Cancer
Tuberculosis
C P R
Jaundice
Acid base electrolyte balance / imbalance
Death and dying
- Medical ethics
- Maternal and child health

Diabetes Mellitus

Departments:
MEDICINE + SURGERY + OBGYNE

Day : Thursday
Time : 09.00 – 11.00 a.m.
Frequency : Once in a month

WARD PLACEMENT

- To introduce uniform card system and feasible card in all the medical colleges
- To prepare a central card for different components of medicine incorporating teachers of all medical colleges on priority basis
- Each card will carry 100 marks, 10% of the card marks will be added to the summative assessment
- 52 weeks- 100 mark.

OPPORTUNITY FOR COMMUNITY ORIENTATION

- Teaching - learning sessions will be organised in inpatient departments in different wards e.g. Internal medicine, Paediatrics, Psychiatry, Dermatology, etc., outpatient departments, emergency room, infections diseases hospital
- The patients attending the different areas will mostly represent the community
- Medical college hospitals cover a good area of community health problems
- Attempt can be made to motivate students for meeting health needs of people
- For further attitudinal shift to serve people, field site training in 3rd 4th year and a short stay (1-2 weeks) during internship in Thana Health Complex will be of much help

BLOCK POSTING

Time	: Total 4 weeks	
Break up	: Internal medicine	12days
	Paediatrics	6 days
	Psychiatry	3 days
	Dermatology	3days

BLOCK POSTING is a most important part of clinical teaching. It is a preparation to step in internship training. It is full time training

WORKING HOURS

- 09.00 am. – 02.30 pm (Compulsory for all)
- 02.30 pm. – 08.30 pm.(Roaster duty time)

Teaching / learning schedule: to be arranged locally
The duties of the students during block posting will include:

a. small group teaching,
b. ward round
c. roaster duty during morning and evening hours

Every student will have a separate log book for his attendance, performance etc.
Log book to be attached with the formative assessment

SKIN & VD

Course Objectives:

At the end of the course students will be able to:

- take appropriate history from the patients of skin & VD
- perform the dermatological examination properly
- select and interpret relevant investigations
- diagnose and manage the most common skin and venereal diseases prevalent in Bangladesh
- deal with dermatological and venereological emergencies
- identify problematic patients that require specialised care and refer them appropriately
- communicate effectively with patients, relatives and colleagues regarding complications, prognosis and others
- participate in the related national disease control programs of skin & VD
- conduct relevant research

List of Competencies to acquire :

- Taking appropriate history from patients of skin & VD
- Performing proper dermatological examination of the said patients
- Performing the relevant investigations and interpreting the results
- Diagnosing common skin & VD cases
- Managing common skin & VD cases
- Counselling the cases of skin & VD
- Referring the complicated cases timely & to the appropriate authority for better management

Learning Objectives and Course Contents in SKIN & VD (lectures)

Learning Objectives	Contents	Teaching Hours
Students will be able to: • describe the structure and functions of the skin as an organ • mention the symptoms of skin diseases & their causes • mention the cutaneous lesions & their causes • describe the etiology, pathogenesis & clinical features of common skin and venereal diseases • mention the differential diagnosis of each disease with differentiating features • request and interpret investigations like gram staining/ AFB / skin scraping for fungus microscopy & culture/VDRL/ TPHA/ skin biopsy • diagnose and manage common skin and venereal diseases	**CORE:** • Structure and functions of the skin • Cutaneous Signs /Symptoms • Scabies and Pediculosis • Atopic Dermatitis & Contact and Seborrhoeic dermatitis • Superficial fungal infections • Pyoderma • Bullous diseases (Pemphigus) • Cutaneous manifestations of systemic diseases • Viral disease (Herpes) • Syphilis & Genital ulcers • AIDS • Gonorrhoea, Non-Gonococcal Urethritis • Psoriasis • Acne • Skin Tuberculosis • Urticaria • Pigmentary diseases (Vitiligo), Alopecia	1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour **Total: 17 hours**

CARD for Skin & Venereal Diseases

ITEM	MARKS	Signature
Procedure of dermatological history taking and writing		
Examination of the integumentary system (skin, hair, nail & mucosa)		
Symptomatology of skin (generalised & localised pruritus)		
Symptomatology of skin (generalised & localised pigmentation)		
Maculo-papular lesions (Scabies, Pediculosis, Eczema)		
Scaly lesions (Psoriasis, SD, Dermatophytosis, Pityriais, Rosea)		
Pyogenic lesions (Impetigo centagiosa, Bullus Impetigo, SSSS)		
Vesicobullous lesions (Herpes, Pemphigus, Pemphigoid, STS)		
Acne		
TB, Leprosy		
Drug reactions & urticaria		
Urethral/vaginal discharge (Gonorrhoea & NGU)		
Genital ulcer (Syphilis & Chancroid)		
AIDS		

Skin & Venereal Diseases
Clinical Attachment (WARD DUTY)

Total 96 hours (24 Days) in 3rd Phase (2 wks) & 4th Phase (2wks)

Learning Objectives	Contents	Teaching Hours
Students will be able to: • take appropriate history from the patients of skin & VD • perform the dermatological examination properly • select and interpret relevant investigations • describe Aetiology & clinical features of common skin and venereal diseases • diagnose and manage the most common skin and venereal diseases prevalent in Bangladesh • deal with dermatological and venereological emergencies • acquaint with universal precautions, syndromic management, counselling of STD/ AIDS Cases.	**Dermatology** **CORE:** • Structure and function of the skin • Cutaneous symptom- generalized pruritus • Cutaneous symptom- G. hyperpigmentation • Cutaneous symptom- hypopigmentation • Types & causes of cutaneous lesions • Scabies and Pediculosis • Atopic Dermatitis • Seborrhoeic Dermatitis & other Dermatitis • Contact Dermatitis • Fungal infections-Dermatophytosis & Candidiasis • Acne • Psoriasis • Parapsoriasis & Pityriasis Rosea • Erythroderma • Viral Diseases (Herpes simplex, Herpes zoster, wart, molluscumcontagiosum) • Leprosy • Bacterial infections of the skin(impetigo contagiosa, B impetigo, SSSS) • Filariasis	4 hours 4 hours 2 hours 2 hours 2 hours 4 hours 2 hours 2 hours 4 hours 4 hours 4 hours 2 hours 2 hours 4 hours 2 hours 4 hour 2 hour

Learning Objectives	Contents	Hours/days
Students will be able to • describe the clinical feature, management. • Interpret result of patch test/ prick test / tuberculin test. • perform gram staining/ bubo aspiration • request& interpret tests like VDRL/ TPHA/ ELISA/ Western blot/ CFT for chlamydia.	**<u>Additional:</u>** • Drug Reactions • Urticaria & angioedema • Skin tuberculosis • Genodermatoses (Ichthyosis, Neurofibromatosis, etc.) • Melanocytic & non melanocytic nevi • Skin tumours • Bullous diseases (Pemphigus, Dermatitis herpetiformis) • Systemic diseases and the skin • Chronic arsenicosis • Hair (AA, Telogen effluvium, Anagen effluvium, Androgenetic alopecia) • Hypertrichosis & Hirsutism • Nail diseases-(fungal infection, LP, Psoriasis) • Mucous membrane diseases (Aphthous ulcer, stomatitis/glossitis) **<u>Venereology</u>** **CORE** • Basics of STI (definition & classification) • Syphilis • Chancroid & other genital ulcers • Gonorrhoea & Nonspecific Urethritis • AIDS • Syndromic management of STI	2 hours 2 hours 2 hours 4 hours 2 hours 2 hours 4 hours 4 hours 2 hours 4 hours 2 hours 2 hours 2 hours 2 hour 2 hour 2 hour 2 hours 2 hours 2 hours

While taking history and examining a patient the following steps should be followed by students:

Greetings to the patient
Introduction of self as a medical student
Explanation to the patient what is to be done
Use of understandable language of patient
Seeking permission and co-operation
Adequate exposure in lighted area having maintaining privacy
Giving thanks to the patient at the end of examination
Adopting correct procedure by use of appropriate instrument while doing procedure.

Instructions for Item Cards:

Students should complete the cards during clinical attachment
Teacher should sign the card against the item completed
At the end of the attachment the card must be submitted to the Head of the department for countersigning.

Psychiatry

Course Objectives

After completion of the course a medical student will be able to:

- comprehend the concept of mental health care and be aware of the role of the medical doctor in detecting common mental disorder in the community
- provide appropriate management to patients in the community
- comprehend the historical concept of psychiatry and its gradual development.
- comprehend normal and abnormal human behaviour in terms of personality, memory, intelligence, and learning.
- classify psychiatric disorders, recognise clinical manifestation of common psychiatric syndrome during clinical assessment and plan their appropriate management.
- deal psychiatric emergencies in hospital and community.
- diagnose and manage common psychiatric disorders
- develop communication skill and doctor patient relationship

Learning Objectives and Course Contents in Psychiatry

Learning Objectives	Contents	Teaching Hours 20 hours
Students will be able to : • describe the historical concepts related to psychiatry • describe psychosocial aspects of patients in medical settings • explain the basic concepts related to learning, memory, personality, and intelligence • classify common psychiatric disorders prevalent in Bangladesh • describe the aspects of mental health care to patients at the community level including drug abuse • classify common child psychiatric, neurological, behavioral, and psychosocial disorders prevalent in Bangladesh • recognise clinical manifestation of common psychiatric syndrome during clinical assessment • plan their appropriate management. • provide care to the patients presenting with psychiatric emergencies in hospital • give long term care to patients at the community level provide preventive mental health care especially to high risk groups	**CORE :** • Historical concepts & classification • communication skill and doctor patient relationship • Behavioural Science • Learning, memory, personality, intelligence • Symptommatology • Organic psychiatry: Dementia & Delirium • Substance Abuse &Alcoholosim • Child psychiatry including Autism • Psychosexual Disorders • Psychoparmacology • Behavioral addiction(internet,socialmedia,gaming,pornographyetc) **Clinical Placement:** • Mental state exam • Schizophrenia • Mood Disorders: Depression & Bipolar Mood Disorder (BMD) • Anxiety Disorders: GAD, phobia, obsession, panic dis. • Psychiatric emergencies • Psychotherapy	1 hour 1 hour 1 hour 2 hour 1 hour 1 hour 2 hour 1 hour 1 hour 1 hour 1 hours 2 hours 1 hours 1hour 1 hour 1 hour

CARD for Psychiatry

ITEM	MARKS	Signature
History taking		
Mental State Examination		
Symptomatology		
Schizophrenia		
Mood Disorder – Mania		
Mood Disorder Depression - Suicide & DSH		
Anxiety Disorders (GAD, phobic disorders, OCD, panic disorder, PTSD, ASD)		
Somatoform Disorder (Somatization, Hypochondriasis, body dysmorphic disorders, chronic pain)		
Delirium – Dementia		
Childhood Psychiatric Disorders including Autism		
Substance Abuse Disorder & Alcoholism		
Psychotherapy & ECT		

Learning Objectives and Course Contents in Psychiatry

Psychiatric Diseases

Clinical Attachment (WARD DUTY)

Total 96 hours (12 days in 3rd phase + 12 days in 4th phase) = 24 Days in 3rd & 4th phase

Subject	Learning Objectives	Contents	Teaching Hours
1. Symptomatology in Psychiatry	Students will be able to: • Identify common psychiatric sign, symptoms in patient.	• Mood- anxiety, depression, elation, irritability, anger. • Perceptual symptoms- Hallucination, imagery, illusion. • Thought symptoms- delusion, different types of delusion, obsession, compulsion	2 hrs
		• Disturbance of thinking process- speech abnormality. • Motor symptoms and signs. • Disturbance of body image self, memory, consciousness. • Attention, concentration • Insight • Different between psychosis and neurosis.	2 hrs
2. History taking & Mental status examination (MSE)	Students will be able to: • Prepare the patient for interview • Starting, continuing and completing interview • Finding out proper information • Proper history taking of a psychiatric patient • Analysis of personality of patient • Identify all points of mental status examination • Carry out neuro psychiatric examination	• History taking • Personality analysis	2 hrs
		• Mental status examination- appearance and behavior Rapport establishment Speech- rate, rhythm, content, flow mood Suicidal ideation Thoughts Perception Cognitive function- orientation, attention, concentration, memory • Language abilities, contraction, abilities	2 hrs

Subject	Learning Objectives	Contents	Teaching Hours
3. Personality & Personality disorder	Students will be able to: • Understand personality pattern of the patient • Understand different type of personality disorder • Diagnose and manage common personality disorder	• Origin of personality • Classification of abnormal personality • Different personality disorder • Diagnosis and management of personality disorder	2 hrs 2 hrs
4. Reaction to stressful experience	Students will be able to: • Understand the response to stressful events • Identify sign symptom of ASD, PTSD, Adjustment disorder • Diagnose and manage cases of ASD, PTSD, Adjustment disorder • identify special kinds of adjustment	• Response to stressful event • Defense mechanism • ASD- sign symptom, etiology, diagnosis and management • PTSD- sign symptom, etiology, diagnosis and management • Adjustment disorder- sign symptom, etiology, diagnosis and management • Adjustment to physical illness and handicap • Grief • Bereavement • Adjustment to sexual abuse	2hr - 1 hr - 1 hr - 1 hr 2 hr
5.Generalized anxiety disorder (GAD)	Students will be able to: • Identify clinical features and etiology of GAD • Take appropriate history from patient • Perform mental status examination of GAD patient • Diagnose and manage case of GAD	• GAD- sign symptom, etiology, diagnosis and management	- 4 hrs
6. Phobic anxiety disorder	Students will be able to: • Identify clinical features and etiology of Phobic disorder • Diagnose and manage case of Phobic disorder	• Specific phobia • Social phobia • Agoraphobia	2 hrs

Subject	Learning Objectives	Contents	Teaching Hours
7. Panic disorder	Students will be able to: • Identify clinical features and etiology of Panic disorder • Take appropriate history from patient • Perform mental status examination of Panic disorder patient • Diagnose and manage case of Panic disorder	• Panic disorder - sign symptom, etiology, diagnosis and management	2 hrs
8. Obsessive compulsive disorder (OCD)	Students will be able to: • Identify clinical features and etiology of OCD • Take appropriate history from patient • Perform mental status examination of OCD patient • Diagnose and manage case of OCD	• OCD - sign symptom, etiology, diagnosis and management	2 hrs
9. Major depressive disorder (MDD)	Students will be able to: • Identify clinical features and etiology of MDD • Take appropriate history from patient • Perform mental status examination of MDD patient • Diagnose and manage case of MDD	• MDD - sign symptom, etiology, types diagnosis and management	2 hrs 3 hrs
10. Bipolar disorder	Students will be able to: • Identify clinical features and etiology of Bipolar disorder • Take appropriate history from patient • Perform mental status examination of Bipolar disorder patient • Diagnose and manage case of Bipolar disorder	• Bipolar disorder - sign symptom, etiology, types, diagnosis and management	2 hrs 3 hrs

Subject	Learning Objectives	Contents	Teaching Hours
11. Schizophrenia	Students will be able to: • Identify clinical features and etiology of Schizophrenia • Take appropriate history from patient • Perform mental status examination of Schizophrenia patient • Diagnose and manage case of Schizophrenia	• Schizophrenia - sign symptom, etiology, types • Diagnosis and management	- 2 hrs - 4 hrs
12. Dementia	Students will be able to: • Identify clinical features and etiology of Dementia • Take appropriate history from patient • Perform mental status examination of Dementia patient • Diagnose and manage case of Dementia	• Dementia - sign symptom, MMSE, etiology, types, diagnosis and management	4 hrs
13. Movement disorder	Students will be able to: • Identify common movement disorder prevalent in psychiatric patient • Diagnose & manage movement disorder in psychiatric patient	• EPSE • Parkinson's disease • Tics	2 hrs
14. Seizure disorder	Students will be able to: • Understand seizure and pseudo seizure • Differentiate different types of seizures • Identify clinical features and etiology of Seizure disorder • Take appropriate history from patient • Perform mental status examination of Seizure disorder patient • Diagnose and manage case of Seizure disorder • Understand psychiatric aspect of epilepsy	• Seizure disorder- sign symptom, etiology, types, diagnosis and management • Pseudo seizure • Different types of seizure • Preictal, ictal, postictal, interictal disturbance and social aspect of epilepsy	4 hrs

Subject	Learning Objectives	Contents	Teaching Hours
15. Eating disorder	Students will be able to: • Identify clinical features of Eating disorder • Diagnose and manage case of Eating disorder	Sign symptom, etiology, types, diagnosis and management of – • Anorexia • Bulimia nervosa • Eating disorder (NOS)	2 hrs
16. Sleep disorder	Students will be able to: • Identify clinical features and etiology of Sleep disorder • Take appropriate history from patient • Diagnose and manage case of Sleep disorder	Sign symptom, etiology, types, diagnosis and management of – • Insomnia • Narcolepsy • Breathing related sleep disorder • Parasomnias	4 hrs
17. Sexual disorder	Students will be able to: • Identify clinical features and etiology of Sexual disorder • No classification of sexual disorder • Take appropriate history from patient • Diagnose and manage case of Sexual disorder	Sign symptom, etiology, types, diagnosis and management of – • Sexual dysfunction- in case of male and female • Paraphilia • Gender dysphoria	4 hrs
18. Somatoform disorder	Students will be able to: • Identify clinical features and etiology of Somatoform disorder • Take appropriate history from patient • Perform mental status examination of Somatoform disorder patient • Diagnose and manage case of Somatoform disorder	• Somatoform disorder- sign symptom, etiology, types, diagnosis and management	2 hrs
19. Conversion disorder	Students will be able to: • Identify clinical features and etiology of Conversion disorder • Take appropriate history from patient • Perform mental status examination of Conversion disorder patient • Diagnose and manage case of Conversion disorder	• Conversion disorder- sign symptom, etiology, types, diagnosis and management	4 hrs

Subject	Learning Objectives	Contents	Teaching Hours
20. Psychiatric aspect of obstetrics and gynaecology	Students will be able to: • Identify clinical features and etiology of Psychiatric diseases in obstetrics and gynecological cases • Take appropriate history from patient • Perform mental status examination of patients • Diagnose and manage the case	Sign symptom, etiology, types, diagnosis and management of – • Pseudocyesis • Postpartum mental disorders- maternity blue, Postpartum psychosis • Premenstrual syndrome	2 hrs
21. Suicide and deliberate self-harm	Students will be able to: • Identify clinical features and etiology of Suicide / deliberate self-harm • Take appropriate history from patient • Perform mental status examination of Suicide / deliberate self-harm patient • Diagnose and manage case of Suicide/ deliberate self-harm	• Suicide /deliberate self-harm - sign symptom, etiology, types, diagnosis and management • Assessment of suicidal risk • Care of suicidal patient • Motive for deliberate self-harm • Suicide prevention	4 hrs
22. Substance related disorder	Students will be able to: • Identify clinical features and etiology of Substance related disorder • Take appropriate history from patient • Perform mental status examination of Substance related disorder patient Diagnose and manage case of Substance related disorder	• Terminology- intoxication, Abuse, Dependence, Tolerance, Withdrawal state • Sign symptom, etiology, types, diagnosis and management of- Alcohol related disorder Opioid related disorder Benzodiazepine related disorder Cannabis related disorder Amphetamine related disorder Social media related disorder	1 hr 1 hr 1 hr 1hr 1 hr 1 hr 1 hr
23. Psychopharmacology	Students will be able to: • Understand classification, mechanism of action indication, contra indication, adverse effects, dosages, and advises regarding use of psychotropic medicines.	• Class of drugs- Antipsychotic Antidepressant Mood Stabilizer Anxiolytic Hypnotic Psychostimulant	4 hrs

Subject	Learning Objectives	Contents	Teaching Hours
24. Psychological treatment	Students will be able to: • Understand different types of psychological treatment applicable on psychiatric patients	• Types of psychological treatment- counselling Cognitive behavior therapy Supportive psycho therapy Insight oriented psycho therapy Dialectic behavior therapy Family therapy Couple therapy	4 hrs
25. Child psychiatric disorder	Students will be able to: • Identify clinical features and etiology of Child psychiatric disorder • Take appropriate history from patient • Perform mental status examination of patients • Diagnose and manage case of Child psychiatric disorder	• Sign symptom, etiology, types, diagnosis and management of – ASD ADHD Conduct disorder Intellectual disability disorder	4 hrs

Paediatrics

The curriculum in pediatrics, 2002 has been revised and updated in 2012 to emphasize the issues related to child health problems of the country.

The undergraduate medical students need to know these common childhood problems and how to manage these efficiently. This need based revised curriculum will certainly enable them to serve the community.

The contents of the curriculum as well as the skills to be acquired by the students are categorized as "must know", "useful to know", "nice to know" according to their importance at this level. These categories are marked as ∗∗∗, ∗∗ and ∗ respectively. Teachers are requested to follow this guideline while planning their teaching-learning sessions.

Departmental Objective:

To train medical graduates who will be able to manage common childhood problems in the community. Hence, at the end of the course they will be able to −

- manage common pediatric and neonatal problems at hospital and the community level.
- manage acute neonatal and pediatric emergencies efficiently
- identify neonatal and pediatric problems that require secondary and tertiary care and refer them appropriately.
- To diagnosis and manage pediatric emergencies commonly encountered in hospital practice.
- refer appropriately for rehabilitation where necessary
- use growth chart in order to assess the growth of a child to differentiate normal from abnormal.
- provide emergency cardiopulmonary resuscitation to newborns and children
- select and interpret relevant investigations
- perform routine therapeutic procedures
- communicate effectively with the child, parents, relatives and colleagues.
- counsel, explain and guide parents and relatives regarding the illness, the management plan, the possible complications and the prognosis
- participate in the national programmes providing both service and training and preventive activities: IMCI, NNS, EPI and other programmes
- serve the community during disaster and epidemics
- update with latest information related to core paediatric problems
- conduct research
- perform/discharge medico-legal and ethical responsibilities

List of Competencies to acquire:

- communicate and counsel patients, parents and relatives.***
- demonstrate empathy and humane approach towards patients, parents and relatives. ***
- exihibit a proper attitude towards colleagues and other staffs.***
- take relevant history and perform clinical examination to arrive at a working diagnosis***
- perform the anthropometric measurements in order to assess the growth of a child.***

- use and interpret the growth chart to compare the anthropometric values with the standard one.***
- suggest appropriate investigations keeping in mind their relevance and cost effectiveness***
- plan and outline a treatment at primary facilities which is need based, cost effective and evidence based***
- recognize situations which need urgent treatment at secondary and tertiary level hospitals and be able to make a prompt referral with a referral note after giving first aid or emergency treatment at primary health care facilities.***
- use and interpret the Integrated Management of Childhood Illness (IMCI) Chart prepared by WHO***
- prepare and administer oral rehydration therapy (ORT)***
- explain mother about appropriate positioning and attachment in breast feeding & effective suckling**

Students must observe the following skills

- Hand/ forearm washing***
- Cardio-pulmonary resuscitation (CPR)***
- First aid to children and neonates including endotracheal intubation and mouth to mouth breathing.**
- Lumbar puncture***
- Bone marrow aspiration***
- Thoracocentesis/ paracentesis*
- Umbilical catheterization*
- Exchange transfusion*
- Blood and blood products transfusion including mobile transfusion***
- I/V cannulation, collection of samples for routine examination (RE)*
- Use of AMBU bag***
- Administration of an enema*
- Phototherapy**
- Incubator (open and closed) care*
- Oxygen therapy***
- Nebulization***
- Bedside urine for albumin & sugar***
- Capillary blood glucose estimation**
- Preparing balanced diet**
- Performing intradermal / subcutaneous/ intramuscular/intravenous or per rectal injections in children*
- Constructing a vaccination schedule for a child*
- Applying vaccine to children*
- Mantoux test and interpret the result*
- Introduction of nasogastric tube*
- Managing hyperpyrexia or hypothermia and convulsion and other paediatric emergencies*

- Applying otoscope, tongue depressor during examination of the child*
- Writing discharge certificate*

Final Professional Examination:

Marks distribution:

Total marks – 500 (Summative)

Pediatrics -130

Written = 50

- MCQ-MTF (05) + SBA(05)=10
- 2SEQ 20-+ 6SAQ 15 = 35
- Formative assessment = 05

Oral, Practical and Clinical=80

- Oral, Practical =30 +10 =40
- Clinical-1 long case-20
- -1 Short case-10
- OSPE =10.

Components	Marks			Total Marks
Paper l – Internal Medicine Paper - ll - Medicine with allied and Pediatrics				
	Int Me.& Allied	**Pediatrics**		
Pediatrics MCQ (MTF, 5 + SBA, 5)	10	10	20	100
Total 2 SEQ + 6SAQ Group B1 - 1SEQ 10+3SAQ (2.5X3) Group B2 – 1SEQ10 +3SAQ(2.5X3)	35	35	70	
Formative assessment	05	05	10	
	Total			
OSPE		10		
Oral, Practical and clinical		30+10+30		
	Total	130 (For Pediatrics)		

Paediatrics

Learning Objectives	Contents	Teaching Hours
At the end of the sessions, students will be able to • define Pediatrics and Primary health care • state the stages of a child's life • describe the current child health status in Bangladesh • describe the major child health problems in the country • describe Millennium Developmental Goals (MDG), particularly MDG 4 • describe the components of essential service package (ESP) and essential newborn care (ENC) • discuss the emergency triage assessment and treatment • state the National Child Health programmes • describe the preventive programmes of pediatrics e.g. Integrated Management of Childhood Illness (IMCI), EPI, National Nutrition Services (NNS), Infant and Young Child Feeding (IYCF), vitamin-A supplementation	**Preventive Paediatrics** **<u>CORE:</u>** • An introduction to Paediatrics& MDG*** • IMCI*** • EPI*** • IYCF*** • IDD** • ENC** • NNS*** • ETAT** • ECD** • Vitamin-A supplementation**	1 hr 2 hrs 1hr Total = 4 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions, students will be able to • describe the procedure for taking care of new-born e.g. maintenance of body temperature, feeding, care of eyes etc. • define perinatal asphyxia, hypoxic ischemic encephalopathy (HIE), describe APGAR Score, causes, management (Newborn resuscitation) & complication of perinatal asphyxia. • state the common causes of respiratory distress in newborn (RDS & meconium aspirates) & clinical presentation and management • define preterm & low birth weight, epidemiology, causes, clinical presentation, complications & management of preterm low birth weight babies. describe the common infections of newborn (neonatal sepsis), their etiology /organism patterns, risk factors and types of neonatal sepsis • describe the clinical presentation of neonatal sepsis, diagnosis (e.g. sepsis screening), treatment and prevention of neonatal sepsis • describe the causes of neonatal jaundice, clinical presentation, complications& management of different types of neonatal Jaundice. • State the causes and clinical presentations of neonatal convulsions and it's diagnosis and treatment • describe the different types of birth injuries & their management	**Neonatology** **<u>CORE:</u>** • Care of a normal newborn*** • Perinatal asphyxia*** • Neonatal resuscitation*** Neonatal seizure** • Birth injuries * • Pre-term/ Low birth weight/ SGA*** • Neonatal infection*** • Respiratory distress in newborn* • Neonatal jaundice***	1hr 1hr 1hr 1hr Total = 4 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • define Infant and young child feeding (IYCF) • describe IYCF global & national perspectives and IYCF recommendations • describe the effective breast feeding; exclusive breast feeding (including colostrum) • describe advantages of breastfeeding and hazards of artificial feeding • describe anatomy of breast and physiology of lactation • describe techniques of breastfeeding: position and attachment & effective suckling • counsel for breast feeding & complimentary feeding • describe the baby friendly hospital initiatives • describe breast milk substitute (BMS) code • describe maternal nutrition & drugs in breastfed mother • describe guiding principle of complementary feeding & advantage of complementary feeding, age specific appropriate food	**Infant and young child feeding (IYCF)** **CORE:** • Breast feeding*** • Complementary feeding***	1 hr 1hr Total = 2 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • define growth and development • describe normal growth and development of a child • describe factors influencing growth and development • state the principles of development • describe early childhood development (ECD) and its importance • describe ways of assessing growth and development of a child • describe growth chart • define failure to thrive and state it's causes and management	**Growth and Development, ECD** **CORE:** • Growth & Development*** Failure to thrive** • Early childhood development*	1 hr 1hr Total = 2hrs
At the end of the sessions the students will be able to • define and classify protein energy malnutrition (PEM) • define severe acute malnutrition (SAM) • state the risk factors of protein energy malnutrition • describe the clinical presentation, complications & management of a child with severe acute malnutrition • describe the various types of vitamin deficiency disorders & their management • describe micro nutrients and their importance in malnutrition/child health • list the causes of obesity, consequences & management of obesity	**Nutritional Disorders** **CORE:** • PEM, SAM & CMAM*** • Vitamin deficiencies (Xerophthalmia, Rickets, Scurvy)*** • Micro nutrient deficiencies (Iron, Zinc, Calcium)** • Obesity*	1 hr 1 hr Total = 2 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • list the common infectious diseases of children in Bangladesh • discuss the aetiology, clinical presentation, complications, treatment & prevention of vaccine preventable disease. • discuss the pathogenesis, clinical presentation, diagnosis & treatment of enteric fever • discuss the aetiology, clinical presentations of dengue fever and the complications • describe the management of a case of dengue haemorrhagic fever (DHF) and dengue shock syndrome (DSS) • describe the aetio-pathology, clinical presentation, complications and management of kala-azar • describe the aetio-pathology, clinical presentation, complications and management of malaria • describe national programme for eradication of kala-azar and malaria	**Infectious Diseases** **CORE:** • Tetanus** • Diphtheria** • Pertussis*** • Tuberculosis*** • • Measles** • Mumps** • Poliomyelitis*** • Enteric fever*** • Dengue*** • Malaria*** • Kala-azar***	1 hr 1hr 1hr 1hr 1hr 1hr 1hr Total = 7 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • define diarrhoea, it's aetio-pathogenesis, classification, clinical presentation, complications of diarrhoea • define persistent diarrhoea and dysentery • assess dehydration & to offer appropriate management (Plan A, B,C) • select relevant investigations and their interpretation • describe the composition of ORS, Cholera Saline, Ringer's solution. • describe prevention of diarrhoea • describe helminthiasis and their management	**Gastrointestinal disorders** **CORE:** • Diarrhoeal disorders & management*** – Acute watery diarrhoea*** – Dysentery*** – Persistent diarrhoea*** • Abdominal Pain &Helminthiasis**	1 hr 1 hr Total = 2 hrs
At the end of the sessions the students will be able to • state the common respiratory illnesses of children • describe aetiology, clinical presentation, complication& management of pneumonia • describe aetiology, clinical presentation, complication& management of bronchiolitis • state the common causes of respiratory distress • differentiate asthma, pneumonia and bronchiolitis • define childhood asthma & describe the presentation & management of asthma. • describe the common differential diagnoses of stridor in children • describe the management of a case of acute laryngotracheobronchitis	**Respiratory Disorders** **CORE:** • ARI*** • Pneumonia*** • Bronchiolitis*** • Childhood Asthma*** • Croup and other causes of stridor And their management**	1 hr 1hr 1hr Total = 3 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • list the common causes of anaemia in children • classifyanaemia. • describe the risk factors, clinical presentation & management of iron deficiency anaemia. • describe the pathogenesis, clinical & laboratory features and management of congenital haemolyticanaemia (CHA) • differentiate the laboratory features of these 2 diseases • counsel the parents about the prognosis of CHA. • describe the cause/ differential diagnoses of bleeding disorder. • describe the etiopathogenesis, clinical presentations, laboratory features and management of ITP, hemophilia, von Willebrand disease and aplastic anaemia	**Haematological Disorders** **CORE:** • Iron deficiency anaemia*** • ITP *** • Haemophilia*** • Congenital haemolyticanaemia *** • Hypoplasticanaemia/ aplastic anaemia**	1hr 1 hr Total = 2 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • list the common causes of generalized swelling and haematuria among children • define and classify nephrotic syndrome • describe the aetio-pathology, cardinal features, complication, diagnosis, treatment and prognosis of nephrotic syndrome. • describeaetio-pathogenesis of acute glomerulonephritis, clinical presentation, complication & management of acute glomerulonephritis. • identify & describe management of a child with hypertensive encephalopathy & acute LVF • differentiate nephrotic syndrome from acute glomerulonephritis • describe the aetiology, risk factors, pathogenesis, cardinal features, complications, laboratory findings & management of UTI in children • counsel the parent for prevention of UTI • describe the causes, clinical presentation, complication & management of acute renal failure • describe the fluid & electrolytes homeostasis and acid base homeostasis • name common fluid, electrolytes and describe acid base imbalance.	**Renal disorder** **CORE:** • Nephrotic syndrome*** • Acute glomerulonephritis*** Acute Renal Failure** Fluid & Electrolytes & acid base balance*** • Urinary Tract Infection***	1 hr 1 hr 1hr Total = 3hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • state the different causes of jaundice • describe the clinico-pathological consequences of hepatotrophic viruses • describe the aetiopathogenesis, clinical presentation and complications of acute hepatitis • describe the stigmata of chronic liver diseases (CLD)/ cirrhosis of liver • list the relevant investigations for a child with liver disease e.g. acute hepatitis or chronic liver disease etc and their interpretation. • describe the treatment of a child with acute hepatitis or chronic liver diseases • describe the clinical presentation & management of hepatic coma. • list the common causes of haematemesis in children • describe the aetio-pathogenesis, clinical presentation of a case of portal hypertension. • outline the management of a case of hematemesis and malaena	**Diseases of Liver** **CORE:** • Viral hepatitis *** • Fulminant hepatic failure*** • Hepatic coma/ hepatic encephalopathy*** • Portal hypertension ** • Chronic liver disease eg. cirrhosis**	1 hr 1 hr Total = 2 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • classify congenital heart diseases • describe the haemodynamics, clinical presentation, complication & management of common congenital heart diseases e.g. ASD, VSD, TOF & PDA. • describe aetio- pathogenesis of acute rheumatic fever • describe the clinical presentation, diagnosis, & management of acute rheumatic fever and rheumatic carditis. • describe the prevention of acute rheumatic fever • describe the causes, clinical presentation & management of heart failure in infant & children	**Disease of Cardio-vascular system** **CORE:** • Congenital heart disease (ASD, VSD, TOF & PDA)*** • Rheumatic fever & Rheumatic heart disease*** • Heart failure in infancy & childhood***	2 hrs 1 hr Total = 3 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • describe causes of convulsions in children • describe the criteria of diagnosis & management of febrile convulsion • describe the aetio-pathogenesis, clinical presentation & management & prognosis of acute pyogenic and viral meningitis • describe the aetio-pathogenesis, clinical presentation & management & prognosis of encephalitis • describe the pathogenesis, clinical staging, management & prognosis of tubercular meningitis. • describe the CSF findings of acute bacterial, tubercular and viral meningitis • define and classify epilepsy • describe the clinical presentation, management & prognosis of epilepsy • define and list the differential diagnoses of acute flaccid paralysis (AFP). • describe the clinical presentation, management & complication of GuillainBarre syndrome (GBS), poliomyelitis and transverse myelitis • differentiate GBS, polio and transverse myelitis • describe causes of mental retardation, it's management, counseling & rehabilitation • define cerebral palsy & describe its causes, types, clinical feature, management, counseling & rehabilitation	**Disease of Nervous system** **CORE:** • Febrile convulsion *** • Epilepsy** • Meningitis & Encephalitis • Mental retardation ** • Cerebral palsy** • Acute Flaccid Paralysis (AFP)*** • GuillainBarre syndrome • Transverse myelitis • Polio myelitis	1hr 1hr Total = 2 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • Enumerate common childhood malignancies • define and classify leukaemia • describe the clinical presentation and diagnosis of acute leukaemia • describe the blood & bone marrow features of acute leukemia • describe the treatment of acute leukaemia • classify lymphoma	**Malignant diseases** **CORE:** • Leukaemia*** • Lymphoma & other tumours*	1 hr
At the end of the sessions the students will be able to • describe the causes of short stature • describe the aetiopathology, clinical presentation, diagnosis & management of hypothyroidism • classify diabetes mellitus & describe the clinical presentation, diagnosis & management of type I (IDDM) Diabetes Mellitus • classify the chromosomal disorders • describe clinical presentation, management and prognosis of Down syndrome • counsel parents about the prognosis of the diseases mentioned above	**Endocrine and Chromosomal Disorders** **CORE:** • Short stature *** • Hypothyroidism*** • Diabetes Mellitus * • Down syndrome***	1 hr 1hr Total = 2 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • list the common causes of pain and swelling of joints • classify juvenile idiopathic arthritis (JIA) • describe clinical manifestations and complications of JIA. • describe relevant investigation and interpretation • enumerate the different treatment options of JIA • classify myopathy • describe the clinical features and diagnosis of pseudo hypertrophic muscular dystrophy/ Duchene muscular dystrophy (DMD) • describe the relevant investigations and their interpretation • describe the management including counseling & rehabilitation of pseudo hypertrophic muscular dystrophy (DMD)	**Connective Tissue & Musculo-skeletal Disorders** **CORE:** • Juvenile idiopathic arthritis (JIA)*** • Myopathy • Pseudohypertrophic muscular dystrophy**	1 hr
At the end of the sessions the students will be able to • list the common accidents and emergencies of children • describe the principles and management of poisoning • describe the clinical presentation, complications and management of kerosene poisoning • describe the clinical presentation, complications and management of organophosphorus poisoning • describe the aetio-pathogenesis, clinical presentation and management of snake bite • describe the pathogenesis and clinical presentation of drowning (salt and fresh water drowning)	**Accidental poisoning & Drowning** **CORE:** • Kerosene*** • Organophosphorus compound*** • Snake bite** • Drowning**	1 hr 1hr Total = 2 hrs

Learning Objectives	Contents	Teaching Hours
At the end of the sessions the students will be able to • state the common behavioral disorders of children • describe the risk factors & management of nocturnal enuresis • differentiate true seizure from pseudo-seizure • describe causes, early identification management & counseling of autism spectrum disorder (ASD) • describe child abuse and neglect	**Paediatric Psychological and Psychiatric disorder** **CORE:** • Childhood behavioural disorders** • Autism spectrum disorder (ASD)*** • Somatoform disorder** • Enuresis*	1 hr
At the end of the sessions the students will be able to • describe the steps of communication /counseling • counsel a parent or care giver regarding any illness	**Communication & Counseling** **CORE:** • Counseling	1 hr

Pediatrics
Teaching/ Learning Methods & Aids

Teaching methods	Aids
Lectures: • Large group teaching & lectures • Small Group teaching: (Clinical) ▪ Bedside teaching ▪ Case demonstration & practice ▪ Practical Skills (Video) • Field Site training : (with Community Medicine) • Integrated Teaching • Self-directed learning	OHP/ Multimedia presentation, Video, Slide • Patients • Simulated Patients • Dummy (Manikins) • Charts e.g. growth chart, IMCI Chart • Reading materials o Modules & national guidelines on different childhood illnesses o Study guide o Books, journals • Others e.g. ECG, Instruments, X-ray, photographs

ACADEMIC CALENDAR – PAEDIATRICS

<table>
<tr><td rowspan="2">LECTURE</td><td colspan="3">2nd Phase</td><td>3rd Phase</td><td colspan="2">4th Phase / Final Phase</td></tr>
<tr><td colspan="3">4 hours
INTRODUCTION
PREVENTIVE
PAEDIATRICS</td><td>20 hours
IYCF, Growth & development, Nutritional disorders, Infectious diseases, Childhood tuberculosis, Respiratory disorders, Gastrointestinal disorders, Accidental poisoning</td><td colspan="2">26 hours
Neonatology, Hematologic disorders, Renal disorders, Disease of liver, Disease of cardiovascular system, Diseases of nervous system, Malignant diseases, Endocrine and chromosomal disorders, Connective tissue & musculoskeletal disorders, , Paediatric Psychological and Psychiatric disorders, Communication and counseling</td></tr>
<tr><td rowspan="15">CLINICAL</td><td colspan="3">4 weeks</td><td></td><td colspan="2">6 weeks</td></tr>
<tr><td colspan="2">2 WEEKS</td><td>2 WEEKS</td><td rowspan="15">No clinical placement in 4th year</td><td colspan="2">INDOOR PLACEMENT</td></tr>
<tr><td>Day</td><td>IMCI</td><td>Neonatology</td><td>Morning (2 hours)</td><td>Evening (2 hours)</td></tr>
<tr><td>1</td><td>IMCI</td><td>History writing</td><td rowspan="15">1st Week
D1-2 : Introduction + history taking
D3 : IMCI
D4-5 : Cough & difficult breathing, diarrhea
D6 : Presentation & discussion
2nd Week
D1 : Bleeding disorder
D2 : Pallor
D3-4 : Fever, Leukaemia
D5 : Accidental poisoning
D6 : Presentation & discussion
3rd Week
D1- 2: PEM
D3-4: Hepatosplenomegaly
D5 : Lymphadenopathy
D6 : Presentation & discussion
4th Week
D1- 3: Scanty urine, ARF, NS/AGN
D4 : RF & RHD
D5 : Joint swelling
D6 : Presentation & discussion
5th Week
D1-4 : Neonatology
D5 : IYCF
D6 : Presentation & discussion
6th Week
D1-2: Convulsion
D3 : Developmental Assessment
D4- 5: OSCE
D6- : Feedback</td><td rowspan="15">Self-directed learning
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Self-directed learning</td></tr>
<tr><td>2</td><td>IMCI</td><td rowspan="3">Clinical examination of
i. Newborn
ii. Child</td></tr>
<tr><td>3</td><td>IMCI</td></tr>
<tr><td>4</td><td>IMCI</td></tr>
<tr><td>5</td><td>IMCI</td><td rowspan="5">Common neonatal problems:
• Perinatal asphyxia
• Low birth weight
• Neonatal sepsis
• Neonatal Jaundice
• Neonatal convulsion</td></tr>
<tr><td>6</td><td>IMCI</td></tr>
<tr><td>7</td><td>IMCI</td></tr>
<tr><td>8</td><td>IMCI</td></tr>
<tr><td>9</td><td>IMCI</td></tr>
<tr><td>10</td><td>IMCI</td><td>IYCF</td></tr>
<tr><td>11</td><td>Assessment</td><td>Assessment</td></tr>
<tr><td>12</td><td>Feedback</td><td>Feedback</td></tr>
</table>

PLAN FOR ACADEMIC CALENDAR – PAEDIATRICS

Annex-

FIRST PROF.	SECOND PROF.	THIRD PROF.	FINALPROF.

6m	6m	6m	6m	6m	6m	6m	6m	6m	6m
			4 LECTURE		20 LECTURE		22 LECTURE		
			Introduction to Pediatrics, MDG -1 IMCI-2 National programmes-1		IYCF-2 (breast feeding-1, complementary feeding-1) Growth & development-2 Protein energy malnutrition, SAM, CMAM- 1 Other Nutritional disorders -1 Infectious diseases -7 Respiratory disorders- 3 Gastrointestinal disorders -2 Accidental Poisoning -- 2		Neonatology – 4 Haematologic disorders – 2 Renal disorders – 3 Disease of liver – 3 Disease of cardiovascular system – 2 Disease of nervous system – 2 Malignant disease – 1 Endocrine and chromosomal disorders – 2 Musculoskeletal disorders -- 1 Pediatric psychological and psychiatric disorders – 1 Communication and counseling -- 1		
			CLINICAL				CLINICAL		
			4 WEEKS				6 WEEKS		10 days for block teaching
0		Yr -1	3rd	Yr -2	4th	Yr -3	5th	Yr -4	Yr -5

Photograph

Name : ……

Session :…… …….Batch :..... Roll Number :……..

Group : Phase II :……..…..Phase IV……

Period of attachment :

Phase II : ……Phase IV :…….

Contact address with phone No :

NOTE:

- Students must complete the activities shown on the card during the clinical attachment in Paediatrics.
- Card will be signed by registrar grade and above.
- At the end of the attachment the card must be submitted and signed by the Head of Department. The card will be retained by the Department.
- During 2nd round, students have to write down history, to perform physical examination, to observe the management and follow-up including counseling in two of their allocated beds.
- Each student will submit five complete case history.
- At the end of each phase formative assessment will take place and marks of formative assessment will be added to the summative assessment.
- Ward duties will start from 09:30 am to 11:30 am & from 06:00 pm to 08:00 pm (total 04 hours) in each day.

Summative assessment of Paediatrics

Assessment system and mark distribution:

Components	Marks
Formative assessment	5
Paper – II Paediatrics Written (Group B1 and B2) MCQ (Single based answer + Multiple True False) SEQ (2) + SAQ (6)	 10(5+ 5) 35
OSPE	10(5+5)
Oral & Practical	40(30+10)
Clinical: 1 Long case 1 Short case	 20 10
Grand Total	**130**

Pass mark will be 60% in each written, oral, practical & clinical examination

Prerequisite for appearing in Final Professional examination for Paediatrics

After successful completion of Lectures, clinical placement, Integrated teaching & Block posting students will appear in final professional examination. Eligibility for final professional examination is subjected to

- 75% attendance in Lectures and integrated teaching.
- 75% attendance in Clinical placement and block posting.
- 60% marks in Formative assessment.

1st Round (2nd Phase MBBS)
Duration – 4 weeks (96 hours)

Learning Objectives:

The student will be able to describe

- describe the definition of paediatrics
- Who is a child? Stages of a child's life
- The current child health statistics e.g. NMR, IMR, under 5 mortality etc.
- Definition and important components of MDG and SDG
- IMCI strategy, the principles of integrated care, IMCI case management process
- Major health problem in paediatrics
- Develop interpersonal and communication skills benefiting a physician in order to discuss illness and its outcome with patient and family.
- Different components of paediatric history – particulars of the patient, presenting symptoms, history of the present illness, history of past illness, birth history, feeding history, immunization history, developmental history, treatment history, family history, personal & social history etc.
- Perform clinical examination and will be able to elicit different signs.
- National child health programme- IMCI, IYCF, EPI,CNCP,ETAT etc.

Time Management :

2nd Phase = 4 weeks
6 days / week, 24 days in Total
32 hours in morning
32 hours in evening
16 hours in Outpatient Department
16 hours in Emergency Department

Duration of Placement (1st Round) from ……..to ……...
Total attendance ……days, out of ……..days

SL	Date	Topic(morning) 9.30- 11.30 am	Teacher's initial	Topic (Evening) 6 - 8 pm	Teacher's initial
1		• Introduction to Paediatrics. • Introduction of IMCI. • Introduction of IMCI student's hand book • Introduction of IMCIWall Chart, case recording form • Reading on introduction of • General danger signs, cough or difficult breathing		• Reading on Introduction, General danger sign, cough & difficult breathing • Practice on relevant cases	
2		• Video exercise on general danger sign, cough & difficult breathing • Case demonstration • Clinical practice by the students (up to cough & difficult breathing) • Reading on diarrhea		• Reading on diarrhea • Practice on relevant cases	
3		• Video exercise on diarrhea & dehydration • Case demonstration on diarrhoea • Clinical practice by the students upto diarrhoea • Reading on fever and measles		• Reading on fever and Measles • Practice on relevant cases	
4		• Video exercise on fever & measles • Case demonstration on fever &measles • Clinical practice by the students upto fever & measles • Readingon ear problem & checking nutritional status: malnutrition & anaemia		• Reading on ear problem & checking nutritional status: malnutrition & anaemia • Practice on relevant cases up to fever	
5		• Video on ear problem, malnutrition &anaemia • Demonstration of WHO growth charts • Case demonstration on		• Reading on immunization status, assessing the child's feeding up to other problems • Practice on relevant cases	

		malnutrition • Reading on immunization status, assessing the child's feeding up to other problems			
6		• Clinical practice on full assessment by the student • Drill on fast breathing • Reading Identify treatment & treat the child		• Reading on identify treatment & treat the child	
7		• Reading on counseling & follow-up • Introduction of backside of case recording form • Clinical practice on full assessment by the students including the backside		• Reading on counseling & follow-up • Practice on relevant cases	
8		• Role play on treat the child, demonstration & practice by students • Reading on sick young infant • Introduction of case recording form of sick young infant		• Reading on sick young Infant	
9		• Video on sick young infant &feeding assessment • (Positioning &attachment) • Case demonstration • on sick young infant • Clinical practice by the student on sick young infant		• Practice on full • assessment of the students includ back side	
10		• Demonstration on feeding assessment (Positioning& attachment) • Clinical practice by the students on feeding assessment(Positioning & attachment)in the postnatal ward • Drill on weight for age • Review & feed back		• Reading on infant& young child and early childhood development • Review	
11		• Newborn Resuscitation		• History Taking	
12		• Low Birth weight		• General Examination	
13		• Neonatal Jaundice		• Examination of GIT	

14		• Examination of Respiratory System		• Examination of CVS	
15		• Examination of Nervous System		• Practice on relevant cases	
16		• Examination of Musculo Skeletal System		• Practice on relevant cases	
17		• Assessment by OSPE+ MCQ+SAQ			
18		• Feedback with all faculty members			

Marks Obtained (%):

Comment:

GRADING
A = 75-100%
B = 60-74%
C = 50-59%
D = 40-49%
E = 00-39%

Professor
Department of Paediatrics

Registrar
Department of Paediatrics

2nd Round (4th Phase MBBS)
Duration – 06 weeks (144 hours)

Learning Objectives:

At the end of round students will be able to-

- develop skills in history taking & physical examination.
- identify sign & symptom of different systems.
- Interpret the findings in terms of diseases, make differential diagnosis & an laboratory investigations.
- Identify instruments commonly used for medical procedures and observe the doctor performing the procedures.
- assess the growth and development of the child and early childhood development(ECD).
- know different nutritional disorders.
- Know the infectious diseases.
- know common neonatal problems.
- diagnose and manage diseases of different systems given below:
  Alimentary tract, Liver, Biliary tract and pancreatic disease
  Cardiovascular disease
  Respiratory Disease
  Kidney and Genito-urinary disease
  Neurological diseases

Blood disorders
Musculoskeletal and connective tissue disorders
Endocrine and metabolic diseases
Genetic and chromosomal diseases
Accidental poisoning and Drowning
Paediatric psychiatric and psychological disorders

- To know communication skills and counseling patients

Time Management :

4th Phase = 6 weeks
6 days / week, 36 days in Total
48 hours in morning
48 hours in evening
24 hours in Outpatient Department
24 hours in Emergency Department

Duration of Placement (2nd Round) from ……..to ……...
Total attendance ……days, out of ……..days

A. History writing :

SL	Case	Date	Supervisor

B. Case Management to be observed

Serial Number	Case Management to be observed	Date	Signature of the teacher
1.	Nutritional: PEM (MAM, SAM), Xerophthalmia ,Rickets		
2.	Cardiovascular: Ventricular septal defect, TOF,HF		
3.	Respiratory: Pneumonia, bronchiolitis, asthma		
4.	Gastrointestinal: diarrhea, hepatitis, chronic liver disease		
5.	Renal: NS, AGN		
6.	Nervous system: Febrile convulsion, meningitis, encephalitis		
7.	Infection: Enteric fever, UTI, Dengue fever, malaria, TB,Kala-azar		
8.	Hematology: ITP, Hemophilia, Thalassemia, Aplastic anemia		
9.	Rheumatology: Rheumatic fever, JIA, HSP, SLE		
10.	Endocrine: Congenital hypothyroidism, DM		
11.	Genetic: Down syndrome, Turner syndrome		
12.	Malignancy: ALL, Lymphoma		
13.	Neonatal: Perinatal asphyxia, LBW, Sepsis, neonatal jaundice		
14.	Accidental poisoning: OPC poisoning, Kerosene poisoning, Corrosive poisoning, Drowning, Snake bite.		

C. Events to be observed:

SL	Events name	Date	Signature
1.	Lumber Puncture		
2.	Bone Marrow Aspiration		
3.	Insertion of Intravenous Line		
4.	Naso-gastric tube introduction		
5.	Per rectal diazepam		
6.	Breast feeding (Positioning & attachment)		
7.	Tepid sponging		
8.	Mantoux test/BCG		

9.	Blood Transfusion/Mobile transfusion		
10.	Collection of blood samples		
11.	Pulse/Temp/Resp recording		
12.	B.P. recording		
13.	Collection of throat swab		
14.	Collection of urine/stool		
15.	Aspiration of Fluid-pleural/abdominal		
16.	Use of Pulse Oxymeter, ambu bag		
17.	Enema Simplex		
18.	Nebulization		
19.	Use of glucometer		
20.	CPR		

D. Clinical classes to attend:

SL No.	Date	Topic	Signature of the teacher	Signature of evening teacher
01		Introduction		
02		History taking		
03		IMCI, IYCF		
04		Developmental Assessment And Growth chart		
05		A child with malnutrition		
06		A child with malnutrition		
07		Diarrhoea in children		
08		A Child with cough & difficult breathing		
09		A Child with cough & difficult breathing		
10		Recurrent wheeze in children		
11		Approach to child with fever and rash		
12		An approach to child with jaundice		
13		A Child with lymphadenopathy		
14		A Child with fever, pallor & hepatosplenomegaly		
15		Management of pallor		
16		Congenital Heart disease & Heart failure		
18		Bleeding disorder in children		
		Bleeding disorder in children		
19		A child with joint swelling		
20		A child with joint swelling		
21		A Child with scanty micturition		
22		A Child with scanty micturition		
23		Convulsion In Children		
24		Convulsion In Children		

25		Accidental Poisoning		
26		Snake bite, Drowning		
27		Breast feeding, IYCF		
28		Low Birth Weight		
29		PNA with neonatal resuscitation		
30		Neonatal Sepsis		
31		Neonatal Jaundice		
32		Vaccination		
33		Assessment		
34		Feedback		

E. Practical works to be done:

SL		Date	Teacher
1.	Pulse/Respiration Rate /Temperature Measurement		
2.	Use of ambu bag		
3.	Measurement of weight, height/Length/OFC & MUAC		
4.	Use of growth chart		
5.	E.N.T examination-auroscope, tongue depressor		

F. Paedatric Emergency management to be observed

Sl		Date	Teacher
1.	Convulsion		
2.	Severe dehydration		
3.	Childhood poisoning Accidents		
4.	Respiratory distress- Acute Asthma		
5.	Heart failure		
6.	Shock		

G. Activities in Child OPD Date Teacher

(1) ORT corner ……. ……

i) Preparation ORT ……. ……

ii) Monitoring ORT ……. ……

iii) Counseling mother ……. ……

iv) Preparation of high energy density food

(khichuri, halwa) …..……. …….

(2) Immunization clinic …… ……..

i) EPI Vaccination observed/practice OPV …….. ……..

ii) Counseling witnessed practice ……. …….

iii) Cold chain observed ……. …….

(3) Shishu Bikashkendro ……. …….

(4) Lactation Management Centre ……. …….

(identification of problem in breastfeeding,

Positioning and attachment)

H. Activities on Neonatal Ward **Date** **Teacher**

(1) Examination of Newborn

i) …… ……. ……

ii) ……. ……. ……

(2) **Case management to be observed**

i) Perinatal Asphysia ……. ……

ii) Low birth weight ……. ……

iii) Prematurity ……. ……

iv) Neonatal jaundice ……. ……

v) Neonatal infection ……. ……

Pneumonia ……. ……

Septicaemia ……. ……

Umbilical infection ……. ……

Oral thrush ……. ……

vi) Essential newborn Care ……. ……

(3) Events to be observed **Date** **Teacher**

1. Hand washing ……. ……
2. Breast feeding ……. ……
3. Endotracheal intubation/CPR ……. ……
4. N.G. tube feeding ……. ……
5. Phototherapy ……. ……
6. Exchange transfusion ……. ……
7. Umbilical Catherization ……. ……

Marks Obtained (%):
Comment:

Professor
Department of Paediatrics

Registrar
Department of Paediatrics

Surgery & Allied Subjects

Departmental Objectives

The aim of this course is to provide community oriented & need based education so as to produce basic doctors who will be able to:

- elicit a complete clinical history & physical findings and formulate diagnosis of common surgical problems prevalent in Bangladesh and abroad.
- carry out necessary investigations & interpret the results with proper utilization for management
- perform minor surgical procedures and treat minor surgical problems
- recognize the major surgical problems needing specialized care, initiate the primary treatment and refer to the appropriate centers
- diagnose and provide competent primary care in surgical emergencies.
- carry out the responsibility of management in common casualties or natural calamities to offer and arrange basic life support.
- take necessary preventive & prophylactic measures for surgical problems
- be involved in continued care & rehabilitation of surgical patients.
- deliver health education in the community with emphasis to the preventive aspects of surgical disorders.
- demonstrate the right attitude in
  - Patient Care
  - Community health care
  - Continuing medical education & research
  - Observing the moral & legal codes of medical ethics

List of Competencies to acquire:

1. **Clinical –**
   a. rapport building with patients, relatives, colleagues, health care professionals and supporting staffs of the hospital
   b. take detail relevant history
   c. conduct thorough clinical Examination
   d. decide on a provisional working diagnosis
   e. perform and/or order relevant investigations considering the cost effectiveness
   f. interpret common laboratory and imaging investigations
   g. calculate fluid and electrolyte requirements
   h. evaluate and make initial management of acute trauma patient
   i. adopt aseptic techniques and procedures and maintain principles of sterilization
2. **Communication-**
   a. obtain permission before any examination and clinical procedures
   b. obtain informed consent for surgical procedures including organ ablation.
   c. appreciate right to privacy and information about the disease and its consequence
3. **Managerial-**
   a. provide leadership during team work
   b. implement time management skills
   c. issue certificates (discharge, death, medical and injury).
   d. write notes (case notes, operation notes, referrals)
   e. keep detail and systematic records both manual and electronic
   f. use computer and IT facilities.

4. **Manipulative and practical skills-**
    a. adopt universal aseptic techniques in handling surgical patient
    b. start IV lines
    c. insert NG tubes
    d. introduce urethral catheter and perform supra-pubic cystostomy
    e. drain superficial abscesses
    f. perform per-rectal examination
    g. achieve emergency control of revealed hemorrhage
    h. carry out initial management of wound
    i. repair minor wounds
    j. complete primary management of fractures and arrange transfer to appropriate centers.
    k. apply splints, slings, POP casts and slabs, tractions, bandages, sterile dressings

Distribution of teaching - learning hours Surgery & Allied Subjects

Subject	Lecture (in hours)				Small group teaching (in hours)	Departmental integrated teaching (in hours)	Phase integrated teaching (in hours)	Clinical/Bedside teaching (in weeks)			Total weeks	Block posting (in weeks)	Formative examination (in days)		Summative examination (in days)	
	2nd Phase	3rd Phase	4th Phase	Total	PBL, Practical demonstration , Instrumental demonstration, Skill lab, Tutorial & etc.			2nd Phase	3rd Phase	4th Phase						
General surgery	35	30	60	125	134 hours	(11 topics ×2 hours) = 22 hours	(42 topics × 3 hours) = 126 hours	15	01	07	23	04 wks	Preparatory leave-10 days	Exam time-15days	Preparatory leave-10 days	Exam time-30days
Orthopaedic surgery	-	15	45	60				02	04	04	10					
Radiology	-	-	05	05				01	-	-	01					
Radiotherapy	-	-	08	08				-	01	-	01					
Anesthesia	-	10	-	10				01	-	-	01					
Neurosurgery	-	-	05	05				-	01	-	01					
Pediatric surgery	-	05	10	15				-	-	02	02					
Urology	-	05	10	15				-	-	02	02					
Burn & Plastic surgery/ Emergency & Casualty	-	-	05	05				-	-	01	01					
Dentistry	-	-	-	-				01			01					
Ophthalmology	-	38		38				-	04	04	08					
Otolaryngology	-	38		38				-	04	04	08					
Total	324				134	22	126 hrs	20	15	24	59 wks	04 wks	25 days		40 days	
Grand Total	**480 hours**						**126 hrs**	**63 weeks**					**65 days**			
Time for integrated teaching, examination preparatory leave and formative & summative assessment is common for all subjects of the phase																
Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.																
Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions																

Surgery & Allied Subjects: Hours distribution for Clinical/Bedside teaching in 2nd, 3rd & 4th phases in details

Subject	Clinical/Bedside & Ambulatory care teaching (in hours)						Total hours (in three phases)	Total weeks {(2nd phase wks + 3rd phase wks + 4th phase wks = Total three phases wks) × (6 days × 4 or 2 hours)}
	2nd Phase		3rd Phase		4th Phase			
	Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching			
	Morning	Evening	Morning	Evening	Morning	Evening		
	Indoor/ OPD/ Emergency & Casualty	Indoor/ Emergency & Casualty	Indoor/ OPD/ Emergency & Casualty	Indoor/ Emergency & Casualty	Indoor/ OPD/ Emergency & Casualty	Indoor/ Emergency & Casualty		
	21 weeks		15 weeks		24 weeks			
General surgery	180 h (15w)	180 h (15w)	12 h (1w)	12 h (1w)	84 h (7w)	84 h (7w)	552 h	(15+01+07) = **23 w**× (6 days × 4 hrs)
Orthopaedic surgery	24 h (2w)	24 h (2w)	48 h (4w)	48 h (4w)	48 h (4w)	48 h (4w)	240 h	(2+4+4) = **10 w**× (6 days × 4 hrs)
Radiology	12 h (1w)	-	-	-	-	-	12 h	(1+0+0) = **01 w**× (6 days × 2 hrs)
Radiotherapy	-	-	12 h (1w)	-	-	-	12 h	(0+1+0) = **01 w**× (6 days × 2 hrs)
Anesthesia	12 h (1w)	12 h (1w)	-	-	-	-	24 h	(1+0+0) = **01 w**× (6 days × 4 hrs)
Neurosurgery	-	-	12 h (1w)	12 h (1w)	-	-	24 h	(0+1+0) = **01 w**× (6 days × 4 hrs)
Pediatric surgery	-	-	-	-	24 h (2w)	24 h (2w)	48 h	(0+0+2) = **02 w**× (6 days × 4 hrs)
Urology	-	-	-	-	24 h (2w)	24 h (2w)	48 h	(0+0+2) = **02 w**× (6 days × 4 hrs)
Burn & Plastic surgery/ Emergency & Casualty	-	-	-	-	12 h (1w)	12 h (1w)	24 h	(0+0+1) = **01 w**× (6 days × 4 hrs)
Dentistry	12 h (1w)	-	-	-	-	-	12 h	(1+0+0) = **01 w**× (6 days × 2 hrs)
Ophthalmology	-	-	48 h (4w)	48 h (4w)	48 h (4w)	48 h (4w)	192 h	(0+4+4) = **08 w**× (6 days × 4 hrs)
Otolaryngology	-	-	48 h (4w)	48 h (4w)	48 h (4w)	48 h (4w)	192 h	(0+4+4) = **08 w**× (6 days × 4 hrs)
Total	**240 hrs**	**216 hrs**	**180 hrs**	**168 hrs**	**288 hrs**	**288 hrs**	**1380 hrs**	**59 weeks**

Teaching-learning methods, teaching aids and evaluation

Teaching Methods				Teaching aids	In course evaluation/ Formative
Large group	**Small group teaching**	**Self learning**	**Others**		
Lectures	Tutorials, Problem Based Learning, Clinical demonstrations OPD / indoor attending & observing minor operations Demonstrations of X-rays specimen, Observations in ICU, Postoperative ward, Case Presentation and discussion. Skill lab practice	Assignment, Self study	Integrated teaching, Visit to radiotherapy Attend centers where investigations for hearing impairment, vertigo, Tinnitus are available.	Computer, Chalk & board, OHP, Multimedia, Photographs &Videos, Specimens, & Models, Plain & Contrast X-rays of Upper & lower GIT, I.V.U, Fractures Skull X-rays Sinogram & Fistulogram Ultrasonogrphy, Abdomen HBS & Pancreas Urinary tract Scans, thyroid scans, C.T. Scan, MRI, PET Scan, Bone scan, Doppler and duplex imaging. Immunohistochemistry	Item Examination Card final, Term Examination Term final (written, oral+ practical + clinical) Marks distribution: a) Surgery— I. Card final-3 II. Term Final-2 III. MCQ of Integrated teaching-5 b) Ophthal- 5 c) ENTD-5

Final professional Examinations:

Marks distribution for assessment of surgery

Total marks Surgery and allied Subjects – 500

- Written = 200 (Formative Assessment-20 +(MCQ- SBA & MTF) 40+ (SAQ +SEQ) 140 =200)
- Structured Oral = 100 (60+20+20)
- Clinical = 100 (60+20+20)
- Practical (OSPE/OSCE) = 100 (60+20+20)

Total in Surgery and allied---500.

Related Equipments:

General surgery	**Materials**
a. Sets -butterfly needle & cannula, Infusion and Transfusion sets b. Tubes--Feeding tubes, NG tube, Flatus tube , 'T' tube, Chest drain set, Endo-tracheal tube c. Bags- Blood bags, Stoma bags, Fluid bags, Nutrition bags, Urine bags, Drain bags, Bi-channel d. Sharps- BP blade and handle, surgical scissors, Needle holder, Surgical suture materials, Gloves, gown, mask, caps, surgical goggles e. Forceps-Sponge holding forceps , towel clip, Alli's tissue forceps, artery forceps, Sinus forceps, dissecting forceps, Kocher's artery forceps, kidney tray, gully pot, intestinal clamps, f. Retractors—Deavers, abdominal, Morris abdominal retractor, Langhanbach's retractor,	g. Special-Lane's twin gastro jejunostomy clamp, proctoscope, metalic urethral dilators, nephrolithotomy forceps, Bone nibbler, Osteotome, chisel, hammer, amputation saw, SPC set, CV line set, Spinal needle, h. Orthopedic--Plaster of Paris bandage, crepe bandage, Splints supporting aids- Cervical collar, Circle brace, artificial limb, i. Anesthesia- machine, Laryngoscope, airway tube, Umbo bag, pulse oximetry, Digital Thermometer, Oxygen cylinder with devices (These equipment may be used in OSPE procedure stations)
ENTD	
Thudicum nasal speculum, Killians self retaining nasal speculum, Lichwitz antrum puncture trocar and cannula, Higginson's rubber syringe, Walsham's forceps, Luc's forceps, Tilleys forceps, St Clair Thomson post nasal mirror, Jobson horne probe and ring curette, Tuning fork, Head mirror,	Boyle Davis mouth gag, Luc's tongue depressor, Draffins bipod metallic stand, Eve's tonsillar snare, St Clare Thomson Adenoid curette and cage, Trousseau's tracheal dilator, Jackson's metallic tracheostomy tube, Direct laryngoscope Chevalier Jackson's oesophagoscope, Negus bronchoscope etc.
Ophthalmology	
Trial lens, trial frame, Eye speculums (Wire, Universal), DCR punch, Tonometer, Ophthalmoscope, Cat's paw retractor, BP Blade & handle, Keratome, Squint hook	Iris repositor, lens dialer, two way cannula, chalazion clamp and scoop, corneal forceps, irrigating vectis, sac guard, sac dissector, lacrimal probe, punctum dialtor etc.

Learning Objectives and Course Contents in Surgery

Learning Objectives	Contents	Teaching Hours
A. Basic and Principles of Surgery Student should be able to: 1. state the history , evolution and scope of Surgery 2. assess and prepare patient for surgery 3. understand the patho-physiology of trauma 4. diagnose, treat and manage minor wounds 5. diagnose, treat and manage surgical infections (boil, abscess, carbuncle & gangrene) . 6. diagnose and provide basic treatment for shock & haemorrhage. 7. recognize all external hernias & their complications & initiate primary care for complicated hernias. 8. recognize & differentiate different types of burns and initiate primary care &take measure to prevent complications. 9. recognize fluid & electrolytes imbalance states, investigate & initiate appropriate therapy. 10. recognize, & investigate different types of skin ulcerations. 11. recognize, investigate & treat superficial skin tumour & cysts 12. take appropriate measures to prevent hospital infection. 13. understand and comply with ethical principles in clinical practice	***CORE*** ***Phase II*** 1. History, evolution and scope of surgery 2. Approach to a surgical patients 3. Surgical diagnostic process and techniques 4. Surgical Infection (Boil , Furuncle, Abscess, Carbuncle , cellulites) 5. Septicemia (causes, complications and treatment) 6. Sinus, Fistula and cysts 7. Wounds (classification and management) 8. Ulcers , pressure sores 9. Groin hernias 10. Haemorrhage 11. Shock ***Phase III*** 12. Metabolic response to injury 13. Principles of Management of Trauma 14. Management of a severely injured patient 15. Fluid and electrolytes balance 16. Enteral and Parenteral nutrition ***Phase IV*** 17. Pre operative assessment and preparation 18. Tumours of skin 19. Lymphadenopathy (causes, investigations, diagnosis, biopsy) 20. Surgical ethics ***ADDITIONAL*** Organ transplantation, Robotics in surgery	20 hours 10 hours 10 hours

Learning Objectives	Contents	Teaching Hours
B. Systemic Surgery ***1. Alimentary System*** Student should be able to : 1. investigate and diagnose the common surgical diseases of alimentary system and suggest management 2. diagnose the acute conditions of alimentary system and initiate primary care 3. identify the patient requiring specialty surgical intervention & refer to appropriate centre 4. take continued care of the operated patients 5. recognise post operative complications & take appropriate measures.	**CORE** **Phase II** Complications of Peptic ulcer (Perforation, Pyloric stenosis) Upper G.I. Tract bleeding Appendicitis Intestinal obstruction; **Phase III** Abdominal trauma (Diagnostic and Management principles) Ruptured Spleen Ruptured liver Ruptured intestine **Phase IV** Tongue, Lip & other oral lesions (ulcer, cancer) Oesophagus Carcinoma oesophagus and stricture Carcinoma stomach Neoplasm of colon and rectum Intestinal tuberculosis Anal canal Haemorrhoids, Fistula, Sinus & Fissure, Carcinoma anus Colostomy & ileostomy (indications and management) Abdominal incisions (Tutorial) **ADDITIONAL** Intra abdominal abscess Diseases of salivary glands Hiatus hernia.	5 hours 5 hours 5 hours

Learning Objectives	Contents	Teaching Hours
2. Genito-Urinary System Student should be able to- 1. diagnose common congenital G.U. anomalies & advise / refer to appropriate centers 2. diagnose and manage acute GU conditions like • Acute retention of urine • Acute epidedymo- orchitis • Torsion testis • Paraphimosis • Phimosis • Acute ureteric colic • Urosepsis 3. evaluation of scrotal swelling 4. evaluate a case of haematuria 5. order necessary investigations, and interpret the result of investigation & suggest principles of management 6. recognize a case of retention of urine , find out causes perform aseptic catheterization 7. introduce suprapubic catheter 8. describe the steps of circumcision	**CORE** ***Phase III*** 1. Urinary symptoms & definitions 2. Urological investigations and their interpretations, 2. Developmental genito-urinary anomalies 3. Scrotal swelling • Hydrocele • Scrotal cellulitis 4. Acute scrotal conditions • Epididymo- orchitis • Torsion testis ***Phase IV*** 5 Urolithiasis (Causes ,Diagnosis , Principles and modalities of treatment) 6 Retention of urine (acute and chronic 7 Hydronephrosis 8 UTI 9 Urinary tract injury. • Renal injury • Urethral injury 10. Renal Neoplasm • RCC • Wilm's Tumour 11 Testicular Tumour 12 BPH 13 Stricture urethra ***<u>ADDITIONAL</u>*** • Male infertility • Minimal Invasive Surgery in Urology	20 hours 10 hours

Learning Objectives	Contents	Teaching Hours
3 Hepatobiliary & Pancreas Student will be able to: 1. diagnose, investigate cholecystitis, cholelithiasis & Choledocholithiasis 2. suspect pancreatitis; initiate primary case management & suggest management 3. investigate & interpret the results in case of obstructive jaundice & suggest appropriate treatment 4. diagnose & investigate suspected case of liver & sub-phrenic abscess & suggest appropriate treatment.	**CORE** **Phase II** Cholelithiasis (causes and complications) Cholecystitis (acute & chronic) Pancreatitis (acute pancreatitis) **Phase IV** Obstructive jaundice Pancreatic tumours Liver abscess **ADDITIONAL** Hepatic neoplasm Cysts of liver Neoplasm of Gall Bladder	5 hours 5 hours 4 hours
4 Endocrine & Breast Students will be able to: 1. assess, investigate & diagnose thyroid swelling & thyrotoxicosis and suggest principles of management 2. diagnose & manage a case of breast abscess 3. assess, investigate & interpret the status and diagnose a case of breast lump & suggest principles of treatment.	**CORE** **Phase IV** ***Thyroid*** Goitre and Neoplasms of thyroid ***Breast*** Breast pain, Mastitis and Breast Abscess Fibro-adenosis and Fibroadenoma Carcinoma of breast **ADDITIONAL** Diseases of adrenal gland Diseases of Parathyroid gland	4 hours 4 hours 2 hours

Learning Objectives	Contents	Teaching Hours
5 Chest Students will be able to: • assess & diagnose traumatic haemopneumo-thorax, associated injuries & introduce water seal drain in appropriate case.	**CORE** ***Phase IV*** Chest injury (Haemothorax, Pneumothorax) Chest tumours, Chest drain, **ADDITIONAL** Dysphagia Empyaema thoracis	3 hours
6. Cardio-vascular System Students will be able to: 1. recognize chronic ischaemic conditions of limbs 2. take appropriate preventive measures & refer to specialized centre. 3. take appropriate measure to prevent DVT 4. recognize early cases of DVT ***7. Plastic & Reconstructive*** Students will be able to 1. manage Burn patient and minimize their complications 2. take any major wound care 3. suggest measures for con. External deformity & disfiguration	**CORE** ***Phase III*** Vaso occlusive disorders Atherosclerosis, Buerger's disease Varicose vein Thrombophlebitis Deep vein thrombosis **ADDITIONAL** Pulmonary embolism Angioplasty, CABG and cardiac surgery **Core** ***Phase IV*** Burn (Causes, complications and management) Skin grafting Skin tumours, Special area burn , Inhalation and electric burn	5 hours 5 hours

Learning Objectives	Contents	Teaching Hours
8. Neuro surgery Students will be able to: 1. provide primary care of head injury & Spinal injury cases. 2. take measures to prevent complications in neuro surgical patients. 3. involve effectively in continued care & rehabilitation of neuro surgical cases.	**CORE** **Phase IV** Head injury ICSOL PLID Paraplegia/hemiplagia **ADDITIONAL** Hydro cephalus Tumours of brain Tumours of spinal cord	5 hours
9. Operative Surgery Student should be able to perform: 1. primary & delayed primary & Secondary suture closure of wounds 2. Circumcision 3. Vasectomy 4. drainage of superficial Abscess 5. Venesection 6. Hydrocele operation 7. excision of superficial cysts & tumours 8. dressing of surgical wounds	**CORE** **Phase III** Principles of Asepsis & Antisepsis Pre-operative assessment & preparation Venus access Cricumcision Operation for hydrocele Repair of D.U perforation Wound care ***Tutorials*** Universal precautions (Scrubbing , gloving & gowning) O.T. environment & behavior Preoperative skin preparation and draping Suturing materials ,Stitches	5 hours 5 hours

Learning Objectives	Contents	Teaching hours
Student should be able to : • assist in common major operations & take post operative care	**Phase IV** Common Abdominal incision Operation for inguinal hernia Drainage of abscesses Catheterisation , Supra-pubic cystostomy Anastomosis Appendicectomy Cholecystectomy Gastrojejunostomy Basic principles of Laparoscopy. **Additional** Thyroidectomy, Nephrectomy, Mastectomy / Prostatectomy	10 hours
10. Orthopedic Surgery Student should be able to: • apply ATLS protocol to provide resuscitation of polytrauma patient. • manage simple and undisplaced factures • demonstrate skill in wound excision of open fractures . • demonstrate skill in: ▪ application of splints, slings , traction. ▪ application of plaster cast and slab ▪ plaster techniques and design ▪ versatility & possible complications of plaster ▪ the art of application of plaster & its' removal ▪ manipulative reduction of common fracture and dislocation. ▪ aseptic technique of joint fluid aspiration. • diagnose and outline treatment for acute osteomylities and septic arthritis • identify patient for referral to appropriate centre • demonstrate knowledge and understanding of the basic principle of physiotherapy and rehabilitation.	**CORE** ***Phase III*** **a) General Orthopedics** • Introduction to orthopaedics • Hard tissue trauma :- - Fracture classification - Principal of management of open and closed facture - Fracture healing –nonuninon, malunion, delayed union. • Infection of bone (Acute and chronic osteomyelitis) ***Phase III*** **b) Regional orthopedics** Upper limb Colles' fracture Supracondylar fracture Clavicle fracture Radius Ulna fracture (Shaft) Humerus fracture (Shaft) Lower limb Fracture of Shaft of femur Fracture of Tibia fibula	5 hours 10 hours

Learning Objectives	Contents	Teaching Hours
	Phase IV **Regional Orthopaedics** • Upper Limb Hand injuries and Hand Infection • Lower Limb Frac ture of Neck of femur Fracture of Pelvis Ankle and foot injuries Amputations Additional Dislocation – Hip, Haemarthosis • Soft tissue trauma (muscle and tendon injuries, compartmental syndrome) . • Infection of joint including osteoarticular tuberculosis • Mass Casualty- ATLS, Disaster management. • Bone tuberculosis **Additional** Dislocation of shoulder and elbow b) Paediatric orthopedics : Congenital anomalies-talipes, DDH, Bow legs, Polydactyly, Claw c) Bone tumors : Classification of bone tumor Common benign and malignant bone tumor – osteochondroma, Giant cell tumor, Osteosarcoma, Metastatic bone tumor. Vertebral fracture – (primary management, transportation. Principles of definitive management) **Additional** d) Tendinitis, Tenosynovitis, bursitis.	45 hrs

Learning Objectives	Contents	Teaching Hours
11. Anaesthesiology Student should be able to : • be aware of the safety in Anaesthesia. • be aware of the possible complications & management • demonstrate basic knowledge and perform Cardio-Pulmonary Resuscitation (CPR) • describe the scope of Anaesthesia in rural environment. **Practical Skills** Student should be able to perform : • pre-operative assessment • induction • intubation • I/V line • artificial ventilation • post-operative room care	***Phase III*** **CORE** a) Anesthesia as a subject: its scope, outline- present & future b) Anesthesia Pharmacology: Drugs: induction, maintenance, muscle relaxants c) Intra-operative management d) Post-operative management and complication e) General GAnes (G.A) f) Local/Regional anesthesia g) Management of Pain (chronic) h) Intensive Care Unit (ICU) i) Basic life support. j) Cardio-Pulmonary Resuscitation (CPR) **Exposure to practical procedures** (Tutorial) : • Pre-operative assessment • Induction • Endo tracheal Intubation • CV line • Artificial ventilation • Face mask ventilation. • Recovery room experience	10 hours

Learning Objectives	Contents	Teaching Hours
12. Radio Diagnosis & Imaging Student should be able to : • demonstrate knowledge and understanding of the principles of radiology and imaging • appreciate the importance of imaging as investigation & diagnosis of clinical conditions • describe the hazards of radiation • describe the protection measures for personal patient and the community. • write proper requisition for various x-rays & imaging. ***X-RAY Chest*** Student should be able to : • differentiate normal anatomical images from those due to pathological states, • diagnose the common conditions like tuberculous consolidation, pleural effusion, pneumothorax, lung abscess, collapse, bronchogenic carcinoma. • make radiological diagnosis of mediastinal masses	**CORE** **Phase IV** • Introduction of radiology & imaging including CT & MRI • Hazards of radiation and protection for personals, and patients. • Principles of ultra-sonography & its clinical application • Plain & contrast X-Rays • Interventional imaging • USG **CORE:** • Normal and pathological image • Pneumonic and Tuberculous consolidation • Pleural effusion • Pneumo Thorax **Additional** • Lung abscess • Mediastinal mass	6 hours 2 hours

Learning Objectives	Contents	Teaching Hours
Gastro intestinal system Student should be able to : • diagnose intestinal obstruction, perforation etc. • recognise indications and contra-indication for barium studies e.g. meal, swallow, follow-through & enema. • make differential diagnosis of stones & calcification on plain X-Ray. • diagnose gastric ulcer, duodenal ulcer, growth in the stomach, oesophageal cancer on barium studies. • interpret the finding of cholangiogram.	**Core:** • Plain X-ray findings of Acute abdomen. • Indications & contraindicatious for barium studies. Hepatobiliary system Cholangiogram & ERCP • USG of HBS and Pancreas **Additional:** MRCP	
Skeletal system Student should be able to : • diagnose common fractures, dislocations & bone tumours bone infections with the help of X-rays ***Excretory System*** Should be able to : • identify renal calculi in plain X-ray • understand USG & IVU findings in renal stone and other renal diseases.	**CORE** • Diagnosis of common fractures of upper and lower limb • skull fractures • Spinal fractures and caries spine • Acute osteomyelitis • common bone tumours • diseases of joints • dislocations **CORE** • X-ray KUB & IVU • USG of Kidney, Ureter , Bladder and prostate	

Learning Objectives	Contents	Teaching Hours
13. Radiotherapy Students will be able to: • appreciate the role of radiotherapy in the management of cancer • demonstrate knowledge of radiation • identify different sources of radiation • refer the patients to radiotherapy department • recognize common radiation hazards after primary care Students will be able to: • recognise common cytotoxic drugs. • refer appropriate cases for chemotherapy. • recognise common complication & offer primary care.	***Phase IV*** **<u>CORE</u>** ***Introduction to Radiotherapy*** **Radiation oncology, basic principles and practices :** • Aims of radiation oncology • Sources of radiation , Isotopes and their mechanism of action • Curative/Palliative radiotherapy • Radiosensitivity, radioresistance, radiocurability and normal tissue tolerance. • Common radiation reactions and management. **Medical oncology, basic principles and practice :** • Cell cycle and Mechanism of action of cytotoxic drugs • Clinical aspect of cancer chemotherapy • Complications of chemotherapy (Infection and bleeding tendency) • Chemotherapy of common cancers, • Common Chemotherapeutic regimes	5 hours

Learning Objectives	Contents	Teaching Hours
Students will be able to: • appreciate the role of doctors in prevention and early diagnosis of cancer & referral of cancer patients. • take leadership in the community to offer rehabilitative support • offer follow up & terminal care of cancer patients. • recognise clinical condition as which could be diagnosed by radio-isotope & interpret the results. • recognise diseases requiring isotope therapy.	**Prevention of common cancer :** • Primary prevention, Secondary prevention • Early diagnosis • Referral to appropriate centre **Palliative support and terminal care :** • Follow-up of cancer patients and terminal care **Nuclear Medicine, basic Principles and practice :** • Radio-isotope in diagnosis • Radio-isotope in therapy	1 hour 1 hour 1 hour

Learning Objectives	Contents	Teaching Hours
14. Paediatric Surgery Students will be able to: • identity common paediatric surgical problems including emergencies. • initiate primary care • refer the cases to appropriate hospital	**CORE** **Phase III** • Examination of a child and neonate (Special considerations) • Infantile Inguino scrotal swellings • Acute abdomen in infants & children • Congenital hypertrophic pyloric stenosis **Phase IV** • Neonatal/Infantile intestinal obstruction • Intussusception • Anorectal malformations. • Maldescended Testis • Torsion Testis • Haemangioma and other Cutaneous lesions • Child-hood tumours. • Rectal bleeding and prolapsed rectum **Tutorials** • Cystic hygroma, Branchial fistula • Phimosis/balanitis • Paraphimosis • Phimosis/balanitis • Paraphimosis	5 hours 10 hours

Appendix-1

COLLEGE MONOGRAM

Photograph of the student

CLASS PERFORMANCE RECORD CARD

DEPARTMENT OF SURGREY

---------- Medical College

Bangladesh.

Name of the student: .....

Father's Name: ……Mother's Name……

Address: -- Village/road with no……

P.O: ……P.S: ……..Dist: …….

Postal Code no…….Country: …….

Telephone No: ……..Mobile No: ……..

Batch..... Roll No: ..... Admission Session.....

Local Address: ..... ……..

Hostel:-……. Room No: .....

Year of admission in 1st year MBBS.....

Promoted to 3rd year: Jan/ July - Year.....

2nd Professional examination due in- Jan/ July- Year.....

2nd professional passed on Jan/July-Year……

3rd Professional due on Jan/July, Year----------

3rd Professional Passed on Jan/July----------

Final Professional examination due in- Jan/ July- Year.....

For foreign students

Citizenship: .....Passport no……

SURGERY- Card-One

Cl. Reg. No.	
Roll No.	
Group	
Batch	

Card No.	1 (One) :12 wk
Year	3rd year
Total marks	100
Pass marks	60%

Name of the student						
Period of placement	From :		To :		Unit :	
Professor / Asso. Professor in charge						
Academic Co-ordinator						

No.	CLINICAL	Satisfactory / Unsatisfactory	Marks	Signature
1.	Rapport development with patient and hospital supporting stuffs			
2.	History taking and writing (at least 10 different cases)			
3.	General examination and general principle of examination			
4.	Examination of swelling, ulcer, sinus, fistula, etc. (at least 10 different cases)			
5.	Examination of a) Inguino-scrotal swelling b) Vascular system			
6.	Examination of chronic abdominal conditions. (5 cases) a) G.I. tract condition • Lumps in different quadrants. • Gastric outlet obstruction b) Hepato biliary conditions c) Pancreatic conditions			
7.	Examination of acute abdominal conditions • Acute Appendicitis • Perforation of the hollow viscus • Acute Pancreatitis • Intestinal obstruction			
8.	Short cases in out patient clinics • Lipoma, Neurofibroma • Cyst, Ganglion, Keloid • Haemangioma, Umbilical • Inguinal Hernias ,Hydrocele			

No.	PRACTICAL	Satisfactory / Unsatisfactory	Marks	Signature
1.	5-infusions are to be observed & recorded			
2.	10 I.M. injections are to be given & recorded			
3.	Observe Ryles tube introduction in 5 cases			
4.	10 X-rays are to be seen & findings recorded			
5.	6 operations are to attain & observe in OT & record			
6.	Specimen-Gallstone, G. Bladder, Appendix, Urinary stones, Breast lump			
7.	Instruments			
	TUTORIAL			
1.	Shock			
2.	Fluid electrolyte balance			
3.	Sterilization, Tetanus, gas gangrene			
4.	Gangrene, Boil, abscess, carbuncle, ulcers			
5.	Sepsis and asepsis in surgery			
6.	Preoperative & postoperative care			

OFFICIAL RECORD

(To be completed by department of Surgery)

Date of issue of Card			
Date of return of the Card			
Date of entry of the Result			
Date of issue of next Card			
Card No.			

Excellent/Good/ Satisfactory /Unsatisfactory/ to be repeat

Remarks and Counter signature of
Unit Chief

Registrar
Department of Surgery

Neurosurgery (1wk)

No.	CLINICAL	Satisfactory/ Unsatisfactory	Marks	Signature
1.	Examination of Neurosurgical patients			
2.	Examination of Hydrocephalus, Meningocele, Brain tumours, Extradural & Sub dural haemorrhage, Brain Abscess			
5.	Examination and assessment of Head injury patients.			
6.	PLID- Back pain			

CARD COMPLETION EXAMINATION

Attendance		out of	
Total marks obtained in items		Percentage	
Marks obtained in card Completion		Percentage	
Remarks			

Unit chief of Neuro-Surgery

Registrar
Neuro Surgical Unit

OFFICIAL RECORD

(To be completed by department of Surgery)

Date of issue of Card			
Date of return of the Card			
Date of entry of the Result			
Date of issue of next Card			
Card No.			

Remarks and Counter signature of
Academic Co-ordinator

Dealing Assistant
Department of Surgery

Cl. Reg. No.	
Roll N0.	
Group	
Batch	

Card no.	2 (Two)-A
Year	4th year
Total marks	100
Pass marks	60%

ORTHOPAEDIC & TRAUMATOLOGY

Name of the student						
Period of placement	From:		To:		Unit:	
Professor/Associate Professor						
Academic coordinator						

	CLINICAL	Satisfactory/ Unsatisfactory	Marks	Signature
1.	General principle of Musculoskeletal history taking			
2.	General principle of Musculoskeletal examination			
3.	Clinical examination of Hand & Wrist, Elbow& Shoulder.			
4.	Clinical examination Hip, Knee, Foot & Ankle.			
5.	Examination of Bone disorders – Chronic pyogenic osteomyelitis, Bone tumours.			
6.	Examination of fractures & dislocations			
7.	Examination and assessment of polytrauma patient.			
8.	Examination of bones & joints deformity, club foot.			

No.	PRACTICAL	Satisfactory /Unsatisfactory	Marks	Signature
1	**ORTHOPAEDICS** a. Splint, Bandage, technique of immobilization-Plaster slab & cast. b. Observation of orthopaedics OT			
2	**CASUALTY** a. At least five emergency cases to be received at Emergency Department & recorded. b. At least five minor wounds to be repaired. c. At least three operations are to be assisted.			
3	**X-ray** of fractures, dislocations, tumours and osteomyelitis **Specimens** of BoneTumours and Ostemyelitis Common Orthopaedic I**nstruments**			
	TUTORIAL			
1	Fracture, Complication			
2	Dislocation, Subluxation			
3	Open fracture Management			

CARD COMPLETION EXAMINATION

Attendance		Out of	
Total marks obtained in items		Percentage	
Marks obtained in card completion		Percentage	
Remarks			

Excellent/Good/ Satisfactory /Unsatisfactory/ to be repeat

Professor of Orthopeadics/Unit Chief

Registrar (Ortho Unit-)

ORTHOPAEDIC & TRAUMATOLOGY

Cl. Reg. No.	
Roll No.	
Group	
Batch	

Card No.	2 (Two)-B
Year	5th year
Total Marks	100
Pass marks	60%

Name of the Student						
Period of placement	From:		To:		Unit:	
Professor/Associate Professor						
Academic coordinator						

N	**CLINICAL**	Satisfactory/ Unsatisfactory	Marks	Signature
1	Review on General principle of Musculoskeletal history taking&examination			
2	Clinical examination of upper & lower extremities.			
3	Principle of examination of muscles, tendons & joints instabilities.			
4	Examination of muscles, tendons & joints instabilities of Knee& Shoulder.			
	Examination of Spine& spinal cord injury.			
6	Examination of peripheral nerves.			
7	Long cases presentation & discussion.			
8	Short cases presentation & discussion.			

No.	**PRACTICAL**	Satisfactory/ Unsatisfactory	Marks	Signature
1	ORTHOPAEDICS a. Use of functional braces, Walking aids, Caliper. b. Observation of orthopaedics OT & Operations (At least five)			
2	CASUALTY a. At least five emergency cases to be received at Emergency Department & recorded. b. At least five minor wounds to be repaired. c. At least three operations are to be assisted.			
3	**X-ray** of fractures, dislocations, tumours and osteomyelitis **Specimens** of Bone Tumours and Ostemyelitis & others Common Orthopaedic I**nstruments**			
	TUTORIAL			
1	Bone tumours& Osteomyelitis			
2	Children fractures& Compart ment Syndrom			
3	Mass casualty & ATLS			

CARD COMPLETION EXAMINATION

Attendance		Out of	
Total marks obtained in items		Percentage	
Marks obtained in card completion		Percentage	
Remarks			

Professor of Orthopaedics/Unit Chief Registrar Ortho unit---

SURGERY-CARD-Three

Cl. Reg. No.	
Roll No.	
Group	
Batch	

Card No.	3 (Three) 10 wk
Year	5th year
Total marks	100
Pass marks	60%

Name of the student						
Period of placement	From :		To :		Unit :	
Professor / Associate Professor						
Academic Co-ordinator						

No.	CLINICAL	Satisfactory / Unsatisfactory	Marks	Signature
1.	Examination of neck swelling • Lymph Nodes • Thyroid • Thyro glossal Cyst			
2.	Examination of extremities for peripheral vascular conditions			
3.	Examination of chronic abdominal conditions. (5 cases) a) G.I. tract condition • Lumps in different quadrants. • Gastric outlet obstruction • Ascitis b) Hepato biliary conditions c) Pancreatic conditions			
4.	Examination of acute abdominal conditions • Acute Appendicitis, lump • Perforation of the hollow viscus • Acute Pancreatitis • Intestinal obstruction			
5.	Examination of face & oral cavity, paritid			
6.	Examination of breast & axillary's lymph node (Benign & Malignant tumours)			
7.	Examination of anorectal condition			
8.	**UROLOGY**(2 Wk) Examination of Genitor-Urinary system a. Hydronephrosis, Kidney tumours b. Bladder tumours c. BEP & Carcinoma Prostate with Retention of Urine d. Scrotal Swellings, Epididymo orchitis e. Hypospedias, Phimosis, Para phimosis			

9.	**PAEDIATRIC SURGERY (2 WK)** Examination of Paediatric surgical cases • Anorectal malformation • Hernias • Urogenital malformations • Congenital Hypertrophic Pyeloric stenosis • Cleft lip, palate. • Haemangioma, Cystic Hygroma, Branchial cyst • Neonatal Intestinal obstruction			
10.	Short cases in out patient clinics • Lipoma, Neurofibroma • Cyst • Haemangioma • Inguinal Hernias ,Hydrocele • Neck swellings • Breast tumours & abscess			
	PRACTICAL			
1.	Ten complete histories with clinical examination are to be taken & recorded (2 of pediatric surgery, 2 of Urology)			
2.	Three proctoscopic examination are to be done & recorded			
3.	Observe surgical dressings & stitch-usually in 3 cases.			
4.	Ten X-rays (Including Urological) are to be seen and findings recorded			
5.	Three operations are to be assisted			
6.	Observe & introduce urethral Catheter in 5 cases			
7.	Specimen-Ca-Breast, Prostate, Sequestrum, Stomach, Thyroid, testis, Gallstones & Urinary stones.			
	TUTORIAL			
1.	Gastro-intestinal bleeding			
2.	Acute abdomen			
3.	Surgical jaundice			
4.	Chronic abdominal condition			
5.	Burn, Fluid & electrolytes, Parentral Nutrition			
6.	LUTS, Haematuria			
7.	Retention of urine			

CARD COMPLETION EXAMINATION			
Attendance		out of	
Total marks obtained in items		Percentage	
Marks obtained in card Completion		Percentage	
Remarks			

Unit Chief of Surgery

Registrar
Surgical Unit

OFFICIAL RECORD

(To be completed by department of Surgery)

Date of issue of Card			
Date of return of the Card			
Date of entry of the Result			
Date of issue of next Card			
Card No.			

Excellent/Good/ Satisfactory /Unsatisfactory/ to be repeat

Remarks and Counter signature of
Unit Chief of Surgery

Registrar
Department of Surgery

Ophthalmology

Departmental Objectives

The objective of this course is to provide need-based education so as to produce a quality doctor who will be able to

- deal with common ocular ailments
- identify, give initial management & refer ocular emergency cases appropriately
- provide leadership in the sphere of primary eye care in the country as well as abroad.

To achieve the above mentioned departmental objectives, the following learning objectives will be required:

List of Competencies to acquire:

1. Measure visual acuity of adult and children, a. unaided b. with pin hole c. with glass;
2. Examine color vision & examination of visual field (confrontation method)
3. Examine ocular movement and alignment; assessment of pupillary light reflex (direct and consensual)
4. Perform direct ophthalmoscopy.
5. Perform digital tonometry.
6. Perform Regurgitation test of lacrimal sac.
7. Perform Fluorescein dye test, irrigation of conjunctival sac & installation of eye drops/ointment.
8. Perform eversion of upper lid & removal of conjunctival foreign body.
9. Diagnose and give treatment of bacterial conjunctivitis, vitamin A deficiency disease (night blindness, Bittot's spot, xerophthalmia), initiate treatment of minor trauma, correction of simple presbyopia and referral of difficult cases.
10. Diagnose and initiate treatment and referral of ocular emergency cases:
    a. trauma, b. painful red eye. c. corneal ulcer/keratits, d. corneal foreign body, e. acute dacryocystits.
11. Diagnose and referral for specialist management: cataract, chalazion, pterygium, leucocoria of children, squint, cases with reduced vision

Fundamentals and principles of ophthalmology

Goal: The students will have the overall understanding of external and internal ocular structures of the normal human eye and will be able to perform the eye examination in normal and disease conditions.

Topic Specific objectives:

At the end of the teaching of the course the students will be able to:

- describe normal ocular anatomy.
- obtain detail ocular history.
- measure and record visual acuity in adults and children.
- assess pupillary reflexes.
- evaluate ocular motility.
- use the direct ophthalmoscope for gross assessment of red reflex, the optic disc and fundus examination.
- perform and evaluate visual fields by confrontation.

Specific contents in this subject will include:

A. Ocular Anatomy.

Students should be able to define gross anatomy of the eyeball& adnexa

1. Eyelids.
2. Extraocular muscles.
3. Lacrimal apparatus
4. Conjunctiva.
5. Cornea
6. Sclera.
7. Anterior chamber
8. Iris
9. Pupil.
10. Lens
11. Ciliary body
12. Posterior chamber
13. Vitreous cavity.
14. Retina
15. Optic disc.
16. Macula.
17. Choroid.
18. Optic nerve.

Learning Objectives

A. Knowledge components:

Students will be able to describe:

1. basic ocular anatomy
2. concept of measuring visual acuity without correction ,with pinhole and with correction
3. the importance of assessing ocular motility in the six cardinal positions of gaze and ocular alignment in primary position
4. the basic function of ophthalmoscope
5. importance of dilatation of pupil for fundus examination
6. abnormal fundal appearance in diabetic and hypertensive retinopathy
7. the concept of measuring intraocular pressure
8. the technique of determining the peripheral visual field by confrontation method
9. referral guideline

B. Skill Components:

At the end of the course, the students will able to demonstrate the skill of:

1. examination of each eye individually.
2. test V/A each eye individually and with pinhole.
3. evaluation of the position of the lids, and inspection of the conjunctiva, sclera, cornea and iris with a penlight.
4. examination of the pupil and assessment of the pupillary reaction.
5. ocular motility test in six positions and cover test
6. manual sac regurgitation test
7. assessment of intraocular pressure by digital method
8. performing visual field assessment by confrontation method
9. eversion of the upper lid and examine for the presence of foreign bodies
10. fluorescein dye test and its interpretation.
11. performing direct ophthalmoscopy and identify structures eg. optic disc, macula, and major vessels.

C. Attitude component:

Students will show continuous interest in gaining information in the subject and at the end of the teaching; they will be able to demonstrate the following:

a. A patient-centered role:
b. Scientific Integrity:
c. Ethical medical Professional Behavior:
d. Dedication to Continuous Learning:

Learning will be facilitated by:

Active participation in the

a. Classroom discussion
b. Completion of assignments
c. Formal presentations in tutorials.
d. Self-initiated independent thinking, presentation skill.

Evaluation:

Students will be evaluated by

a. Written examination(Short Essay test and MCQ test)
b. Formal and informal observations by instructor
c. Terms examinations
d. Final assessment together with other topics in the final Professional MBBS examination.
e. Class and ward attendance

Remediation during training:

1. The course coordinator will review the student's performance and will:
    i. Identify any specific deficits
    ii. Document all areas requiring remediation or additional concentration.
    iii. Provide additional recommendations for remediation of specific lackings.

Method of teaching:

a. Didactic lecture
b. In-class group session
c. Clinical class in the hospital out-patient, in-patient and Operation Theatre settings
d. Problem based discussion.

Materials

Models, power point presentation will be provided and students will get copies of handout whenever available.

Learning Objectives and Course Contents in ophthalmology

Learning Objectives	Contents	Teaching Hours
Student will be able to: 1. describe the anatomy of orbit and its contents 2. describe gross anatomy of the extra ocular muscles 3. diagnose orbital cellulitis, proptosis, squint /deviation and asymmetry and refer to specialist care 4. list the conditions for further referral to specialist care	**Orbit:** **1. Gross Anatomy:** a. Bones of the orbit constituting walls, roof and floor b. Contents of the orbit **2. Clinical examination of orbital disease:** **3. Orbital diseases:** a. Orbital cellulitis b. Proptosis	2 hrs
Students will be able to 1. describe gross anatomy of the lid 2. describe surgical steps of chalazion operation. 3. demonstrate the skill of step wise clinical examination, 4. describe diagnosis and treatment procedure of the followings; Stye, chalazion and blepharitis. 5. identify and refer the following: Trichiasis, ptosis, ectropion, entropion, chalazion 6. perform eversion of the lid.	**Eye lids:** **1. Gross Anatomy of the eye lid & its disease** **2. Clinical Examination procedure** a. Corneal light reflex & palpebral fissure height b. Visual inspection of eyelids and periocular area. **3. Diseases of Lid** a. Malpositions.(definitions) i. Trichiasis ii. Ptosis iii. Ectropion iv. Entropion. b. Inflamations. i. Stye ii. Chalazion iii. Blepharitis iv. Internal hordeolum	2 hrs

Learning objectives	Contents	Teaching Hours
Students will be able to : 1. describe gross anatomy of conjunctiva 2. name diseases of the conjunctiva 3. describe surgical steps of pterygium operation. 4. examine the conjunctiva 5. diagnose and manage of viral, bacterial, allergic conjunctivitis & ophthalmia Neonatorum 6. diagnose pterygium and refer for surgical management 7. remove superficial conjunctival foreign body	**Conjunctiva:** **1. Gross Anatomy of the Conjunctiva & its diseases:** **2. Examination procedure for conjunctiva** **3.Disease of conjunctiva**: a. Conjunctivitis - Bacterial - Viral - Allergic b. Ophthalmia neonatorum c. Trachoma (Gross idea) d. Pterygium **4.Precautionary measures:**	2 hrs
Students will be able to: 1. describe the anatomy of lacrimal apparatus 2. describe production, and functions of tear. 3. describe steps of sac patency test with interpretation 4. describe symptoms, signs of lacrimal sac diseases. 5. diagnose and manage lacrimal sac diseases. 6. mention indication, contraindication and major complications of DCR and DCT 7. perform digital regurgitation test 8. perform digital massage in congenital nasolacrimal duct obstruction. 9. initiate treatment of acute & chronic dacryocystitis, and congenital nasolacrimal duct obstruction, and referred to an ophthalmologist	**Lacrimal Apparatus:** **1. Gross Anatomy of the Lacrimal Apparatus& its diseases:** **2. Physiology:** Function of tear. **3.Examination Technique:** **4. Lacrimal sac disease:** a. Actuate dacryocystitis. b. Lacrimal sac abscess c. Chronic dacryocystitis. d. Congenital nasolacrimal duct obstruction	2 hrs

Learning objectives	Contents	Teaching Hours
Students will be able to 1. describe gross anatomy of the fibrous coat of the eye 2. describe supply of nutrition to cornea and maintenance of its transparency 3. describe steps of performing fluorescein dye test. 4. describe Keratoplasty 5. examine cornea 6. perform fluorescein dye test (to detect corneal epithelial defect) 7. remove superficial nonimpacted corneal foreign body 8. diagnose, and initiating treatment of corneal ulcer, keratitis and appropriate referral	**Cornea and sclera:** **1. Gross anatomy of cornea and sclera** **2. Physiology:** a. Maintenance of nutrition& transparency of cornea b. Function of cornea c. Tear film **3. Diseases of cornea** a. corneal ulcer b. keratitis c. Keratoplasty (Gross idea)	3 hrs
Student will be able to 1. describe the parts of uveal tract. 2. describe diseases of uveal tract, symptoms, signs and management of acute iritis & endophthalmitis 3. identify circumcorneal / ciliary congestion 4. perform pupil examination 5. identify ciliary tenderness 6. diagnose, initiation of treatment of iritis, endophthalmitis and appropriate referral.	**Uveal tract** **1. Gross Anatomy** **2. Diseases of uveal tract** a. Anterior uveitis/uveitis b. Endophthalmitis c. Panopthalmitis	2 hrs

Learning objectives	Contents	Teaching Hours
Students will be able to: 1. describe clinical features of age related cataract 2. describe stages of senile cataract 3. mention indications of cataract surgery 4. mention complications of untreated cataract 5. perform the preoperative evaluation 6. state ECCE, SICS and phaco surgery. 7. mention Complications of cataract operation 8. state Advantage of IOL implantation over spectacle 9. demonstrate the skill of diagnosis of cataract and referral to proper ophthalmologist	**Lens and cataract:** **1. Gross Anatomy:** **2. Physiology:** Accommodation **3. Disease of the lens** a. Cataract b. Pseudophakia c. Aphakia **4. Management of cataract:** a. Cataract surgery (Gross idea) b. Intraocular lens and its advantage (Gross idea) **5. Referral criteria of a cataract case**	3 hrs
Student will be able to: 1. describe anatomy of the anterior chamber and anterior chamber angle 2. describe production circulation and outflow of the aqueous humor 3. define and classify glaucoma. 4. describe Symptoms, signs and management of POAG, PACG and congenital glaucoma 5. demonstrate the skill of: a. taking history of glaucoma patients. b. digital tonometry. c. conformation test d. direct ophthalmoscopy 6. diagnose and provide initial management of PACG and early referral. 7. counseling of all glaucoma patient regarding blinding nature of disease & necessity of life long regular treatment & follow up	**Glaucoma:** **1. Gross Anatomy** **2. Physiology** a) Production, circulation and outflow of the aqueous humor. b) Intra ocular pressure and factors influencing IOP. **3. Classification of glaucoma.** **4. Disease.(gross aspect)** **a)** Primary angle closure glaucoma i) Risk factors ii) Symptoms iii) Signs iv) Management **b)** Primary open angle glaucoma: i) Risk factors ii) Symptoms **c)** Congenital glaucoma i) Genetics ii) Symptoms iii) Signs **d)** Secondary Glaucoma: Causes **6. Principles of Management:** a. Pharmacological treatment. b. Surgical Management: c. Laser treatment	4 hrs

Learning objectives	Contents covered in this topic	Teaching Hours
Student will be able to: 1. describe the gross anatomy of the retina and its function 2. describe the normal fundus. 3. describe the fundal features of diabetic, hypertensive retinopathy. 4. examine normal eye with use of direct ophthalmoscope 5. identify or suspect vitro retinal disorder and refer patient	**Retina and vitreous:** **1. Gross Anatomy:** i. Vitreous ii. Retina **2. Function of retina.** i. Normal vision. (acuity of vision) ii. Color vision **3. Symptoms Suggestive of vitro- retinal disorder.** **4. Examination of normal eye with direct ophthalmoscope.** **5. Fundal features of** a. Diabetic retinopathy. b. Hypertensive retinopathy. **6. Referral criteria** a. Abnormal red reflex of fundus b. Visual loss or symptoms	3 hrs
Student will be able to: 1. define the common refractive errors eg. myopia, hypermetropia & astigmatism. 2. define Aphakia and pseudophakia 3. define presbyopia and describe the rule of thumb for correction of presbyopia 4. demonstrate basic knowledge about contact lens and refractive surgery. 5. define low vision and mention importance of low vision aid for rehabilitation. 6. record visual acuity. 7. do prescription of presbyopic glass as per rule of thumb and referring difficult patients to ophthalmologists. 8. refer all cases for final correction by ophthalmologist 9. detection of cases with low vision and refer to low vision aid centers	**Refraction, Contact lens, Refractive Surgery and Low vision (Gross idea):** **1. Refractive status& management** a. Emetropia. b. Myopia. c. Hypermetropia. d. Astigmatism. e. Presbyopia f. Aphakia- I. Spectacle correction II. Contact lens III. Intraocular lens and pseudophakia IV. **Refractive surgery** (Basic idea) **6. Low vision.** Definition of low vision. Refer to low vision aid centre	3 hrs

Learning objectives	Contents	Teaching Hours
Students will be able to. 1. name tumors affecting the eye and adnexa 2. name the causes of leucokoria in children. 3. describe stages, symptoms, signs and management of retinoblastoma 4. diagnosef Leucokoria and mention its importance for early referral	**Leucocoria in children** a. Cataract b. Retinoblastoma c.. Endophthalmitis d. Persistent fetal vasculature (PVF/PHPV) e. Retinopathy of prematurity	1 hrs
Student will be able to: 1. describe Strabismus. 2. describe the importance of measuring visual acuity of children of two to five years old 3. describe the causes of amblyopia in children 4. describe the causes of Leukocoria 5. demonstrate the skill of: a. recording visual acuity in children b. ocular motility test c. recognize strabismus, nystagmus and amblyopia for immediate specialist referral.	**Ocular motility and paediatric ophthalmology:** **1. Gross Anatomy.** Extra-ocular muscles **2. Amblyopia.**- Definition, cause & impact **3. Strabismus/squint:** Definition, cause, diagnosis,effects and management principle **4. Nystagmus:** Definition & identification	2 hrs

Learning objectives	Contents	Teaching Hours
Student will be able to: 1. describe visual and pupillary, path ways. 2. describe manifestations of III, IV & VI cranial nerve palsy. 3. describe Papilloedema 4. record visual acuity. 5. perform confrontation visual field testing in four quadrants for each eye. 6. examine pupillary light reflex 7. recognize and diagnose nystagmus. 8. examine the optic disc with the direct ophthalmoscope	**Optic Nerve and Neuro Ophthalmology:** **A. Gross Anatomy** 1. Visual path way. 2. Pupillary Pathway **B. Examination procedure:** 1. VA 2. Visual field testing (confrontation) 3. Pupillary light reflex. 4. Direct Ophthalmoscopy	2 hrs
Student will be able to: 1. describe types of ocular injury 2. explain the effect of different types of ocular trauma 3. mention criteria for referral of the patients 4. demonstrate skill of: a) examination of the eye to assess the effect of injury b) removal of superficial conjunctival, sub-tarsal and superficial corneal foreign body c) performing pad-bandage of the eye d) providing primary management of ocular trauma e) referring the patient after primary management to ophthalmologist /hospital	**Ocular trauma:** 1. Blunt injury (Details) 2. Perforating Injury. 3. Foreign Body:(Extra and intra ocular) 4. Chemical Injury (details) 5. Thermal injury (Basic idea) 6. Radiation injury (Basic idea)	2 hrs

Learning objectives	Contents	Teaching Hours
Students will be able to: a. describe fundal change in hypertension b. describe fundal change in diabetes mellitus. c. describe ocular manifestation of vitamin-A deficiency and management. d. provide health education regarding importance of yearly eye checkup by ophthalmologist for prevention of blindness due to diabetes. e. demonstrate the skill of detecting disc oedema on fundus examination with direct ophthalmoscope f. recognize Bittot's spot, xerophthalmia and Kerotomalacia & referal.	**Ocular Manifestations of systemic diseases (Gross idea):** 1. Diabetes mellitus 2. Hypertension 3. Vitamin A Deficiency 4. Auto-immune diseases (Basic idea) 5. Tuberculosis 6. AIDS	2 hrs
Student will be able to: a. describe etiology, magnitude and impact of blindness. b. demonstrate the concept of 'Primary Eye care' c. describe Ocular hygiene. d. describe diseases and conditions for referral. e. describe concept of school sight test. f. define low vision g. demonstrate gross idea about communicable and preventable eye diseases. h. perform school sight test i. identify cases of low vision and referral. j. implement "Primary Eye Care" concept at the place of work k. develop awareness about eye donation in the community. l. diagnose & initiate initial management of ocular emergency	**Miscellaneous & Community eye care:** 1. Etiology and magnitude of blindness 2. School sight test. 3. Primary eye care 4. Referral guide line 5. Low vision and rehabilitation 6. Outreach activities. 7. Eye donation & eye banking. 8. Vision 2020, The right to sight (Gross idea) 9. Ocular therapeutics 10. Ocular emergency 11. Sudden loss of vision 12. Painful loss of vision 13. Painless loss of vision 14. Gradual dimness of vision 15. Red eye 16. Ocular effects of environmental change	5 hrs

EXAMINATION SKILLS	Skills-		Assist	Observe
	Able to perform Independently	Able to Perform under Guidance		
1. Visual Acuity test and Use of pinhole (including light perception, projection)	✓			
2. Colour Vision test		✓		
3. Visual field by confrontation	✓			
4. Examination of ocular movements	✓			
5. Flourescien staining to identify corneal abrasion		✓		
6. Pupillary size and reaction	✓			
7. Distant direct ophthalmoscopy on dilatedpupils to diagnose lens opacities		✓		
8. Method of Direct ophthalmoscopy		✓		
9. Digital tonometry	✓			
10. Schiotz tonometry				✓
11. Regurgitation for NLD Block	✓			
12. Syringing				✓
13. Instillation of eye drops/ ointment	✓			
14. Irrigation of conjunctiva	✓			
15. Applying of patching	✓			
16. Epilation of cilia		✓		
17. Eversion of upper eye lid	✓			
18. Removal of corneal foreign body				✓
19. Cataract surgery				✓
20. Glaucoma surgery				✓
21. Chalazion/Stye				✓
22. Tarsorraphy			✓	
23. Assessment of Opacity in the media	✓			
24. Lacrimal Sac Surgery				✓

DEPARTMENT OF OPHTHALMOLOGY

CARD FOR EVALUATION

First clinical Card (4th year) **Total Marks = 100**

Name of the student			
Roll No		**Class**	
Session		**Batch**	
Period of placement in Eye 4 weeks			
From		**To**	

No.	Items	Day of teaching	Marks obtained	Teacher's Signature
1.	History taking	1 day		
2	Examination of the Eye: Adnexa, **Lid, Chalazion, Ext.Hordeolum, Int.Hordeolum** Visual Acuity (Adult & children unaided, with pinhole, with present glass), Ant. Segment. Ocular motility, Digital tonometry, Confrontation test.(Visual field test)	3 days		
3	Methods of application of ocular drugs: Eye Bandage, removal of sup. Corneal F.B, Irrigation of conj. Sac.	1 day		
4	'RED EYES' - case demonstrations. Including fluorescein dye test & cilliary tenderness.	2 day		
5	Trial box, Snellen's chart	1 day		
6	Regurgitation test, Sac Patency Test and Epiphora 3 cases	1 day		
7	Assessment	1 day		
8	Total	10 days		

Total No. of attendance	
Marks obtained	
Comment	
Signature of the Registrar/RS	**Signature of Head of the Department**

DEPARTMENT OF OPHTHALMOLOGY

CARD FOR EVALUATION

Second clinical Card (5th Year) Total Marks = 100

Name of the student			
Roll No		**Class**	
Session		**Batch**	
Period of placement in Eye Ward 4 (four) weeks. (ward + OPD)			
From		**To**	

Total No. of attendance	
Marks obtained	
Comment	
Signature of the Registrar/RS	**Signature of Head of the Department**

Teaching Hours

Methods	Total

No.	Items	Day of teaching	Marks obtained	Teacher's Signature
1.	History & Exam (Colour vision, Field of vision, pupillary light reflex)	4 days		
2.	Corneal ulcer, Corneal abrasion: Diagnosis and management.	2 days		
3.	Uveitis: Diagnosis and management.	2 days		
4.	Cataract diagnosis and management.	3 days		
5.	OT, surgical demonstration Chalazion, Stye, DCR, Cataract surgery with IOL implantation (SICS/ECCE/Phaco)	2 days		
6.	Glaucoma.	3 days		
7.	Ocular Injury, Conjunctival irrigation, Eversion of lid, Epilation	2 days		
8.	Ophthalmoscopy, Tonometry, Assessment of opacity in media	2 days		
9.	Dacryocystitis: Diagnosis & management.	2 days		
10.	Xerophathalmia, paediatric cases.	2 days		
11.	Assessment	2 days		
	Total	**26 days**		

Lectures	40 hours
Ward Teaching	8 weeks

Otorhinolaryngology & Head-Neck Surgery

Departmental Objectives

The aim is to teach undergraduate medical students so as to produce need based community oriented doctors who will be capable of :

1. diagnosing and managing common ENT & Head-Neck disorders.
2. referring complicated ENT and head-neck disorders to appropriate centres if and when necessary
3. managing common emergencies in ENT & head-neck disease
4. giving preventive advice on certain aspects of ENT & head-neck diseases

To achieve above mentioned departmental objectives the following learning objectives should be achieved:

1. The art of appropriate history taking
2. Should perform primary ENT & head-neck examination procedure
3. Should use the aural speculum, nasal speculum, tongue depressor, laryngeal mirror, tuning fork and head mirror/light, otoscope & other instruments as listed in the enclosure
4. Should be able to describe the clinical application of basic anatomy & physiology of Ear, Nose and Throat
5. Should be able to describe the pathology of common ENT disorders & disorders of the Head-Neck region
6. Should list commonly used drugs and describe their adverse effects
7. Should recommend common investigative procedures and special investigation (CT, MRI, and sonography, etc)

Learning Objectives and Course Contents in Otorhinolaryngology & Head-Neck Surgery

Learning Objectives	Contents	Teaching Hours
Students will be able to: 1. demonstrate the applied Anatomy of ear. 2. demonstrate the applied Physiology of ear. 3. take History of ear diseases 4. conduct clinical hearing test and value the significance of audiometry and caloric test. 5. diagnose various ear diseases by clinical examination (FB, Otitis Exerna, Traumatic Tympanic membrane perforation, ASOM, CSOM, Otosclerosis. 6. remove impacted wax, foreign body, Aural toileting 7. diagnose ear diseases and Its complications and refer to appropriate hospital when needed. e.g.- perichondritis otosclerosis extra and intracranial complications of middle ear diseases 8. make D/D of earache 9. differentiate safe from unsafe variety of CSOM.	**EAR** **CORE** 1. applied Anatomy of ear 2. applied Physiology of ear:- hearing, Balance 3. congenital diseases of ear-Preauricular sinus 4. causes of earache 5. causes of deafness 6. diseases of ext. ear-Furuncle, Otitis externa ,Otomycosis, Foreign body, Trauma,Perichondritis of pinna 7. diseases of middle ear-ASOM, CSOM, OME, Otosclerosis. 8. diseases of internal Ear-Meniere's disease, Labyrinthitis. 9. Tuning fork test, Audio metry, Caloric test 10. micro ear surgery-Myringotomy Myingoplasty & different types of mastoidectomies. 11. neurootological complications: Lateral sinus thrombosis, general idea about intra cranial complications of ASOM & CSOM. **Additional:** 12. causes of Vertigo &Tinnitus 13. management of deafness.	

Learning Objectives	Contents	Teaching Hours
Student will be able to : 1. describe applied anatomy and applied physiology of nose. 2. manage epistaxis 3. remove FB and reduction of Fracture nasal bone. 4. diagnose nasal diseases by clinical examinations 5. refer the patient to specialized ENT centre 6. apply ANS Pack. 7. history taking of disease of Nose and PNS.	**<u>NOSE</u>** **CORE:** 1. Anatomy of nose 2. Physiology of nose 3. Epistaxis. 4. FB nose, Fracture nasal bone 5. Nasal allergy 6. Nasal polyp 7. Rhinitis, Sinustitis 8. DNS, septal perforation, septal abscess, septal haematoma 9. Nasal papilloma, rhinosporidiosis. 10. Atrophic rhinitis 11. Nasopharyngeal angiofibroma and naso-pharyngeal carcinoma. 12. Sino-nasal malignancy **Additional** Headache Tumours of nose and PNS Common nasal and sinus Operation:- Polypectomy SMR, Septoplasty Caldwell Luc operation BAWO	

Learning Objectives	Contents	Teaching Hours
Student will be able to : 1. Describe anatomy of oral cavity, pharynx, larynx and oesophagus. 2. Describe Physiology of deglutition. 3. Make D/D of white patches, ulcers in oral cavity, Leukoplakia and Sorethroat. 4. Diagnose Diphtheria and refer it to appropriate hospital 5. Diagnose acute & recurrent tonsillitis, adenoids, 6. Describe indications of adenotonsillectomy and principles of post operative management and contraindications. 7. Diagnose complications of adenotonsillectomy and its management 8. List D/D of dysphagia. 9. List D/D of hoarseness of Voice. 10. List D/D of Stridor 11. Describe indications of trachestomy & its steps, postoperative management and complications.	**Mouth cavity, pharynx, larynx and esophagus** **CORE** 1. Anatomy of oral cavity, pharynx, larynx and Oesophagus 2. Physiology of salivation, deglutition and functions of larynx, pharynx. 3. Diseases of oral cavity Congenital anomalies like Hare lip, cleft palate White patch-oral cavity, oral ulceration, Leukoplakia and neoplasm. 4. Acute & recurrent tonsillitis faucial diphtheria. 5. Adenoids 6. Tonsillectomy and adenoidectomy 7. Peritonsillar abscess, retro pharyngeal abscess, parapharyngeal abscess. **Larynx** Acute Epiglottitis, Acute Laryngo tracheo bronchitis Acute & chronic laryngitis Papillomalarynx Stridor Causes of hoarseness of voice Tracheostomy Carcinoma-larynx. Foreign Body larynx, trachea, bronchus.	

Learning Objectives	Contents	Teaching Hours
	Pharynx FB Malignancy of Pharynx **Oesophagus** PV syndrome Dysphagia Foreign Body Benign & malignant lesion of Oesophagus (strictures, rupture) **Head-Neck** 1. Applied anatomy of salivary glands, Thyroid & Parathyroid glands 2. Physiology of salivary glands, Thyroid & Parathyroid glands 3. Salivary gland diseases 4. Thyroid and parathyroid diseases 5. Neck mass 6. Congenital sinus & cyst of head neck (Thyroglossal cyst, Branchial cyst, Branchial sinus) **General Idea about head neck malignancies**	

Integrated Teaching

Topic	Learning Objective	Teaching Aids	Assessment	Department
• Otogenic and Rhinogenic extra-cranial & intra-cranial complications • Facio-Maxillary Neoplasm	Student will be able to: • state the causes of extra-cranial & intra-cranial complications of ASOM and CSOM • describe the symptoms & signs of acute mastoiditis, facial palsy, labyrinthitis lateral sinus thrombosis. • Investigate & interpret the results of investigation. • treat different complications (gross idea) State common causes of maxillary swelling/carcinoma of Maxilla.	Video cassette film of C.T. Scan, X-ray, Diagram, Otoscope, Hammer, Cotton, Pin & Patients. Tongue depressor, PNS mirror, laryngeal mirror Nasal speculum. (Nice to know fundoscopy) Ophthalmoscope	Performance, Interpretation, Short Question, Modified short Question, MCQ Practical Exam OSCE	ENT & Neuro Surgery ENT & Eye

Teaching Methods:

- Lecture/ Mini Lecture
- Tutorial/ Demonstration - Video
- Case presentation- Subject – Operation- Programe side Teaching Theatres
- Discussion, Visit to RHC / Specialised Centre (If available)

Teaching Hours for Otorhinolaryngology & Head-Neck Surgery

Methods	Total
Lectures	38 hours
Ward Teaching	8 weeks

CARD SYSTEM FOR WARD & OUTDOOR DUTIES

Clinical Card in Otorhinolaryngology & Head-Neck Surgery

(4 weeks in 3rd phase and 4 weeks in 4th phase - Total marks = 100)

Name of the student			
Roll No		**Class**	
Session		**Batch**	
Period of placement in ENT Outdoor /Ward			
From		**To**	

3rd Phase

No.	Item	Date of teaching & learning	Marks obtained	Signature of teacher
1.	History taking, examination & investigations of ear diseases			
2.	History taking, examination & investigations of diseases of nose & Paranasal Sinuses.			
3.	History taking, examination and investigation of diseases of pharynx, larynx & Oesophagus			
4.	Examination of Head-Neck & differential diagnosis of neck swellings.			
5.	Observe 10 cases of discharging ears and establish diagnosis			
6.	Observe 10 cases of deafness and establish diagnosis			
7.	Observe 10 cases of nasal obstruction & establish diagnosis. Learn all about septal deviation			
8.	Observe 5 cases of nose bleeding and learn nasal packing			
9.	Observe 5 cases of wax in ears and learn toileting			
10.	Observe 10 cases of neck swellings and establish diagnosis			

4th - phase

No.	Items	Date of teaching & learning	Marks obtained	Signature of teacher
1.	Observe 5 cases of Recurrent tonsillitis tonsillectomy, also learn pre & postoperative management.			
2.	Observe cases of Peritonsillar abscess/ retropharyngeal abscess. Establish diagnosis. Learn principles of management			
3.	Observe 10 cases of hoarseness of voice. Establish diagnosis & learn principles of treatment			
4.	Observe instruments for laryngoscopy, oesophagoscopy & bronchoscopy. Learn procedures of each			
5.	Observe 5 cases of tracheostomy. Learn technique of pre & post-operative management			
6.	Observe 2 antral washout operation. Learn instruments & principles of operation. See 3 cases of FB Nose. Learn technique of removal.			
7..	Observe 5 cases of dysphagia. Learn management. Learn all about nasogastric feeding			
8.	Observe 10 cases of Head & Neck swellings Establish diagnosis.			
9.	Observe ENT X-rays. Interpret common findings			

Total Number of attendance		**Out of**	
Punctuality			
Attitude to learning			
Relationship with staff & patients			
Percentage of marks obtained in items examination			
Signature of Professor / Associate Professor	**Date :**		

Instruments

1. Ear speculum
2. Otoscpe
3. Nasal speculum (Thudicum)
4. Antrum puncture trocar and cannula (Lichwitz)
5. Tongue depressor (Luc's)
6. PNS mirror
7. Laryngeal mirror
8. Boyle Davis mouth gag
9. Adenoid curette with / without cage (St Clare Thomson)
10. Tracheostomy tube-metallic/PVC
11. Laryngoscope
12. Oesophagoscope
13. Bronchoscope
14. Head light/mirror
15. Tuning Fork

Operative Procedures

a. Tonsillectomy
b. Adenoidectomy
c. Septoplasy/SMR
d. Caldwell-Luc operation
e. Myringoplasty
f. Mastoidectomy
g. Thyroidectomy
h. Salivary gland excision
i. Biopsy for diagnosis of carcinoma of tongue, oral lesions etc
j. Direct larygnoscopy
k. Neck node biopsy
l. Antral washout

X-ray

m. X-ray paranasal sinus (occipito-mental view)
n. X-ray nasopharynx – lateral view
o. X-ray mastoid
    - Towne's view
p. X-ray neck
    - Lateral view
    - Ba swallow x-ray of esophagous

Nice to know

CT scan /MRI

FOL – Fibre Optic Laryngoscopy

CLINICAL PLACEMENT OF STUDENTS DURING PHASE II, III & IV (for 62 weeks)

WEEKS	PHASE II 20 WEEKS	WEEKS	PHASE III 14 WEEKS	WEEKS	PHASE IV 12+12 + 04 WEEKS
01-15	**Surgery indoor** **Surgery OPD**	**01-04**	**Orthopaedics & traumatology**		**1st term**
16-17	**Orthopaedic surgery**	**05-08**	**Ophthalmology**	**01-04**	**Orthopedics**
18	**Radiology**	**09-12**	**ENT**	**05-08**	**Ophthalmology**
19	**Anaesthesia**	**13**	**Radiotherapy**	**09-12**	**ENT**
20	**Dentistry**	**14**	**Neurosurgery**		**2nd & final term**
		15	**General Surgery**		
				01-07	**Surgery**
				08-09	**Urology**
				10-11	**Paediatric Surgery**
				12	**Emergency & Casualty** **Burn & Plastic Surgery**
Card completion exam at the end of rotation & Term exam at 41st week		**Term exam at 41st week**		**04 weeks**	**BLOCK POSTING**
					Final assessment

Time schedule for the lecture classes (number)

DICIPLINE	2ND PHASE	3RD PHASE	4TH PHASE	TOTAL
Gen Surgery	35	30	60	125
Orthosurgery	0	15	45	60
Radiology	0	0	5	5
Radiotherapy	0	0	8	8
Anaesthesia	0	10	0	10
Neurosurgery	0	0	5	5
Paediactric Surgery	0	5	10	15
Urology	0	5	10	15
Burn Plastic Surgery	0	0	5	5
	35	**65**	**148**	**248**

Large Group Teaching

All lectures should be interactive one.
It should be directed to develop analytical and problem solving attitude.

Student should be encouraged to adopt self-directed learning.

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Clinical Teaching and tutorials

- Students are to attend the wards as per placements twice in a day in morning and evening sessions as fixed by the respective college authority.
- They must be well dressed along with apron & nameplate. Shirts, Pants (full length) Shoes only and Winter apparels are allowed in ward settings. Three quarter pant, T-shirt, Sandals are not allowed and teacher may disallow those students to continue the class.
- They will carry stethoscope, percussion hammer, pencil torch and measuring tape and other necessary clinical examination tools.
- During their ward visit, they will examine patients and try to make working diagnosis and write the history as per prescribed format.
- They will go through hospital documents and look what necessary measures and decision has been taken to follow the management of the patient in the ward.
- They will observe and practice techniques of IV & IM injection, infusion, dressing of the wounds. Student will also attend the operation theater and observe the instruments and equipments used in the operation theater.
- They will observe the techniques of different anaesthesia and the drugs used, techniques of hand scrubbing, gowning gloving, scrubbing and draping of operation field, making incisions, haemostasis, saturating technique and wound repair.
- Students performance will be assessed by item examinations, ward and term examinations.

Assessment-

1. **Internal assessment: (Marks for formative assessment)**
    a. Items & Card completion examination ,
    b. Year final assessment at the end of Phase-II & III (written)
    c. MCQ in Integrated teaching.
    d. Final assessment examination (similar to final professional examination) at the end of block posting. (Medicine, Surgery, Obs & Gynae)
2. **Final professional MBBS Examination:**
    a. **Written:** (MCQ- 20 (10 SBA and 10 MTF) ; SAQ & SEQ=70) each paper
    Time allocation: MCQ- 30 minutes; SAQ+SEQ – 02hrs 30minutes.

    i. Paper – I SAQ & SEQ consists of 4 groups.

Group -1:- Principles of surgery, Vascular Diseases, Anaesthesia, Radiology, Radiotherapy.
Group -2:- GIT, Paediatric surgery, Operative Surgery, Chest disease
Group -3:- HBS & Pancreas, Urology, Breast, Endocrine.
Group -4:- Orthopaedics & Traumatology, Neurosurgery,
There will be 05 questions in each group and out of those 04 are to be answered carrying 3.5 marks each.
At least two Structured Essay Question (SEQ) will be in each paper.

ii. Paper –II:
Ophthalmology-- MCQ-10 (5 SBA, 5 MTF) & SAQ & SEQ -35;
ENT-- MCQ-10 (5 SBA, 5 MTF) & SAQ & SEQ -35
Group-1and Group 2 = Ophthalmology
Group-3 and Group 4 = ENT
At least two Structured Essay Question (SEQ) will be in each paper.

iii Preferably questions will be of
recall type- 30%,
understanding or data interpretation type- 30% and
problem solving type- 40%

iv Question should cover the whole curriculum .
90% of the questions should preferably be from core content and 10% from additional content of course.

v. Scripts distribution: Group-1 will be assessed by General surgeon, Group -2 will be assessed by General surgeon, Group-3 will be assessed by a General surgeon/allied subject expert and Group -4 will be assessed by an Orthopedic surgeon.

b. OSPE –

i. Stations will be constructed centrally by two experience examiners nominated and supervised by chairman of the examination committee of the respective university.
ii. Each station will of 5 minutes time and marks will be allocated according to rules mentioned in the subject concerned.
iii. All the examinee under each university will appear in OSCE/OSPE exam in their designated centers on a same date and before 9 am scheduled by University for a particular subject. Failure to arrive at examination center before 9 am is an offense and examiner may dis qualify the candidate.
iv. OSPE examination of Surgery, Ophthalmology and ENT will be in two different days.
v. Answer scripts of OSPE will be divided among the examiners for evaluation and the marks are to be submitted prior to final day of the oral examination scheduled in the respective centre.

vi. Every examination center should be prepared for testing competencies including different procedure stations, data analysis, counseling, displaying x-ray, specimens and instruments. Original materials should be placed at each station.
vii. Station setup
1. Total 20 stations will be made comprising 10 from Surgery,
2. Five (5) Ophthalmology and
3. Five (5) ENT stations.

Out of those, at least two stations from surgery, one from Ophthalmology and one from ENT will be procedural station.

ix Marks allocation

Surgical stations are- (10 x 6 = 60 marks)

		No.
a.	Plain x-ray	-1
b.	Contrast x-ray	-1
c.	Orthopaedic X-ray	-1
d.	Specimen	-1
e.	Instrument/s	-1
f.	Appliances (Catheter, tubes, stoma or reservoir bags etc)	-1
g.	Data interpretation	-1
h.	Procedure stations	-2
i.	Splint/bandage	-1

4. Ophthalmology -5 and ENT-5 stations are- (5+5) x4 = 40 marks)

		No.
a.	Instrument station	= 1
b.	X-ray station/ Specimen	= 1
c.	Clinical photograph/ tracing	= 1
d.	Procedure	= 1

c. Structured Oral Examination. (SOE)

NB: Oral & Practical Examination Boards of **Surgery & Allied Subjects**: Eight (8) Examiners in 4 boards in two days.

Day -1:

Board- A- 1 examiner from General Surgery & 1 examiner from Allied subjects

Board-B-1 examiner from General Surgery & 1 examiner from Orthopaedics

Day-2:

Board-A-1 examiner from Ophthalmology & 1 examiner from Ophthalmology

Board-B-1 examiner from ENT & 1 examiner from ENT

NB: In case of unavailability of any concerned examiner of any board the convener of the examiner in consultation with concerned dean of the faculty of medicine will select the examiner from General surgery or sub specialty or any allied subject

Paper-1 (General surgery and allied subjects) Marks-30X2=60

a. Two separate boards comprising one internal and one external examiner will assess written scripts, oral, practical and clinical examination.
b. There are two other reserve examiners in each internal and external pool. One of the reserve examiner should be from allied subject like urology, pediatric surgery, plastic surgery or neurosurgery.
c. Out of four examiners two will be from general surgery, one will be an orthopedician & another one will be from allied subjects of surgery.
d. There will be four boxes covering questions on surgery and allied specialties assigned for each examiner.
e. Each box will contain at least 20 sets of questions.
f. A set of question will contain 3 small questions of three-difficulty level (Must Know, Better to Know & Nice to Know)
g. Content of the box-
    1. Box-1:- Principles of surgery, Vascular Diseases, Anaesthesia, Radiology, Radiotherapy.

2. Box-2:- GIT, Paediatric surgery, Operative Surgery, Chest disease
3. Box-3:- HBS & Pancreas, Urology, Breast, Endocrine.
4. Box-4 :- Orthopaedics & Traumatology, Neurosurgery.

Paper –II (Ophthalmology and ENT) Marks 20X 2= 40

i. Two separate boards for each specialty comprising one internal and one external examiners will assess written scripts, oral, practical and clinical examination.
ii. There will be one reserve examiner in each specialty.
iii. Instruments and x-rays will not be examined in viva board.
iv. Each student will be allocated 15 minutes
v. Problem solving skills / Judgment of knowledge should be examined
vi. The question and answer will be constructed by the examiners in advance
vii. Question is typed in a card and put in box of defined domain
viii. A number of questions from each topic should be constructed covering the content area.
ix. Content will be changed on alternate days
x. The candidate randomly selects one card from each box and answer.
xi. The candidate should answer selected number of question in the board
xii. The examiner read the question, repeat it if necessary or the candidate reads the question if allowed.
xiii. When candidate answers the questions, the examiner will put a tick in appropriate site on a prepared rating scale

d. Clinical examination of surgery

a. Surgery -60
    1. Short cases 3 x 10 =30
    2. One Long case- 30.
b. Ophthalmology cases -2 x 10=20
c. ENT cases- 2 x 10=20

Mark distribution of oral, clinical and practical examination in surgery in final professional examination

Subject	Oral	Practical/OSPE	Clinical	Total
Surgery + Allied & Orthopaedics	30+30	60	30+30	180
Ophthalmology	20	20	20	60
ENT	20	20	20	60
Total	100	100	100	300

ssss

- There will be separate Answer Script for MCQ (SBA & MTF) and written SAQ &SEQ assessment.
- Pass marks is 60 % in EACH of Written, oral, practical and clinical components.
- Practical Examination will be in 2 days, one day Surgery, One day Eye-ENT
- Oral+Clinical will be in 2 days, One day- Surgery, another day- Ophthalmology + ENT.
- Marks and Written examination scripts must be returned before last day of oral-clinical examination at respective examination center. Otherwise convener of the center will return the whole scripts to Dean office for final decision.
- For declaration of results in earliest possible time after compilation of marks quick disposal of marks to competent authority is desirable.

FINAL PROFESSIONAL EXAMINATION

Assessment of Surgery

(MARKS DISTRIBUTION)

Components	Marks On each component	Sub total Marks	Total Marks
Written examination			
Formative assessment marks			
General Surgery & allied subjects	10	20	20
Ophthalmology	05		
ENT	05		
Written			
Paper – 1: General Surgery + allied & Orthopaedics : MCQ- (SBA+MTF) +(SAQ + SEQ)	(20+70)	90	180
Paper – II: Ophthalmology: MCQ- (SBA+MTF) +(SAQ + SEQ)	(10+35)	45	
ENT : MCQ- (SBA+MTF) +(SAQ + SEQ)	(10+35)	45	
Oral, Clinical & Practical			
General Surgery + allied & Orthopaedics (Oral+ Clinical+ Practical)	(60+60+60)	180	300
Ophthalmology (Oral+ Clinical+ Practical)	(20+20+20)	60	
ENT (Oral+ Clinical+ Practical)	(20+20+20)	60	
Oral examination should be structured.			
Grand Total Marks			500

Obstetrics & Gynaecology

Departmental Objectives

At the end of the course of obstetrics & gynaecology the undergraduate medical students will be able to:

- provide proper care in managing women's health including pregnancy, labour and puerperium and to ensure maternal and neonatal health and well being and give proper advices.
- diagnose and manage patients with common obstetrical and gynaecological problems.
- describe the basic concept of Counselling and counsel the women in the field of Obstetrics and Gynaecology.
- refer high risk cases appropriately.
- resuscitate new born babies and impart proper care.
- initiate & promote infant & young child feeding practices including exclusive breast feeding
- demonstrate appropriate attitude required to practise obstetrics and gynaecology.
- demonstrate an understanding about the impact of socio-cultural beliefs and environmental factors on women in pregnancy, labour and puerperium including their overall reproductive health and violence against women.
- counsel and inform women about contraception and family planning, and women's right.
- be acquainted with ongoing programme to reduce maternal mortality & morbidity.
- demonstrate an understanding about common problem of adolescent females and care them
- describe the common problems of peri and post menopausal women and can provide proper care
- value the ethical issues in obstetrics and gynaecology.

List of Competencies to acquire:

- History taking, communication skill, obstetrical examination, gynaecological examination.
- Diagnosis of common clinical problems
- Preparation of a patient before anaesthesia
- Writing a discharge certificate after
  - Normal delivery
  - Caesarean section
  - D & C
  - Evacuation of mole
  - Hysterectomy
- Care of antenatal patients including nutrition and daily calorie calculation
- Care of postnatal patient
  - Appropriate technique of breast feeding including position and attachment.
  - Demonstation of complementary feeding- amount, frequency, content of food
- Management of normal labour with partograph plotting
- 1st stage, 2nd stage & 3rd stage (AMTSL)
- Skill about Episiotomy
- PPH management
- Management of Eclampsia
- Shock management
- Writing a BT order
- Blood transfusion note
- Insertion of a cannula
- Catheterization
- Drawing of blood
- Hand washing
- Wearing of gloves,wearing PPE (Donning and Doffing)
- Identification of instruments/suture materials
- Trolly preparation for major & minor surgery

Obstetrics & Gynaecology: Hours distribution in 3rd & 4th phases in details

Lecture (in hours)				**Small group teaching (in hours)**	**Departmental integrated teaching (in hours)**	**Phase integrated teaching (in hours)**	**Clinical/Bedside teaching (in weeks)**		**Block posting (in weeks)**	**Formative examination (in days)**		**Summative examination (in days)**	
	3rd Phase	**4th Phase**	**Total**	**PBL, Practical demonstration , Instrumental demonstration, Skill lab, Tutorial & etc.**			**3rd Phase**	**4th Phase**		**Preparatory leave 10 days**	**Exam time 15 days**	**Preparatory leave 10 days**	**Exam time 15 days**
							8wks	8wks					
Total	30	60	90	58 hours	(10 topics × 2 hours) = 20 hours	(42 topics × 3 hours) = 126 hours	16 weeks		04 wks	25 days		40 days	
Grand Total	**168 hours**					**126 hours**	**20 weeks**			**65 days**			

Time for integrated teaching, examination preparatory leave and formative & summative assessment is common for all subjects of the phase

Preventive aspects of all diseases will be given due importance in teaching learning considering public health context of the country and others parts of the world.

Related behavioral, professional & ethical issues will be discussed in all clinical and other teaching learning sessions

Obstetrics & Gynaecology: Hours distribution for Clinical/Bedside teaching in 3rd & 4th phases in details

Subject	Clinical/Bedside & Ambulatory care teaching (in hours)						Total hours (in three phases)	Total weeks {(2nd phase wks + 3rd phase wks + 4th phase wks = Total three phases wks) ×(6 days× 4 or 7 hours)}
	2nd Phase		3rd Phase		4th Phase			
	Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching		Indoor clinical/ bedside teaching & Ambulatory care teaching			
	Morning	Evening	Morning	Evening	Morning	Evening		
	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency	Indoor/ OPD/ Emergency/ Out reached center	Indoor/ Emergency		
			8 weeks		8 weeks			
Basic Clinical Skills (in-patient)	-	-	48 h (4w)	48 h (4w)	-	-	96 h	(0+4+0)= **04 w** × (6 days × 4 hrs)
Family Planning Clinic	-	-	24 h (2w)	24 h (2w)	-	-	48 h	(0+2+0)= **02 w**× (6 days × 4 hrs)
Gynae & Antenatal Out-patient Clinic	-	-	24 h (2w)	24 h (2w)	-	-	48 h	(0+2+0)= **02 w**× (6 days × 4 hrs)
Routine Obstetrics	-	-	-	-	36 h (3w)	36 h (3w)	72 h	(0+0+3)= **03 w**× (6 days × 4 hrs)
Routine Gynaecology	-	-	-	-	36 h (3w)	36 h (3w)	72 h	(0+0+3)= **03 w**× (6 days × 4 hrs)
Emergency Obstetric Care E.O.C (Labour Room)	-	-	-	-	24 h (2w)	60 h (2w)	84 h	(0+0+2)= **02 w**× (6 days × **7** hrs)
Total	**-**	**-**	**96 hrs**	**96 hrs**	**96 hrs**	**132 hrs**	**420 hrs**	**16 weeks**

Teaching/learning methods, teaching aids and evaluation

Teaching Methods				Teaching aids	In course evaluation
Large group	**Small group**	**Self learning**	**Others**		
Lecture (video presentation)	Bed side teaching, Tutorials PBL (Problem based learning) OPD- teaching Teaching in Family planning clinic Demonstration in Operation theatre Demonstration in wards/ skill room (video presentation) Field side teaching	Assignment, Self study	Integrated	Laptop, Computer & Multimedia OHP, Transparency & Marker White board & Marker, Black board & chalks, Flip Chart, Slide projector Video, Dummy, Ultrasonography report, X-ray plate, View Box Model, Television, VCR, Cassette, Specimen, Analysis report	• Item Examination • Card final • Term Examination • Term final (written, oral+ practical+clinical)

Final Professional Examination:

Marks distribution of Assessment of Obstetrics & Gynaecology

Total marks – 500 (Summative)

- Written =200

(Formative =(10+10)=20, MCQ=40 (SBA-20, Multilpe true false -20), SAQ & SEQ=140 (SAQ-50+50=100) (SEQ-20+20=40)

- SOE=100
- Clinical=100
- Practical=100

Related Equipments/Instrument:

Forceps, Ventouse, Female bony pelvis & dummy foetus, Folley's catheter, Plain rubber catheter Sponge holding forceps, Alli's tissue forceps, Artery forceps, Volsellum, Hegar's dilators, Uterine sound & Currette, Sim's vaginal speculum, Cusco's speculum, BP blade with handle, Dissecting forceps, Needle holder, Suture materials

Contraceptives – OCP, progesterone only pill (POP or minipill), implants (2 rods and 1 rod), Injectable contraceptives (IM and sub-cutaneous), IUCD, Barrier methods (condoms), IUD and Emergency Contraceptive Pill (ECP).

MR Syringe with Canula

Core contents of Obstetrics:

Conception and development of fetoplacental unit

(a) Fertilisation, implantation, fetoplacental unit, placental barrier
(b) Placenta, amniotic fluid and umbilical cord: Development, structure and function

Anatomical and physiological changes during pregnancy
Diagnosis of pregnancy
Counselling in reproductive health
Antenatal care
(a) Counselling
(b) Objectives, principles of antenatal care, identification of high risk pregnancy
(c) Nutrition during pregnancy and lactation
(d) Vomiting in early pregnancy

Normal labour
(a) Criteria of normal labour
(b) Stages, mechanism of normal labour
(c) Diagnosis of labour
(d) Management of normal labour
(e) Assessment of progress of labour
(f) Monitoring maternal and fetal condition
(g) Partograph
(h) Pain relief

Normal puerperium
(a) Anatomical and physiological changes during puerperium
(b) Management of normal puerperium
(c) Post partum family planning
(d) IYCF -- Breast feeding & Complementary feeding

Hypertensive disorder in pregnancy including pre-eclampsia and eclampsia
Medical disorders in obstetrics
(a) Anaemia in pregnancy
(b) Urinary problems in obstetrics
(c) Diabetes
(d) Heart disease
(e) Hepatitis

Ante-partum haemorrhage
Definitions, classification, clinical features, complications and management
Rh incompatibility
Blood transfusion in Obstetrics
Multiple pregnancy
Definitions and types, clinical features, complications, diagnosis and principles of management
Malposition and malpresentation
Types, causes, diagnosis, complications and management
Abnormalities of labour
(a) Prolonged labour: Definition, aetiology, diagnosis, complications, management
(b) Obstructed labour: Definition, aetiology, diagnosis, complications, management

Post-partum haemorrhage (PPH)
Definitions, causes (atonic, traumatic and others) of PPH, prevention and management, follow up.

Abnormal puerperium
Causes ,diagnosis and management

The newborn
Resuscitation, examination and care of the newborn.

Neonatal problems

Birth Asphyxia
Jaundice
Infection
Feeding
Other problems of newborn
IYCF -- Breast feeding & Complementary feeding

IUGR & IUD
Causes, diagnosis and management

Obstetric operative procedures
Episiotomy, caesarean section, vacuum and forceps deliveries, version, destructive operations: their indications an complications
Steps of operation:Episiotomy,vacuum & forcep delivery

Vital statistics:
Maternal morbidity & mortality
Perinatal morbidity.and mortality
Neonatal morbidity & mortality

Diagnostic aids in obstetrics
(a) Ultrasonography
- Basics of ultrasound
- Role in obstetrics

(b) Fetal monitoring- CTG
(c) Amniocentesis and other prenatal diagnostic techniques

Social Obstetrics
(a) Maternal & perinatal morbidities and mortalities
(b) Direct causes of maternal & perinatal morbidity and mortality – Contributing socio-economic & environment factors
(c) Importance of family planning in prevention of obstetric problem
(d) Strategies for promotion of maternal health & prevention of illness emphasising maternal nutrition, hygiene & medical care
(e) National programs for MCH&FP, EOC, Combined service delivery

Core contents of Gynaecology

Anatomy of the female reproductive organs
(a) Basic anatomy of uterus, ovaries, tubes, vagina and vulva
(b) Relationship of uterus, ovaries, tubes and vagina to other pelvic organs
(c) Developmental anomaly of genital organs

Physiology of reproduction
(a) Puberty and its complication, menstruation, ovulation
(b) Fertilisation and implantation

Bleeding in early pregnancy

- Abortion:
  Definition, types, causes and management of all types of abortion and this complications.
- Ectopic pregnancy:
  Definition, aetiopathology, clinical feature, differential diagnosis and abdomen of acute principles of surgical management
- Trophoblastic tumours:
  (i) Hydatidiform mole: types, clinical features, complications, differential diagnosis, management and follow up.
  (ii) Choriocarcinoma: diagnosis and management, follow up

Vaginal discharge

Physiological and pathological, Diagnosis and treatment.

Menstrual disorder

(a) Amenorrhoea:
  Types, causes and principles of management
(b) Menorrhagia:
  Definition, causes and management
(c) Metrorrhagia:
  Definition, causes and management
(d) Dysmennorhoea : Definition types, causes and management.
(e) Abnormal uterine bleeding
  Definition, PALM-COIN classification, diagnosis, principles of investigation and management

Genital tract infection

(a) Defensive mechanism of genital tract
(b) Pelvic inflammatory diseases: acute and chronic
(c) Sexually transmitted diseases
(d) Genital tuberculosis

Urinary incontinence – definition, types

(a) Genitourinary fistula:-
  Types, causes, clinical features, principles of management, prevention

Other genital tract injuries:

(a) Perineal tear
(b) RVF

Genital prolapse

Types, aetiology,supports of uterus, clinical features, diagnosis, differential diagnosis, principles of management,prevention

Endometriosis

Definition, types, clinical features, principles of management

Neoplasia of reproductive organs

- Benign & malignant conditions of vulva & vagina
- Benign, precancerous & malignant conditions of cervix
- Benign and malignant conditions of uterus
- Benign and malignant tumours of ovary

Subfertility

(a) Causes, investigation and management both male and female partner.

(b) Assisted reproductive techniques
(c) Concepts of medical biotechnology in relation to Obstetrics

Contraception
Importance
Counselling
Classification, mechanism of action, advantages, disadvantages, complications of all methods particularly sterilization and MR & MRM

Menopauses
(a) Definition, physiological basis, changes in different organs of body, clinical features of menopausal syndrome, principles of management
(b) Post-menopausal bleeding
(c) Hormone replacement therapy (HRT)

Diagnostic Technique
(a) Cervical smear
(b) Laparoscopy
(c) Hysteroscopy
(d) Colposcopy
(e) Ultrasonography
(f) CT scan
(g) MRI

Principles of common gynaecological operations:MVA,D&C,E&C,suction evacuation,hysterectomy.

Additional Contents

Obstetrics

(1) Developmental structure of placenta
(2) Antenatal foetal screening
(3) Mechanism of onset of normal labour (theories)
(4) Labour analgesia
(5) Thromboembolism
(6) Other hypertensive disorders
(7) Pathophysiology of pre-eclampsia and eclampsia in details
(8) Haemolytic anaemia
(9) Nephritis and renal failure in obstetrics
(10) Treatment of Rh incompatibility
(11) Management of IUGR
(12) Management of inversion of uterus
(13) Post-partum and post-MR contraception
(14) Diagnostic aids in obstetrics
    (a) Ultrasonography
    (b) Foetal monitoring-CTG
    (c) Amniocentesis, CVS, MSAFP
    (d) X ray

Gynaecology

(1) Management of endometriosis - recent advances
(2) Assisted reproductive techniques
(3) Hormone replacement therapy
(4) Diagnostic techniques
    (a) Laparoscopy

(b) Hysteroscopy
(c) Colposcopy
(d) Ultrasonography

(5) Hormonal disorders in gynaecology

(6) STDS

Lectures in Obstetrics (4th Year)

Content		Lecture Hours (16)
FIRST TERM		
1. Conception and development of fetoplacental unit		1 hour
2. Fertilisation,implantation, placental barrier		1 hour
3. Placenta, amniotic fluid and umbiliucal cord: Development, structure and function		1 hour
4. Anatomical and physiological changes during pregnancy		1 hour
5. Diagnosis of pregnancy		1 hour
6. Antenatal care	(a) Objectives, principles of antenatal care, identification of high risk pregnancy (b) Nutrition during pregnancy, lactation and Counseling on IYCF (c) Vomiting in early pregnancy	1 hour 1 hour 1 hour
Evaluation		1 hour
SECOND TERM		
7. Normal labour	(a) Def, Stages, mechanism of normal labour (b) Management of normal labour	1 hour 1 hour
8. Normal puerperium	Physiology & Management	1 hour
9. Baby	(a) Examination and care of newborn baby (b) IYCF	1 hour 1 hour
Evaluation		1 hour

Lecture contents in Obstetrics (5th Year)

Content		Lecture Hours
FIRST TERM		
1. Hypertensive disorder in pregnancy including pre-eclampsia and eclampsia		2 hours
2. Medical disorders in obstetrics	(a) Anaemia in pregnancy (b) Diabetes (c) Heart diseases (d) UTI, Hepatitis, Dengue, COVID & other	3hours
3. RH incompatibility		1 hour
4. Ante-partum haemorrhage	(a) Definitions, classification, clinical features, complications and management	2 hours

5. Multiple pregnancy	Types and definitions, clinical features, complications, diagnosis and principles of management	1 hour
6. Malposition and malpresentation: causes and management (Breech, transverse lie)		1 hours
Formative Assesment		1 hour
SECOND TERM		
7. Normal labour 8 Induction of labour	• Review of what has already been taught • Diagnosis of stages and assessment of progress of labour • PARTOGRAPH • Pain relief • Foetal monitoring	2 hours 1 hour
9. Abnormal labour	(a) Prolonged labour: Definition, aetiology, diagnosis, complications, management (b) Obstructed labour: Definition, aetiology, diagnosis, complications, management (c) Ruptured uterus	3 hours
10. Post-partum haemorrhage (PPH)	Definitions, causes (atonic, traumatic and others) of PPH, prevention and management	1 hour
11. Puerperium	(a) Review of what has already taught (b) Abnormal puerperium and management	1 hour 1 hour
12. The new born	(a) IYCF --Breast feeding and complementary feeding (b) Management of asphyxia neonatorum (c) Jaundice & other problems in new born	1 hours 1 hour 1 hour
Formative Assesment		1 hour

THIRD TERM		
12. IUGR, Pre-maturity, Post-maturity & IUFD and their complication		2 hours
13. Obstetric operative procedures	Episiotomy, caesarean section, vacuum and forceps deliveries, version, destructive operations: their indications and complications	2 hours
14. Vital statistics: MMR and perinatal mortality and morbidity: Definitions & ethical obstetrics, MDG, EOC		2 hours
15. Diagnostic aids in obstetrics and modern advances in obstetrics (a) Ultrasonography - Basics of ultrasound - Advantages of ultrasound - Role in obstetrics - Limitation (b) Foetal monitoring - CTG (c) Amniocentesis, CVS		1 hours
Formative Assesment		1 hour

Learning Objectives and Course Contents in Obstetrics

Learning Objectives	Contents	Teaching hours
The student should be able to • define the common terms used in obstetrics • define conception, fertilization implantation, fetoplacental unit and placental barrier.	• Feto placental Unit : • Terms & definition • Fertilisation, implantation, fetoplacental unit, placental Barrier	2hrs
• mention development, structure & function of placenta. • describe the formation, circulation and function of amniotic fluid. • mention structural, function and development of umbilical cord.	• Placenta, amniotic fluid and umbilical cord: Development, structure and function	1 hr
• describe the anatomical changes during pregnancy • describe the physiological changes of pregnancy	• Anatomical and physiological changes during pregnancy	1 hr
• take history of early pregnancy • mention the early symptoms and signs of pregnancy	• Diagnosis of Pregnancy • Antenatal care	1 hr 4 hours
• describe the characteristics of normal labour. • recognise each stage of labour • plot the events of labour on partograph and interpret the graph • describe the mechanism of labour • mention the management of each stage of labour	• Normal Labour – stages, Mechanism and management.	2 hrs
• define pre-eclampsia, eclampsia, mention incidence, etiology, theories ognise complications and describe management including use of Magnesium Sulphate	• Pregnancy induced Hypertension • Pre-eclampsia • Eclampsia	3 hrs
• define APH, mention its causes understand the types of APH • differentiate between placenta previa and abruptio placentae • mention the complication of abruptio placentae including DIC. • manage the placenta praevia, abruptio placentae	• APH • Placenta previa • Abruptio placenta	2 hrs
• define post-dated pregnancy, state etiological factors, diagnose post-dated pregnancy, list complications, manage post-dated pregnancy	• Post Dated Pregnancy	1 hr

Learning Objectives	Contents	Teaching hours
The student should be able to • define and describe, incidence, complications, diagnosis and management of anaemia, Diabetes in pregnancy , Hypertensive disorders and heart disease in pregnancy	• Medical disorder in pregnancy :- a. Anemia b.Diabetes in pregnancy c.Hypertensive disorders d. Heart disease in pregnancy	6hrs
The student should be able to • define obstructed labour • mention the etiological factors • diagnose and manage the obstructed labour • describe the complications of obstructed labour • define prolonged labour • differentiate prolonged labour from obstructed labour • describe the complications • manage the prolonged labour • define the ruptured uterus • mention the etiological factors and incidence • diagnose and manage	**Abnormal labour:** • Obstructed Labour • Prolonged Labour • Raptured Uterus	3 hrs
• define PPH • list the types • describe the causes of PPH • describe the complications of PPH • describe retained placenta • diagnose and manage retained placenta • diagnose and manage PPH. • Prevention of PPH through use of AMTSL in facilities and Tab. Misoprotol (orally) in the home deliveries.	• PPH • Retained placenta	1 hrs

Learning Objectives	Contents	Teaching hours
The student should be able to • describe the common obstetric procedures • describe the role of these procedures in obstetrics • define and to differentiate it from trial of Labour • mention the types of induction • describe the indication and complication of each type of induction • define and know the types • describe the procedure of version • describe the indication and complications • describe the post version management • define and state the types and Episiotomy • explain the indication and procedure • describe the management • describe the complications • list the types • explain the indication and prerequisite and contraindications • describe the procedure • list the complications • write down the postnatal management	**Obstetric operative procedure:** • Induction of Labour • Version • Episiotomy /perineotomy • Forceps delivery	2 hrs

Learning Objectives	Contents	Teaching hours
The student should be able to • describe the ventouse extraction • mention the indications and contraindications • mention the advantages • describe the complications • give postnatal management • describe common obstetrics operations • mention the history & define LUCS • mention the different types • describe the indications • mention the steps of operation • describe the complications • write down the pre-operative and post-operative treatment. • describe the different types & perineal tear • diagnose and to manage the perennial tears • describe Cervical Tears • mention the etiological feature • diagnose and manage • mention the complications and its relations to PPH	• Ventouse • LUCS • Perineal tear • Cervical Tear	

Learning Objectives	Contents	Teaching hours
The student should be able to • describe the different destructive operations • mention the indication of each destructive operations • mention the pre-operative and post-operative management • describe the complication of each destructive operation • mention the role of destructive operations in modern obstetrics	• Destructive operations	2hrs
• define and understand the normal puerperium • mention the anatomical and physiological changes in normal puerperium • describe the process of involution • manage the normal puerperium • describe the abnormal puerperium • mention the complications of puerperium • manage the abnormal puerperium	• Normal and abnormal puerperium	1hrs
• describe the care of new born including application of Chlorhexidine drop on the umbilical stump • mention the immunization schedule of new born care • mention the management of umbilical cord	• Care of New Born:	1 hr

Learning Objectives	Contents	Teaching hours
The student should be able to • describe the asphyxia neonatorum • mention the causes of asphyxia • describe APGAR score and its interpretation • diagnosis and manage • list the complications • describe the physiology of lactation • describe the pre-lacteal feed, attachment, nipple infection, exclusive Breast feeding Describe the physiology of lactation • mention the advantages of breast feeding • describe • exclusive Breast feeding for the first 6 months and use it as Lactational Amenohoea Method (LAM) of contraception • colostrum and mature milk • position, attachment and expression • breast problem • breast feeding in special situation • list the 10 (Ten) steps • describe BMS code • describe LAM • state maternity protection (leave and creche) • counsel a mother for Breast feeding • mention the advantages of breast feeding • counsel a mother for Breast feeding • list the 10(Ten) steps • list the types • describe the aetiology • manage the birth injuries • describe the common neonatal infection • outline Diagnose and to manage • list the complications • describe foetal monitoring in pregnancy and in labour • mention the different method used for foetal monitoring • recognise the foetal distress and describe the management • describe the interpretation of foetal monitoring.	• Asphyxia, Neonatorum • Breast Feeding & IYCF • Birth Injuries • Neonatal Infections • Neonatal Jaundice • Foetal Monitoring	5 hours

Learning Objectives	Contents	Teaching hours
The student should be able to • describe the diagnosis and in obstetrics • mention the principles of ultrasound • mention the role and advantages of ultrasonography in obstetrics • describe the indications of ultrasonography • mention the limitations • mention the principles of radiology • mention the role and advantages • describe its limitation in obstetrics • mention the different views of Radiology in obstetrics • define amniocentesis • mention the advantages • state the indications	**Diagnostic aid in obstetrics :** • Ultrasonography • Radiology • Amniocentesis, CVS	2 hrs

Learning Objectives for Obstetrics

The student will be able to apply knowledge and understand of the following:

1. Normal pregnancy
    - Diagnosis of pregnancy
    - Antenatal Care
    - Screening for high risk pregnancy
    - Nutrition and Hygiene of a pregnant mother

2. Hypertensive disorders of pregnancy including pre-eclampsia, Eclampsia. APH, Rh incompatibility, IUGR, Multiple pregnancy, grand multiparity, pre-maturity, post maturity.
    - Definition
    - Aetiology
    - clinical presentation
    - Diagnosis
    - Management
    - Complication
    - Follow up of treatment.

3. Medical disorders in pregnancy (Anaemia, Diabetes, UTI, Heart disease, Jaundice, Tuberculosis & others)
    - Incidence of diseases
    - Natural history of diseases
    - Aetiology
    - Clinical presentation
    - Diagnosis
    - Management
    - Effect on pregnancy and vice versa

4. Normal labour
    - Definition
    - Stages; mechanism
    - Diagnosis
    - Management
    - Partograph

5. Abnormal labour
    - Definition
    - Types
    - Diagnosis
    - Management
    - Follow-up

6. Puerperium:
    - Definition of normal puerperuim
    - Anatomical and physiologial changes
    - Management of normal puerperium
    - Post-natal care including general advice
    - Course of abnormal puerperium
    - Management of abnormal puerperium

7. New born:
    - Definitions related to newborn
    - Examinations and care of newborn
    - Resuscitations
    - Diagnosis and management of asphyxia, jaundice and neonatal infections
    - Feeding problems

8. Common diagnostic techniques Ultrasonography, Radiology, Foetal Monitoring and Amniocentesis, CVS
    - Uses
    - Advantages
    - Disadvantages

9. Obstetric procedures and operations:
    - Induction of labour
    - Version
    - Episiotomy
    - LUCS
    - Forceps delivery
    - Ventouse delivery
    - Destructive operations

10. Vital statistics and social obstetrics
    - Maternal & Perinatal mortality and morbidities
    - Causes of maternal and perinatal mortality and morbidities including socio-economic and environmental factors.
    - Method of calculating MMR, PNMR
    - National programs for MCH&FW, EOC,
    - Counseling –basic concepts and specific counselling in specific obstetric situations.
    - Ethical issues in obst. & gynae

Lectures in Gynaecology (4th Year)

Content		Lecture Hours
FIRST TERM		
1. Anatomy of the female reproductive organs	(a) Basic anatomy of uterus, ovaries, tubes, vagina and vulva (b) Relationship of uterus, ovaries, tubes and vagina to other pelvic organs (c) Development & developmental anomaly of genital organs	2 hours
2. Physiology of reproduction	(a) Puberty, menstruation, ovulation (b) Fertilisation and implantation	2 hours
3. Formative Assesment		1 hour
SECOND TERM		
4. Bleeding in early pregnancy	(a) Abortion Definition, types, causes and management of all types of abortion (b) Ectopic pregnancy Definition, aetiopathology, clinical features, differential diagnosis and principles of surgical management. (c) Trophoblastic tumours I. Hydatiform mole: types, clinical features, complication differential diagnosis, management and follow up. II. Choriocarcinoma: diagnosis and management	1 hour 1 hour 1 hour
4. Formative Assesment		1 hour
THIRD TERM		
6. Vaginal discharge	(a) Physiological, vaginal discharge (b) Pathological and their management	1 hour
7. Menstrual disorder	(a) Amenorrhoea Types, causes and principles of management (b) Menorrhagia Definition, causes and management (c) Metrorrhagia Definition, causes and management (d) Dysmennorhoea (e) Dysfunctional uterine bleeding Definition, classification, diagnosis, principles of investigation and management	1 hour 2 hours 1 hour
8. Formative Assesment		1 hour

Lecture contents in Gynaecology (5th Year)

Content		Lecture Hours
FIRST TERM		
1. Genital tract infection	(a) Defense mechanism of genital tract (b) Pelvic inflamatory diseases: acute and chronic (c) Sexually transmitted diseases including AIDS (d) Genital tuberculosis	1 hour 1 hour 1 hour
2. Urinary incontinence	(a) Definition, types (b) Genitourinary fistula: Types, causes, clinical features, principles of management, prevention	1 hour 1 hour
3. Genital tract injuries:	(a) Perineal tear (b) RVF (c) Vaginal stenosis	1 hour
4. Genital prolapse	Types, aetiology, clinical features, diagnosis, differential diagnosis, principles of management	2 hours
5. Formative Assesment		1 hour
SECOND TERM		
6. Endometriosis	Definition, types, clinical features principles of management	1 hour
7. Neoplasia of reproductive organs	(a) Benign and malignant tumours of cervix Classification (fibroid, polyp, carcinoma cervix), clinical features, staging investigation, diagnosis, principles of management (b) Benign and malignant tumours of uterus (c) Benign and malignant tumours of ovary	5 hours 2+1+2
8. Subfertility	(a) Causes, investigation and management both male and female partner (b) Assisted reproductive techniques	2 hours
9. Formative Assesment		1 hour
THIRD TERM		
10. Contraception	Importance of contraception, classification, mechanism of action, advantages, disadvantages, complications of all methods particularly sterilization and menstrual regulation and MRM	3 hours
11. Menopause	(a) Definition, physiological basis, changes in different organs of body, clinical features of menopausal syndrome, principles of management (b) Post menopausal bleeding (c) Hormone replacement therapy	2 hours
12. Diagnostic Technique	(a) Cervical smear (b) Laparoscopy (c) Hysteroscopy (d) Coloscopy (e) Ultrasonography	2 hours
13. Principle of common gynaecological surgeries		1 hour
14 .Preoperative preparation & post operative management of common gynaecological surgery		1 hour
15. Formative Assesment		1 hour

Learning Objectives and Course Contents in Gynaecology

Learning Objectives	Contents	Teaching hours
At the end of session the students will be able to: • describe the gross anatomy of ovaries, uterus, fallopian tubes, vagina & vulva • mention the blood supply, lymphatic drainage and nerve supply of these organs • discuss the relations of the pelvic organs with each other • describe the development and developmental anomly of pelvic organs	**Basic Anatomy of genital organs**	2 hours
• define puberty, ovulation, menstruation, menopause, climacteric, fertilisation and implantation • mention the changes in reproductive organs in different stages of life • describe the mechanism of ovulation, menstruation fertilisation, implantation • mention the situations where physiology can get disturbed. • describe the subject more clearly • demonstrate communication and presentation skill.	**Physiology of reproduction**	2 hours

Learning Objectives	Contents	Teaching hours
At the end of session the students will be able to: • define each problems • mention the incidence of each problem • classify abortions • differentiate different abortions • describe the pathology of mole and choriocarcinoma • diagnose each problem • manage each problem • mention the complication of each problem	**Bleeding in early pregnancy Abortion, ectopic pregnancy, hydatidiform mole, choriocarcinoma**	(2 + 1+ 2+ 1) hour
• describe the physiology of vaginal discharge. • differentiate physiological and pathological vaginal discharge. • diagnose the diseases causing vaginal discharge • mention the treatment of vaginitis, cervicitis	**Vaginal discharge**	1 hour
• define amenorrhoea, menorrhagia, polymenorrhoea, polymenorrhagia, Metrorrhegia, dysmenorrhoea, dysfunctional uterine bleeding. • mention types of amenorrhoea its causes and management • mention types of dymenorrhoea • describe the causes and management of metrorrhagia • mention the classification, diagnosis, principles of investigations and management of dysfunctional uterine bleeding.	**Menstrual Disorder**	4 hours

Learning Objectives	Contents	Teaching hours
At the end of session the students will be able to: • describe the defence mechanism of genital tract • define, classify, diagnose manage pelvic inflammatory disease. • mention the effects of sexually transmitted diseases on reproductive health of women • diagnose and treat a case of genital tuberculosis.	**Genital Tract infections**	3 hours
• define and classify urinary incontinence • mention the types, causes, diagnosis, presentation and management of genitourinary fistula.	**Urinary Incontinence**	2 hour
• mention different types of perineal tear • diagnose and manage perineal tear and RVF, vaginal stenosis	**Genital tract injuries**	1 hour
• describe the aetiology of genital prolopse • classify genital prolapse • mention the clinical features • diagnose a case of genital prolapse • mention the principles of management of genital prolapse.	**Genitourinary prolapse**	2 hours
• demonstrate communication and presentation skill		2 hours

Learning Objectives	Contents	Teaching hours
At the end of session the students will be able to: • define endometriosis and adenomyosis • mention the clinical features and pathology of endometriosis • describe the effects of endometriosis on reproductive health • mention the principles of treatment of endometriosis. • mention the different types of tumours arising from uterus, cervix, ovraries, vagina, vulva • classify the tumours of individual organs • diagnose the tumours • differentiate tumours arising from different organs. • describe the complications of different tumours. • discuss the principles of management of tumours of individual organs. • name different screening tests done for gynaecological cancers. • define infertility • classify infertility • describe the aetiology of infertility • suggest investigations for both male and female partners. • interprete the investigation reports. • suggest appropriate treatment • mention the assisted reproductive techniques available.	**Endometriosis** **Neoplasm of reproductive organs** **Subfertility**	1 hours 5 hours 2 hours

Learning Objectives	Contents	Teaching hours
At the end of session the students will be able to: • define contraception • mention different types of contraceptions available • describe the characteristics of ideal contraceptive • describe the mechanism of action of each contraceptive • state the advantages and disadvantages of different contraceptives. • describe the methods of tubal ligation and vasectomy and anaesthesia used • mention the complications of tubectomy • define MR. • name the instruments used in MR. • describe the procedure and importance of follow-up • mention advantages and complications of MR • mention the importance of counselling • define menopause • describe the anatomical and physiological changes in menopause • describe menopausal syndrome and its management • define post-menopausal bleeding (PMB) • mention the causes of post-menopausal bleeding • write down the investigation PMB • mention the management • mention the hormone replacement therapy(HRT) in post-menopausal women	**Contraception** **Menopause**	2 hours 2 hours

Learning Objectives	Contents	Teaching hours
At the end of session the students will be able to: • mention the different diagnostic techniques commonly used including Visual Inspection with Acetic acid application (VIA test)	**Diagnostic Technique**	2 hours
• mention the indication of cervical smear • describe the procedure of cervical smear • interprete the findings • explain its relation with carcinoma cervix	**Cervical Smear**	
• be acquainted with instruments used in laparoscopy • mention the indications and contraindications • describe the procedure • mention the complications • interprete the findings	**Laparoscopy**	
• describe colposcopy • be acquainted with instruments • mention the indications • describe the procedure • interprete findings • describe the advantages	**Colposcopy**	
• be acquainted with ultrasonography • be acquainted with instrument • describe the role of ultrasonography in gynaecology • interprete the findings	**Ultrasonography**	

Learning Objectives	Contents	Teaching hours
At the end of session the students will be able to: • describe the different gynaecological operations • mention the indication of each operation • describe the complications of each operations • write down the pre-operative treatment of each operation • mention the pre-operative investigation of each operation • write down post-operative treatment of each operation • mention the relation of each operation with pregnancy and reproductive life. • describe the name of anaesthesia for each operation	**Common Gynaecological Surgery**	1 hour

CLINICAL TEACHING OF OBSTETRICS & GYNAECOLOOGY

INTRODUCTION

The Core Curriculum for Clinical Attachment of 16 weeks has been organised into components of clinical experience as follows:

1.	Basic Clinical Skills (in-patient)	4 weeks
2.	Family Planning Clinic	2 weeks
3.	Gynae & Antenatal Out-patient Clinic	2 weeks
4.	Routine Obstetrics	3 weeks
5.	Routine Gynaecology	3 weeks
6.	Emergency Obstetric Care E.O.C (Labour Room)	2 weeks

Fourth year M.B.B.S. students will participate in batches in turns in components 1, 2 and 3.

Component 1 will have 24 clinical teaching and learning sessions (4w x 6d=24) and component 2 & 3 will have 12 like-wise sessions each (2w x 6d = 12).

Each session will be conducted for 2 hours every morning from 09.00 a.m. – 11.00 a.m.

In the evenings, students will clerk/ practise for 2 hours from 07.00 p.m. – 09.00 p.m., under supervision

Fifth year M.B.B.S. students will participate in components 4, 5 and 6.

Component 4 and 5 will have 18 clinical teaching and learning sessions each (3w x 6d =18) and component 6 will have 12 like-wise sessions (2w x 6d =12).

Each session will be conducted for 2 hours every morning from 09.00 a.m. – 11.00 a.m.

In the evenings, students will clerk/ practise under supervision from 7.00 p.m. – 9.00 p.m.

The evening timing for component 6, however, will be from 4.00 p.m. – 9.00 p.m.

CONTENTS:

Topics included are relevant to every day clinical practise in the field of Gynaecology and Obstetrics.

Learning objectives (skills) are shown against each topic under each sessions.

Many of the topics of the content of the clinical course are supplemented by a study guide.

The study guides are structured to provide students with varied opportunities to facilitate active involvement and self-directed learning and also to enable them to exercise responsibility under guidance by making maximum and productive use of the period of time of their clinical attachment.

The study guide for the respective topic details

(a) introduction,
(b) pre-requisite learning,
(c) the learning objectives,
(d) learning opportunities,
(e) assignments,
(f) tasks to be performed,
(g) resources,
(h) self assessment questions.

4TH YEAR BASIC CLINICAL SKILLS
(COMPONENT – ONE)

4 weeks – 24 sessions in the morning

SESSIONS	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 1	(a) Introduction to Obstetrics & Gynaecology Review 1. Common diseases 2. Commonly used definitions (b) Brief students on course objectives/ activities and student's cards (c) Visit to ante-natal/ postnatal wards; labour/ eclampsia room; septic ward; Gynae ward; operation theatres	At the end of the session student will acquire knowledge and understanding of: (a) Common gynaecological & obstetrics terms, common disease of O&G that are prevalent in the community (b) Course objectives, activities and students, continuous assessment card	Tutorial/small group discussion Organise	Participate in the discussion Visit to different activity areas of O&G Department
Session 2	Obstetric History taking This session will take the format of a discussion detailing Obs. History taking, followed by the opportunity to clerk an Obs. patient in the ward and subsequently present the case history.	Student will be able to: (a) Take history of an obstetrical case (b) Record the information on the history sheet (c) Present case history	Demonstration by teacher	a) Practice by students in groups b) Practice by individual student c) Case presentation

SESSIONS	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 3	Gynaecology history taking This session will take a similar format to Session II.	Student will be able to: (a) Take history of gynaecological case (b) Record the information on the history sheet (c) Present a case	Demonstration by teacher	a) Practice by students in groups b) Practice by individual student c) Case presentation
Session 4	Obstetric examination	(a) Perform obstetrical examination (i) General (ii) Abdominal	Demonstration by teacher	a) Practice by students in groups b) Individual case study using study guide c) Present clinical findings
Session 5	Gynaecological examination Taking of cervical smears (using models).	Perform gynaecological examination I. General II. Abdominal III. Speculum examination IV. Bimanual examination	Demonstration by teacher	Practice by students on dummy in clinical skill room
Session 6	Antenatal care with identification of high risk pregnancies	1. To record the finding on the antenatal cards by (I) Taking proper history (II) Performing general & abdominal examination 2. To advise pregnant women for appropriate investigation for screening for common risks	(a) Demonstration by a teacher (b) Lecture	Practice by case study in groups Case study by group
Session 7 & 8	Bleeding in early pregnancy Abortion, Ectopic Pregnancy, molar pregnancy- chorio-carcinoma	Rationalize the plan of management	Lecture/ video show	Discussion on individual case study

SESSIONS	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 9	Septic Abortion	Rationalize the plan of management	Lecturette/ video show	Discussion, individual case study
Session 10 to 12	Normal labour and Partogram Diagnosis, stages, Mechanism, Management with partogram	Recognise the events of labour Plot the events on the partogram and interpret the graph Rationalize the use of analgesic Conduct normal labour	Arrange video show/ Demonstration on partograph Demonstration of conducting normal labour	a. Observe video show b. Observe teacher's demonstration c. Plotting on partograph by individual d. Conduction of labour under supervision
Session 13	APGAR score, examination of new born, resuscitation & care of new born, breast feeding	Examine, diagnose problems and take immediate care of a new born	Arrange video show/ slide show/ demonstration	Observe: - video show - slide show - teacher's demonstration
Session 14 & 15	Normal puerperium & post natal care Abnormal puerperium	Counsel on (a) Nutrition of mother (b) Personal hygiene (c) Postnatal exercise (d) Breast feeding and weaning (e) Immunisation of baby (f) Postnatal check-up (g) Contraception	Role play by teacher	Role play by students in small group Practice with patients

SESSIONS	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 16	Abnormal uterine bleeding Definition, differential diagnosis	(a) Collect appropriate clinical information by history taking and examination (b) Suggest appropriate investigation (c) Interpret and correlate the investigations data with clinical findings for clinical diagnosis (d) To plan and rationalize the management	Lecture/ video show/ case demonstration	Discussion Individual case study
Lump Abdomen	-do-	-do-	-do-	
Abdominal / pelvic pain – P.I.D.	-do-	-do-	-do-	
Theatre sessions Preparation of patient, preoperative management, operative procedure, post operative management	(a) Write up appropriate pre & post operate order (b) Rationalize the order	Demonstration	Practise by students and peer group discussion Using study guide	
Evening Session	Clerk patients, observe labour room activities and practise the skills that the student learned in the morning sessions.			
Session 23	**Assessment (Oral/ Clinical / OSCE)**			
Session 24	Feedback			

N.B: Students must submit 3 obs. & 2 Gynae, history and must fill up assessment card.

Family Planning Course
For
4th year Medical Students
(COMPONENT –TWO)

Venue – Model Clinics of the Medical College Hospitals **Duration–2 weeks**

Day	1	-	Administration and maintenance of records	
	2	-	Promotion of family planning	
	3	-	Counselling	
	4	-	Oral combined contraceptive pills (OCPs) and Progesterone only pills (POPs)	
	5	-	Intra-uterine contraceptive device	
	6	-	Permanent methods	
	7	-	Injectable contraceptives (IM and sub-cutaneous)	
	8	-	Implant (0ne rod and two rods)	
	9	-	Safe period, lactational amenohhorrea method (LAM), condoms, coitus interruptus	
	10	-	Day visit:	Management issues in family planning. Organisation of a clinic.
	11	-	Day visit:	Organisation of a clinic (continued) Working as a member of a team. Acting as a supervisor.
	12	-	Assessment and feedback	

Family Planning Course

Methods	Aids	Assessment
• Lecture • Visit antenatal clinic & paediatric clinic. • Group discussion • Demonstration of record keeping • Inspection of raw data collected at the clinic. • Interpretation of the results in group discussion • Small group teaching • Role play • Demonstration • Brainstorming • Visit postnatal ward, Interview of patients individually to motivate them towards family planning. • History of patients & counselling observation of examination. • Demonstration of operative steps on models or video • Demonstration of counselling of a patient in real life or by video • Demonstrating on injection, syringes, needle • Demonstrate on storage • Demonstration of condoms • Referral procedures	• Black board • OHP • Radio • Cassette • Posters • Flip chart • Video • Variety of OCPs including progesterone only pill (POP) • Menstrual chart • Client • Specimen of IUCD • Clients and dummy • Models • Chart • Different types of injectable contraceptives (IM and SC) • Implant (one rod and two rods) • Model of arm for demonstration of implant insertion • Model breast + baby • Condom • Emergency Contraceptive Pills (ECPs)	• Question & answers • Observation of students • Check-list completion

Day 1: Administration and Maintenance of records

Intermediate Educational Objective: At the end of the session the student will be able to perform the necessary supervisory and administrative procedures of a family planning clinic and maintain proper records.

Specific educational objectives	Contents
The student will be able to: 1) monitor staff programme maintain harmonious staff relations maintain good communications monitor the out put of a worker 2) make appropriate referrals in an effective way between departments like the antenatal clinic, paediatric clinic, menstrual regulation clinic, and the family planning clinics 3) follow standard procedures which will prevent medico-legal problems 4) write useful clinical records and maintain the ledger book 5) maintain data in an accessible and analysable form. analyse data collected at a family planning clinic and interpret the results	Administration (organogram, responsibility, supervisory method, Method of communication) Staff pattern Interdepartmental linkages and Co-operation. Informed consent before prescription or procedure. Written consent. Standard procedure manuals. Communication with other staff Clinical record keeping Data recording, analysis and interpretation.

Day 2: Promotion of Family Planning

Intermediate role: At the end of the session the student will be able to play a leadership role in the promotion of family planning.

Specific educational objectives	Contents
A. At the end of the session the student should be able to: 1. define Family Planning 2. describe the importance of Family planning, particularly for our country 3. demonstrate understanding that pregnancies can be avoided and spaced 4. describe the personal benefits of birth spacing 5. communicate with, advice and motivate individuals and group of clients 6. supervise and support health education programme 7. administer available posters/ leaflets 8. use electronic and other media 9. demonstrate the ways and means of community education/ mobilization 10. list the opportunities a medical practitioner has to promote Family Planning B. At the end of this session the students should have acquired the required skill to: 1. communicate with an individual client about family planning 2. build rapport	Definition of family planning The population explosion - Health & population indices - Demographic pattern & trends in Bangladesh Benefits of Family Planning: - personal - national - environmental Health education and counseling Community mobilization and participation The use of media in the promotion of family planning The role of general practitioners, medical officers and specialists in the promotion of family planning Health care interview

Day 3: Counselling

Intermediate Educational Objective: At the end of the session the student should be able to explain the component of counselling, and be able to achieve good Inter-personal relations in a counselling situation.

Specific educational objectives	Contents
A. At the end of the session the student should be able to: i) explain and define counselling and it's need ii) explain inter-personal communication iii) list the barriers to inter-personal communication B. Students should have acquired the skill to be able to: 1. greet the client 2. establish rapport 3. ask reasons for coming 4. Inform about available contraceptive methods with their - mode of actions - effectiveness - method of application - availability of services - follow up - referral system 5. Assist the client in making decisions	I) Definition of counselling and the need for it II) Level of communication III) Inter-personal communication and feedback IV) Barrier to communications i) Communication skill ii) Counselling skill iii) Taking account of educational status of the client Merits and demerits

Day 4: Oral Contraceptive Pill

Intermediate Educational Objective: At the end of the session the student will be able to prescribe an appropriate Oral Contraceptive pill to the client.

Specific educational objectives	Contents
The student should be able to: 1. explain the mode of action and effectiveness of the OCP 2. list the advantages and disadvantages of OCP 3. make a checklist for indications and contraindications, and make appropriate case selection 4. describe different OCP for making options for the client and advise the client about proper administration of OCP 5. write history and physical findings to identify contraindications to the OCP 6. list the appropriate investigations 7. explain the follow-up procedure to the patient 8. describe the side-effects and complications of OCP and their management 9. describe how to keep proper records for patients on OCP	Pharmacology of Oral contraceptives Comparison of OCP with other contraceptives Side effects and complications of their management History and physical examination prior to OCP prescription

Day 5: I.U.C.D.

Intermediate Educational Objective: Student will be able to advise clients on I.U.C.D. insertion & refer them to specific clinic.

Specific educational objectives	Contents
A. At the end of the session the student should have acquired knowledge of the following and be able to: 1. explain IUCD as a method of contraception 2. explain mode of action of IUCD and its effectiveness 3. explain the advantage & disadvantage of IUCD 4. list different types of IUCD 5. take history and describe the steps of physical examination for case selection 6. describe the insertion procedure 7. describe the follow-up procedure 8. explain the need of record keeping	1. Definitions & varieties 2. Mode of action and effectiveness 3. Advantage & disadvantage 4. Selection criteria 5. Time of insertion 6. P.V. steps of examination 7. Management of complications and referral
B. Student should have acquired skills to do the following: 1. Communicate with client 2. Build rapport with his/her client 3. Assure clients 4. Take history of the client 5. Physical examination of the client 6. Refer to insertion centre	a. Health care interview - interview planning - time - space - kind of exchange - interview questions - termination of interview b. Assurance c. Steps of history taking d. Steps of physical examination e. procedure of referral
C. Should be able to describe the 3(three) procedure of IUCD insertion	Procedure of insertion of IUCD

Day 6: Permanent Methods

Intermediate Educational Objective: Students will be able to counsel clients to enable them to make a choice about the acceptance of vasectomy or tubal occlusion.

Specific educational objectives	Contents
At the end of the session, students should be able to: 1. name and define different permanent methods of contraception and their effectiveness 2. counsel the patients 3. select the patients 4. list the merits and demerits of these methods 5. refer the patients to the appropriate centres 6. take informed consent (obtaining consent from both husband and wife is not mandatory according to Bangladesh Government policy) 7. describe the steps of the operative techniques of these methods and the anaesthetic techniques used 8. list the complication sand their management 9. mention the time of effectiveness of each method 10. describe the importance of record keeping 11. give appropriate advice for post-operative follow-up 12. give advice about the very limited scope of reversal and the techniques used	Description of different method Health care interview Steps of history taking and physical examination Steps of operative techniques Advantages and disadvantages Complications and their management

Day 7: Injectables

Intermediate Educational Objective: Student will be able to select suitable patients for use of injectable contraceptives and counsel them appropriately.

Specific educational objectives	Contents
At the end of the session the student should be able to: 1. name different types of injectables 2. counsel the clients 3. establish rapport 4. describe mode of action 5. describe the advantage of injectables 6. describe the route of administration and duration of action 7. take an appropriate history and carry out an appropriate physical examination 8. identify the different injectables and state their dose 9. select appropriate cases 10. list and manage the complications 11. advise the clients for follow-up 12. describe the importance of record-keeping	Nature and type of injectables Mode and duration of their action Advantages and disadvantages Indications and contra-indications Complications and their management

Day 8: Implant

Intermediate Educational Objective: Student will be able to advise clients on norplant implantation and refer them to specific clinic for implantation.

Specific educational objectives	Contents
A. At the end of the session the student should be able to: 1. explain Implant as a contraceptive method 2. explain mode of action of Implant and its effectiveness 3. list advantages and disadvantages of Implant 4. describe how to take history 5. describe how to do physical examination needed for selection of client for implantation 6. list important laboratory investigation before doing implantation 7. describe implantation procedure (insertion of one rod and two rods are different) 8. describe follow-up procedure 9. explain the management of minor complication 10. describe the implant removal procedure	1. Definition 2. Role of implant as contraceptive method 3. Pharmocokinetics of Implant 4. Mode of action of implant 5. Advantages and disadvantages of implant 6. Steps of history taking of the client for implant 7. Steps of physical examination 8. Hb% urine for routine and microscopy 9. Implantation procedure 10. Follow-up procedure 11. Management of minor complications and referral for the major one 12. Implant removal procedure with indications
B. At the end of the session the student should acquire skills to do the following: 1. Communicate with the client 2. Build rapport 3. Obtain consent paper signed by couple 4. assure client 5. take history of the client 6. physical examination of clients 7. refer to implantation clinic	1. Health care interview - interview planning - time - space - kinds of exchange - interview questions - terminating interview 2. Consent paper and obtain sign/ agreement from the couple 3. Assurance 4. Steps of history taking 5. Steps of physical examination 6. Procedure of referral
C. Should be able to describe the procedure of implant implantation	Procedure of implant implantation

Day 9: Safe period, lactational amenorrhoea method (LAM), condoms, coitus interruptus

Intermediate Educational Objective: Student will be able to advise clients about safe period as contraceptive procedure.

Session 1 – Safe period

Specific educational objectives	Contents
A. At the end of the session the student should acquire knowledge of the following and be able to: 1. explain safe period as a method of contraceptive 2. explain how safe period works as contraception 3. list advantages and disadvantages of safe period 4. describe how to produce menstrual chart and its use 5. describe follow-up procedure B. Should be able to: 1. communicate with the client 2. take history of the client 3. construct menstrual chart and explain to client	1. Definition of safe period 2. Physiology of safe period and its role as contraceptive 3. Advantages and disadvantages 4. Menstrual chart - definition - preparation - use 5. Follow up advice 1. Health care interviewing 2. Steps of history taking 3. Menstrual chart and its use

Session 2- Lactational amenohorrea method (LAM)

Intermediate Educational Objective: Student will be able to advise clients about lactation as a contraceptive method by explaining it be an Exclusive Breast Feeding approach.

Specific educational objectives	Contents
A. At the end of the session the student should acquire knowledge of the following and be able to: 1. explain lactation as a method of contraception, & describe exclusive breast feeding 2. explain the amount of protection afforded by 'exclusive breast feeding' 3. describe the mode of action 4. list the advantages and disadvantages 5. describe the steps of history taking of breast feeding 6. describe the follow-up advice 7. explain the place of adopting additional method B. Should have skill of the following and be able to: 1. communicate with client 2. take history of breast feeding of the client	1. Physiology of lactation 2. Role of lactation as contraception 3. Advantages and disadvantages of lactation as contraceptive method 4. History taking of breast feeding 5. Follow-up measures 6. Place of adopting additional method 1. Communication skill 2. Steps of history taking of breast feeding

Session 3 – Condom

Intermediate Educational Objective: Student will be able to advise the clients about the condom and its use.

Specific educational objectives	Contents
A. At the end of the session the student should acquire knowledge of the following and be able to: 1. explain condom as a method of contraception 2. describe its mode of action 3. list its advantages and disadvantages 4. describe the role of condoms in preventing STD/HIV infection. B. At the end of the session the student should acquire skill of the following and be able to: explain what to tell about the use of condom to the client	1. Description of condom - materials 2. How it works as contraceptive 3. Advantages and disadvantages - follow-up 4. STD/HIV- AIDS Use of condom

Session 4 – Coitus Interruptus

Intermediate Educational Objective: Student will be capable of advising a client about coitus interruptus

Specific educational objectives	Contents
At the end of the session the student should be able to: 1. describe the place played by coitus interruptus in reducing the fertility rate in the population 2. recognise from what a couple say that they are using coitus interruptus as a method of family planning 3. communicate with clients about the method and describe its advantages and disadvantages, especially the failure rate	1. Local terminology used to describe coitus interruptus 2. Reasons for failure of the method 3. Advantages and disadvantages

Management issues in family planning. Organisation of a clinic

Day 10:

Specific educational objectives	Contents
At the end of the session the student should be able to: 1. list characteristics of a good Manager/ Team Leader 2. identify weaknesses of a bad Manager/ Team Leader 3. differentiate good management and poor management 4. identify management issues such as logistic supply system, FP user FU and complication management.	1. Management issues 2. Leadership - strengths - weaknesses

Organisation of a clinic. Working as a member of a team. Acting as a supervisor

Day 11

Specific educational objectives	Contents
5. discuss organisational issues related to: - booking of patients, - record keeping, - signed consent forms, - prescription, and - follow-up procedure - issuing & administration of FP methods 6. describe a good referral procedure B. Should acquire the necessary skill and be able to: 1. write report on day visit 2. present in forum	3. Record keeping - booking - signed consent form - follow-up procedure 4. Referral procedure 1. Report writing 2. Presentation

Day 12: Assessment and Feedback

(1) An OSCE will be held. Questions will be based on the educational objectives.

(2) Feedback on performance will be given by different teachers

(3) Students will provide the teacher with feedback on their perception of the course

(4) Marks will be awarded for attendance,
General performance,
Team performance on report and presentation,
The O.S.C.E.
Marks will be sent to the students the week after the course.

4TH YEAR in 3rd Phase GYNAE AND ANTENATAL OUTPATIENT CLINIC
COMPONENT – THREE

2 weeks (12 sessions in the morning)

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 1	Introduction to Gynaecology and obstetrics (a) Commonly used definitions (b) Common diseases prevalent in the community (c) Vital statistics: birth rate, MMR, causes, prevention, perinatal mortality, live birth, still birth (d) Brief students on course objectives/ activities and student's cards.	At the end of the session student will demonstrate knowledge and understanding of: (a) Common gynaecological & obstetrics terms, common disease of O &G that prevalent in the community (b) vital statistics (c) course objectives, activities and students continuous assessment card	Lecture	Participate Discussion Collect student assessment card
Session 2	History taking (obstetric & Gynae history)	Student will be able to: (a) take history of an obstetric and a gynaecological case (b) record the information on the history sheet	Demonstration by teacher	a) Practice by students in groups b) Practice by individual

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 3	Clinical examination (Obstetrical & Gynaecology)	(a) Perform obstetrical & gynaecological examination (i) General (ii) Abdominal	Demonstration by teacher	a) Practice by students in groups b) Individual case study using study guide
Session 4 & 5	(a) Diagnosis pregnancy, antenatal care and advice and advice. (b) Hyperemesis and minor ailments common in pregnancy.	(a) Collect appropriate clinical information by history taking and examination (b) Suggest appropriate investigation (c) Interpret and correlate the results of investigations with clinical findings for clinical diagnosis (d) To plan and rationalize the management	Case demonstration Tutorial	Participation by students Case study in groups
Session 6 to 11	Common out patient gynaecological problem Abdominal swelling, abdominal pain/ P.I.D., vaginal discharge, amenorrhea, menorrhagia, infertility.	-do- Counsel patient or her spouse or relative or hospitalization for any common gynaecological problems	Case demonstration Tutorial Demonstration Role play	Participation by students Case study in groups Role play Practice by students
Session 12	**Assessment (Oral/ Clinical/ OSCE) & feedback**			

5th YEAR in 4th Phase ROUTINE OBSTETRICS

(COMPONENT – FOUR)

3 weeks – 18 sessions in the morning

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 1 & 2	Ante-natal Care and Screening for high risk pregnancies	1. Interpret the findings obtained by history taking physical examination and investigation	Demonstration by a teacher	Practise by case study in groups
		2. Identify anaemia clinically		Case study by group
		3. Identify nutritional status	Lecture	Practice by students on individual cases
		4. Identify hypertension		-do-
		5. Counsel women on importance of	Demonstration by the teacher	
		(a) Regular antenatal care (b) Nutrition (c) Personal hygiene		Role play by students in small group
		(d) Healthy life style during pregnancy (e) Breast feeding (f) Contraception	Role play by a teacher	Exercise with patient

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 3 &4	Hypertensive disorders in pregnancy	(a) Collect appropriate clinical information by history taking and examination (b) Suggest appropriate investigation (c) Interpret and correlate the investigations data with clinical diagnosis (d) Plan and rationalize the management	Case demonstration by the teacher	Practise with problem solving exercise in tutorial
Session 5	Abnormal lie/ presentation (Breech)	-do-	-do-	-do-
Session 6	Multiple pregnancy & hydromnios	-do-	-do-	-do-
Sessions 7 & 8	Medical disorders Diabetes, Heart disease & others	-do-	-do-	-do-
Session 9	Rh isoimmunization/ Grand Multipara / BOH/ H/O / C/S	-do-	-do-	-do-
Session 10	Ante partum haemorrhage	-do-	-do-	-do-
Session 11	I.U.G.R.	-do-	-do-	-do-
Session 12 to 13	Puerperium & its complications	-do-	-do-	-do-

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 14 to 16	Theatre Session Writing of preoperative orders, operation note, post operative order, observe common obstetric operations.	To write preoperative orders, operation notes, post operative orders	Demonstration by teacher	Write preoperative orders, operation notes, post operative orders Observe common obstetric operations
Evening Session	Clerk patients, observe labour room activities and emergency operations and practise skills that the students learned in the morning sessions			
Session 17	**Assessment (Oral/ Clinical/ OSCE**			
Sessions 18	Feedback			

N.B. All students must submit 5 histories and fill up the assessment card.

5TH YEAR in 4th Phase ROUTINE GYNAECOLOGY

(COMPONENT – FIVE)

3 weeks – 18 sessions in the morning

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 1 & 2	Bleeding in early pregnancy Abortion, ectopic pregnancy, molar pregnancy including choriocarcinoma	(a) Collect appropriate clinical information by history taking and examination (b) Suggest appropriate investigation (c) Interpret and correlate the investigations data with clinical findings for clinical diagnosis (d) To plan and rationalize the management	Case demonstration by the teacher Arrange problem solving tutorial	Practise with problem solving exercise in tutorial Case study
Session 3 & 4	Abnormal uterine bleeding/ Amenorrhea	-do-	-do-	-do-
Session 5	Abdominal pain Pelvic inflammatory disease	-do-	-do-	-do-
Sessions 6	Abdomino-Pelvic swelling Ovarian tumour, Fibroid	-do-	-do-	-do-
Session 7 & 8	Infertility Causes, investigations and treatment	-do-	-do-	-do-
Session 9 &10	Genital cancer Carcinoma Cervix, Endometrial Carcinoma	-do-	-do-	-do-
Session 11	Genital tract injuries Vesico vaginal fistula, recto vaginal fistula, third degree perineal tear, vaginal stenosis	-do-	-do-	-do-

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Sessions 12 & 13	Fertility Control O.C.P, P.O.P, post-coital contraception , barrier and natural methods, IUCD, T.O.P/ M.R.	Counsel clients on: Fertility Control O.C.P, P.O.P., post-coital contraception, barrier and natural methods, IUCD, T.O.P./ M.R.	Demonstration by teacher Video Role play Tutorial	Role play Practise with the clients
Sessions 14 to 16	Theatre Session Pre-operative management, post-operative management To Observe common gynaecological operation	Write preoperative orders, operation notes, post operative orders	Demonstration by teacher	Write preoperative orders, operation notes, post operative orders Observe common gynaecological operations
Evening Session	Clerk patients, observe gynae ward activities and practise those had learned in the morning sessions			
Session 17	**Assessment (Oral/ Clinical/ OSCE**			
Sessions 18	Feedback			

N.B. All students must submit 5 histories and fill up the assessment card.

5TH YEAR in 4th Phase/ EMERGENCY OBSTETRIC CARE (EOC) AND LABOUR ROOM

(COMPONENT – SIX)

2 weeks – 12 sessions in the morning

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	STUDENTS' ROLE
Session 1	Management of normal labour, partogram	Recognise the events of labour Plot the events on the partogram and interpret the graph Rationalise the use of analgesic Conduct normal labour	Arrange video show/ Demonstration on partograph Demonstration on conducting normal labour	a. Observe video show b. Observe teacher's demonstration c. Plotting on partograph by individual d. Conduction of labour under supervision
Session 2	Induction of labour	(a) Collect appropriate clinical information by history taking and examination (b) Suggest appropriate investigation (c) Interpret and correlate the investigations data with clinical findings for clinical diagnosis (d) Plan and rationalize the management	Demonstration by the teacher	Practise with problem solving exercise in tutorial
Session 3	Management of bleeding in early pregnancy	-do-	-do-	-do-
Sessions 4	Management of bleeding in late pregnancy	-do-	-do-	-do-
Session 5	Management of eclampsia	-do-	-do-	-do-
Session 6	Management of prolonged and obstructed labour/ ruptured uterus	-do-	-do-	-do-
Session 7	Management of retained plaenta & PPH	-do-	-do-	-do-
Session 8	Management of shock & sepsis	-do-	-do-	-do-
Session 9	Obstetric operations (C.S, Forceps & ventouse deliveries, craniotomy.)	Write preoperative orders, operation notes, post operative orders	Demonstration by teacher	Write preoperative orders, operation notes, postoperative orders Observe obstetric operations

SESSION	TOPIC	LEARNING OBJECTIVES	TEACHING METHOD	
			TEACHERS' ROLE	**STUDENTS' ROLE**
Sessions 10	Clinical Project work	Present a case in a small group or seminar	Allocate students the project works. At the outset of the labour room placement the students will be divided into sub groups and allotted with a common clinical problem.	They will collect data and information about etiology, diagnosis and management of the problem which will be presented by them during this session
Evening Session	Review sessions 1– 9:			
Session 11	**Assessment (Oral/ Clinical/ OSCE**			
Sessions 12	Feedback			

OBSTETRICS & GYNAECOLOGY MBBS COURSE SCHEDULE

4th YEAR M.B.B.S in 3rd Phase

Lecture 28 hours + Evaluation 2 hours =30 hours

TERM– I = 15 hours		TERM– II = 15 hours	
Lecture – 14 hours	Evaluation 1hr (MCQ, SBA, SEQ, SAQ)	Lecture – 14 hours	Evaluation 1hr (MCQ, SBA, SEQ, SAQ)
Obstetrics		Gynaecology	

5th YEAR M.B.B.S in 4th Phase

Lectures 60 hours+ Demonstration/Practical/Tutorial 58 hours+Departmental Integrated teaching = 20 hours + Phase IV Common Integrated teaching =126 hours

TERM – 1 = 20hours		**TERM – II = 22 hours**		**TERM – III = 18 hours**		**Demonstration/Practical/Tutorial in TERM I, II & III= 58 hours**
18hours	**Evaluation 2hr**	**20 hours**	**Evaluation 2hr**	**16 hours**	**Evaluation 2hr**	
Lecture –18hours	*NB: Lectures will be followed by evaluation* (MCQ, SBA, SEQ, SAQ)s	Lecture – 20 hours	*NB: Lectures will be followed by evaluation* (MCQ, SBA, SEQ, SAQ)	Lecture – 16 hours	*NB: Lectures will be followed by evaluation* (MCQ, SBA, SEQ, SAQ)	Demonstration / Video presentation
Gynae – 8 hrs Obs – 10hrs		Gynae – 8hours Obs – 12 hours		Gynae –9 hours Obs –7 hours		Gynae & Obs

(*) A demonstration will be a practical teaching session with a small group of students. It will be based on a patient's history, specimens or instruments, graphs or models or employ a video. Student participation is expected.

***Integrated teaching : Only for 5th year**

Final Professional Examination

Assessment of Gynaecology & Obs.

Components	Marks	Total Marks
WRITTEN EXAMINATION		
Paper – I –MCQ (SBA & Multiple true-false question)	10+10 =20	
SAQ	5x10= 50	100
SEQ	10x2= 20	
Two groups,in each group 5 SAQ ,1 SEQ		
Marks from formative assessment	10	
		100
Paper - II-MCQ(SBA & Multiple true-false question)	10+10 = 20	
SAQ	5x10 = 50	
SEQ	10x2 = 20	
Two groups, in each group 5 SAQ ,1 SEQ		
Marks from formative assessment	10	
PRACTICAL EXAMINATION		
OSCE / OSPE		100
CLINICAL EXAMINATION		
Obs. Case	50	100
Gynae. Case	50	
ORAL EXAMINATION (**Structured**)		
Obs	50	100
Gynae	50	
Grand Total		**500**

➢ Pass marks 60 % in each of theoretical, oral and practical

There will be separate answer script for SBA & Multiple true-false question

Generic Topics on Medical Humanities for Internship Period

The following academic sessions will be held at the initial part of internship training period under supervision of Phase-IV coordination committee in collaboration with medical education unit (MEU). The session will be under the guidance of Director and Deputy Director of the concerned hospital, coordinated by Medicine Department and the sessions will be conducted by concerned experts. Each session will be one and half hour.

Topics:

1. White coat ceremony
2. Career planning
3. Continuing Medical Education (CME) & Continuing Professional Development (CPD)

Topics	Learning objective	List of Contents	Method	Time
White coat ceremony	• state the ethical codes of BMDC for doctors • state International code of medical ethics • state Declaration of Geneva • take Oath (Hippocratic oath)	• Ethical codes of BMDC for doctors • International code of medical ethics • Geneva declaration • Oath taking (Hippocratic oath)	Interactive Lecture Or Seminar	One and half hour
Career planning	• define carrier planning • list the carrier options for medical graduates in the country • list the carrier options for medical graduates internationally • mention the strategies to be chose best carrier for you as a doctor	• Definition of carrier planning Carrier options for medical graduates in the country • Carrier options for medical graduates internationally • Strategies to be chose best carrier for you as a doctor	Interactive Lecture Or Seminar	One and half hour
Continuing Medical Education (CME) & Continuing Professional Development (CPD	• define CME & CPD • mention importance of CME & CPD for a doctors • describe means of CME & CPD for a doctors • list the barrier of CME & CPD and ways of overcoming those barriers	• Definition of CME & CPD • Importance of CME & CPD for a doctors • Means of CME & CPD for a doctors • Barrier of CME & CPD and ways of overcoming those barriers	Interactive Lecture Or Seminar	One and half hour

Others –

Topics	Learning objective	List of Contents	Method	Time
Basic Infection control practice	• Define the healthcare – associated infection (HAI) • Describe the global burden and Bangladesh situation of HAI • Illustrate the chain of infections • Mention the root of transmission of infection • Describe different issues related to standard precautions • Describe different transmission-based Precaution • Perform different activities related to infection control practices	• healthcare –associated infection (HAI) • global burden and Bangladesh situation of HAI • chain of infections • transmission of infection • standard precautions • transmission-based Precaution • infection control practices - hand washing and rubbing - respiratory hygiene and cough etiquette - use PPE - needle stick injury - disinfection and sterilization - linen and waste management	Interactive lecture, case studies, demonstration	5 hrs

Appendix I

MBBS doctors will be competent enough to diagnose and manage the following diseases / health problems.

Medicine and Allied Subjects

Diarrhoea Common cold, upper respiratory tract infection, Pneumonia Fever (especially viral fever / flue / hyperpyrexia) Enteric fever Shigellosis, Amoebic dysentery Peptic ulcer diseases, GERD, Dyspepsia, Vomiting , Hiccough, Dysphagia & Constipation Irritable Bowel Syndrome Jaundice / Viral hepatitis Hypertension U T I Diabetes Mellitus Headache (especially migraine and tension headache) Anaemia (nutritional) Cough, Bronchial asthma, Bronchitis Arthritis & arthralgia, Rheumatoid arthritis, Osteoarthritis of knee, Gout Tetany	Tuberculosis, Leprosy, Malaria, Kala-azar, Dengue, Measles, Mumps, Chickenpox, Tetanus, Pertussis, Filariasis, Insect bite, Snake bite (nonpoisonous) Mild to moderate adverse reaction of drugs Helminthic infestation Febrile convulsion Rheumatic fever Neonatal care Infantile colic Bronchiolitis Nutritional assessment, growth monitoring & nutritional counseling Counseling for breast feeding and weaning (complementary feeding) Mild malnutrition /PEM /obesity/ underweight Deficiency disorders (Specially Vitamin-A, Iodine, Iron, Vitamin-B and protein) Physiological jaundice, Omphalitis Nocturnal enuresis, Overactive bladder / urge incontinence	Scabies Urticaria/ Allergy Atopic dermatitis / Eczema /contact dermatitis Candidiasis & Ringworm Pityriasis versicolor Syphilis & genital ulcers Gonorrhoea / Urethritis & vaginitis Herpes simplex / herpes zoster Acne Impetigo /bacterial Skin infection Aphthous ulcer Seborrheic dermatitis Uncomplicated psychiatric disorders (Anxiety neurosis, HCR) Malingering Vertigo Insomnia Bell’s palsy

Surgery and Allied Subjects

Abscess (superficial), Boil, Carbuncle, paronychia, Erysipelas, cellulitis, Minor trauma, wound, haemorrhage, burn and animal bite Lymph adenitis Corn, pyogenic granuloma, watt Sebaceous cyst, superficial tumours Epididymo-orchitis Circumcision	Frozen shoulder Back pain, Cervical pain & other musculoskeletal pain Conservative management of tonsillitis, sinusitis, acute otitis media Rhinitis (allergic, viral) Infantile dacryocystitis, Sty Conjunctivitis (allergic, viral, bacterial) Non impacted foreign body in eye, ear and nose

Obstetrics and Gynecology

Ante natal care Conduction of normal labour Intra- natal and post natal care of mother and child Birth spacing and family planning advice	Trichomoniasis, Moniliasis Menstrual disorders Pelvic inflammatory disease Post-menopausal syndrome

Appendix II

MBBS doctors will be competent enough to diagnose and refer after primary management of the following diseases /health problems

Medicine & Allied Subjects

Acute severe chest pain Diabetes with complications Complicated hypertension Valvular heart diseases Left ventricular failure Complicated pneumonia, Respiratory failure, Pleural effusion, haemothorax, pneumothorax, Meningitis, Septicemia Pancreatitis Cancers / carcinomas Snake bite (poisonous) Oedema , ascites, CCF, Chronic liver diseases	Complicated UTI, Acute renal failure, Chronic renal failure, Nephrotic syndrome, Acute glomerulonephritis (AGN) Cerebro vascular accident Parkinson's disease Urinary & fecal incontinence Loss of libido, impotency, premature ejaculation MDR and complicated Tuberculosis, Typhoid, Rabies, HIV & AIDS, Polio, Diphtheria Psoriasis, severe drug reactions / SJS, Arsenecosis Drug addiction, Complicated psychiatric disorders (schizophrenia, depressive illness, psychosomatic disorders, personality disorders etc.)	Persistent Diarrhoea, Febrile convulsion (1st attack) Ascariasis crisis Severe Under-nutrition / PEM / Low birth weight, prematurity, Birth asphyxia, birth injury, neonatal septicemia, high neonatal jaundice Delayed mile stone of development (cretinism, Autism), Epilepsy Haemophilia, purpura, haemepoetic disorders, leukemia, Goiter, hypothyroidism, Thyrotoxicosis, hormonal disorders Congenital diseases and deformities

Surgery & Allied Subjects

Deep abscess Complicated trauma, wound, haemorrhage and burn (including acid injury), Appendicitis, Cholecystitis and cholelithiasis Hydrocele, hernia & testicular torsion Intestinal obstruction (including gastric outlet obstruction, intussusception, volvulus), perforation, peritonitis, paralytic ileus,	Stone in urinary tract, retention of urine, prostatic enlargement, haematuria Fracture of bone, dislocation of joints, Gangrene, deep vein thrombosis, head / spinal injury, injury to vital organs Disc prolapse, osteomyelitis Per rectal bleeding (Anal fissure, Rectal polyp, Hemorrhoids, rectal cancer) Deep tumor and cancer Peripheral vascular occlusive diseases	Cataract, pterygium, Refractive error, Glaucoma, corneal ulcer & corneal injury, Chalazion, Impacted foreign body in eye, ear & nose Perforation and injury of tympanic membrane, Deafness, epistaxis, Chronic tonsillitis, Chronic otitis media, Chronic sinusitis,

Obstetrics and Gynecology

High risk pregnancy APH, IPH, PPH Eclampsia & preeclampsia Obstructed Labour Ectopic pregnancy Abortion DUB	Pelvic tumor (fibroid uterus, ovarian tumour, hydatidiform mole, Ca cervix etc.) Sterility	Obstetrical and Gynecological cases with medical conditions with like heart, renal diseases etc.

Appendix III

MBBS doctors will be competent enough to perform the following professional task independently--

Taking history from patient systematically	All clinical subjects,
Performing general and systemic examination of patient	
Writing and interpretation of history and examination findings of a patient for provisional diagnosis.	
Advising appropriate investigations and interpretation of the investigation findings to conform the diagnosis.	
Writing rational prescription	Pharmacology, All clinical subjects
Identifying any adverse effect of those dug and taking necessary measure to protect the patient	
Writing a discharge certificate as per ICD	All clinical subjects, Physiology & Pathology
Writing a death certificate as per ICD	
Writing a requisition form for different investigation	
Measuring blood pressure, pulse rate, body temperature	
Introducing naso gastric (N/G) tube, mouth gauge	
Introducing enema simplex, flatus tube,	
Performing tepid sponging	
Performing air-way suction	
Appling pressure bandage	
Performing CPR	
Performing P/R examination	
Tacking care of bed sores	
Tacking care of peripheral and central venous line	
Maintaining a input & output chart	
Performing pre-operative management when it is indicated	Surgery, Gynecology and Obstetrics'
Collecting sputum for AFB	Pathology, Biochemistry & Physiology
Collecting , preserving and sending of blood and urine samples for different investigations including culture	
Collecting , preserving and sending of body tissues for histopathology	Pathology & all clinical subjects
Measuring urine protein, sugar & urine analysis	Pathology, Physiology, all clinical subjects
Performing pregnancy test	Pathology, Gynecology and Obstetrics'
Measuring Hb%, ESR, TC, DC, TPC	Pathology, Physiology
Preparing blood film for malarial parasite	
Measuring blood glucose	Pathology & Biochemistry
Taking nose, throat, skin and wound swabs	Microbiology, all clinical subjects
Performing and interpreting a electrocardiograph (ECG)	Medicine, Physiology
Performing and interpreting basic respiratory function tests	
Performing lumber puncture	

Appendix III continued

Administering oxygen	All clinical subjects
Making up drugs for parenteral administration	
Administering intravenous, intramuscular, subcutaneous and intradermal injections	
Establishing peripheral intravenous access including venipuncture and setting up an infusion devices	
Establishing safe blood transfusion / fluid infusion	
Dosage and administration of insulin and use of sliding scales	
Introducing male and female urinary catheter	
Maintaining correct techniques for 'moving and handling' of sick and injured patients	
Use of personal protective equipment (gloves, gowns, masks)	
Controlling cross infection among patients in relation to procedures and infectious patients	
Ensuring safe disposal of clinical waste, needles and other 'sharps'	
Explaining the patients and attendants about the disease and its outcome	
Giving information about the procedure and treatment options to the patients and attendants	
Obtaining and recording consent from patients and attendants for invasive procedure	
Developing and maintaining medical records	
Counseling the patients and attendants about the medication and aftercare	
Giving follow-up to the patients when needed	
Instructing patients and attendants about oral, per rectal, parenteral, tropical and inhaler medications including eye and ear drops.	Pharmacology, All clinical subjects
Washing hands (including surgical 'scrubbing up' before any invasive procedure)	Surgery Gynaecology and obstetrics
Handling of sterile instruments	
Ensuring wound care and basic wound dressing	
Use of local anaesthetics	
Skin suturing	
Nutritional assessment, growth monitoring, nutritional advice	Community medicine Pediatrics Obstetrics
Birth spacing & family planning	
Immunization advice	
Breast feeding and weaning / complementary feeding advice	
Advice of hygiene and healthy lifestyles	Community medicine All clinical subjects
Participating in disaster management (cyclone, earth slide, flood, epidemic outbreak, earth quake etc.), Perform triage, Perform mass casualty management(MCM)	
Work in community setting	
Promoting community health of people and preventing communicable and non-communicable diseases at individual and community level by counseling and involving in the activities about safe drinking water, food safety, healthy life styles, sanitary disposal of wastage and refuse, environmental sanitation, occupational health, school health program etc.	Community medicine
Conduct survey to assess community health problems and using health related data to provide cost effective better health care.	
Injury/assault assessment for medico-legal purposes	
Performing autopsy for medico-legal purposes, Handling & Managing Dead body	Forensic medicine
Writing report for medico-legal purposes /writing medical certificates.	

Appendix IV

MBBS doctors will be competent enough in providing management in following emergency situation and will be able to refer the patients appropriately when necessary-

Acute chest pain / Ischemic heart diseases (Myocardial Infraction) Acute abdomen Any kind of moderate to severe pain CVA / Unconscious patients / Convulsion Pre-coma, Coma and All types of Shock Cardio Respiratory arrest Dyspnoea Cyanosis Dehydration Haemorrhage Anaphylactic reactions	Electrolyte imbalance Drowning Poisoning, Snake bite Burn including Acid injuries Haematemesis Melaena Haemoptysis Severe vomiting Pancreatitis All types of injuries , Road Traffic Accidents Mass casualty (cyclone, flood, epidemic outbreak, earth quake etc.)

Doctor should refer a case when there is any complication in the course of treatment / management.

The areas of the competencies listed in the above table have shown to be obtained from one or more disciplines arbitrarily. In reality, to obtain one single competency multiple disciplines (possibly all) have to contribute.

This list provided to find out the minimum competencies that all doctors must be obtained from MBBS course and internship training. A MBBS doctor may show more competencies in certain areas beyond the list.
List of competencies are also provided in the concerned subject.

Appendix –V

Outline of a Prescription

Registration No:….....

Name of Doctor
Degree(s), (Specialty)
Address of Chamber
Telephone No:

Name of Patient: ……...

Age : ……..... Sex : …….....

Address of Patient : …….....

Chief complaints :

-
-
-

Examination findings :

- Pulse…./min
-
-

Investigation :

-
-
-

Provisional diagnosis :
……
Diagnosis :
……

Advise :

-
-
-

℞

1.
2.
3.

Signature of Doctor

Date : …….

Reg. No.: ……..

Appendix –VI

Outline of Medical & Fitness Certificate

Signature of the applicant ……

After careful examination of the case hereby I certify that Mr./Ms. …… whose signature is given above, is suffering form …….. . I consider that a period of absence from duty / study / job for ……days with effect from ……. to …… is absolutely necessary for the restoration of his / her health.

Place :
Date :

(Signature of Doctor)
Name of the Doctor
Registration No:

CERTIFICATE OF MEDICAL FITNESS

Signature of Applicant : …….

After careful examination of the case hereby I certify that Mr./Ms. ……..……whose signature is given above is now fit to resume duty / study / job from ……... . I also certify that before arriving at my decision I have examined the original medical certificate(s) and statement(s) of the case (or the certified copies thereof) on which leave was granted or extending, and have taken these in consideration in arriving at my decision.

Place :
Date :

(Signature of Doctor)
Name of the Doctor
Registration No:

Appendix –VII

List of the Contributors in the year 2020

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