

# Hand Book for Students

## MBBS COURSE REGULATIONS

(subject to modification from time to time)



**Dr. NTR UNIVERSITY OF HEALTH SCIENCES  
VIJAYAWADA – 520 008**

## **REGULATIONS FOR MBBS DEGREE COURSE**

These regulations shall be called “The revised regulations for the MBBS course of the Dr. NTR University of Health Sciences, Vijayawada”. These regulations are applicable to the students who are admitted to the course.

### **I. General Considerations and teaching approach:**

1. Graduate medical curriculum is oriented towards training students to undertake the responsibilities of a physician of first contact who is capable of looking after the preventive, promotive, curative and rehabilitative aspects of medical care.
2. With a wide range of career opportunities available today a graduate has a wide choice of career opportunities. The training, though broad based and flexible should aim to provide an educational experience of the essentials required for health care in our country.
3. To undertake the responsibilities of various service situations, it is essential to provide adequate placement training tailored to the needs of such services. To avail of opportunities and to engage in professional activities the graduate shall endeavor, to acquire basic training in different aspects of medical care.
4. The importance of the community aspects of health care and of rural health care services is to be emphasized. This aspect of education and training of graduates should be adequately recognized in the prescribed curriculum. Adequate exposure, to such experiences should be available in all the three phases of graduate medical education and training. This has to be further intensified by providing exposure to field practice areas and training during the internship period. The aim of the period of rural training during internship is to enable the fresh graduates to function effectively under such settings.
5. The training should emphasize health and community orientation instead of concentrating only on disease and hospital orientation or being concentrated on curative aspects. As such all the basic concepts of modern scientific medical education are to be adequately dealt with.
6. Enough opportunity must be provided for self-learning. The methods and techniques that would ensure this must become a part of the teaching-learning process.
7. The medical graduate of modern scientific medicine should be capable of functioning independently in both urban and rural environment. He/she shall endeavor to master the fundamental aspects of the subjects taught and all common problems of health and disease avoiding unnecessary details of specialization.
8. The importance of social factors in relation to the problems of health and disease should receive proper emphasis through out the course, to achieve this purpose the educational process should also be community based rather than only hospital based. The importance of population control and family welfare planning should be emphasized throughout the period of training with the importance of health and development duly emphasized.

9. Adequate emphasis is to be placed on Cultivating logical and scientific habits of thought, clarity of expression and independence of judgement, ability to collect and analyze information and to correlate the facts.
10. The educational process should be placed in a historical background as an evolving process and not merely as an acquisition of a large number of disjointed facts without a proper perspective. The history of Medicine with reference to the evolution of medical knowledge both in this country and in the rest of the world should form a part of this process.
11. Lectures alone are generally not adequate as a method of training and a means of transferring information and are even less effective at skill development and in generating the appropriate attitudes. Every effort should be made to encourage the use of active methods related to demonstration and first hand experience. Students shall be encouraged to learn in small groups through sheer interactions so as to gain maximal experience through contact with patients and the communities in which the patients live. While the curriculum objectives often refer to areas of knowledge or science, they are best taught in a setting of clinical relevance with hands on experience for the students to assimilate and make this knowledge a part of their own working skills.
12. The graduate medical education in clinical subjects should be based primarily on teaching in outpatient and emergency departments and within the community including peripheral health care institutions. The outpatient departments should be suitably planned to provide training to graduates in small groups.
13. Clinics should be organized in small groups of preferably not more than 10 students so that a teacher can give personal attention to each student with a view to improving his skill and competence in handling of patients.
14. Proper records of the work should be maintained which will form a basis for the student's internal assessment. They should be available to the inspectors at the time of inspection of the college by the Medical Council of India.
15. Maximal efforts have to be made to encourage integrated teaching amidst traditional subject areas using a problem based learning approach starting with clinical or community cases and exploring the relevance of various pre-clinical disciplines in both understanding and resolving a problem. Every attempt must be made to avoid compartmentalization of disciplines so as to achieve both horizontal and vertical integration in different phases. In the integrated teaching programme, an ETHICAL class, personality development teaching has to be conducted to improve the students discipline and capabilities.
16. Every attempt is to be made to encourage students to participate in group discussions and seminars to enable them to develop personality, character, expression and other faculties which are necessary for a medical graduate to function either in solo practice or as a team member/leader when he begins his independent career. A discussion group should not have more than 20 students.
17. Faculty members should avail of modern educational technology while teaching the students. To attain this objective Medical Education Units/Departments should be established in all medical colleges for faculty development and for providing learning resource material to teachers.

18. To implement this revised curriculum the vacation period of students in one calendar year should not exceed one month during the 4½ years Bachelor of Medicine and Bachelor of Surgery (MBBS) course.

## II. Eligibility

1. No candidate shall be admitted to the Bachelor of Medicine and Bachelor of Surgery (MBBS) course until he/she has completed the age of 17 years on or before 31<sup>st</sup> December of the academic year in which the candidate is seeking admission.
2. No candidate shall be admitted to the first Bachelor of Medicine and Bachelor of Surgery (MBBS) course until he/she has passed a qualifying examination as under.
  - a) Two years intermediate examination of Board of Intermediate Education, Andhra Pradesh under 10+2 pattern with Physics, Chemistry, Botany, Zoology or Biology as optional which shall include a practical test in each subject. (OR)
  - b) Any other examination (of 10+2 pattern) recognised by the University in Andhra Pradesh or Board of Intermediate Education, Andhra Pradesh, with Physics, Chemistry and Biology as optional subjects which shall include a practical test in each of these subjects. (OR)
  - c) The pre-professional / premedical examination with Physics, Chemistry and Biology, after passing either the higher secondary school examination or the Pre-University or an equivalent examination. The pre-professional/pre-medical examination shall include a practical test in Physics, Chemistry & Biology and also English as a compulsory subject. (OR)
  - d) The first year of the three years degree course of a recognized University, with Physics, Chemistry and Biology including practical test in these subjects provided the examination is a University Examination and candidate has passed 10+2 with English at a level not less than a core course. (OR)
  - e) B.Sc Examination of an Indian University, provided that he/she has passed the B.Sc examination with not less than two of the following subjects - Physics, Chemistry, Biology (Botany, Zoology) and further that he/she has passed the earlier qualifying examination with the following subjects - Physics, Chemistry, Biology and English. (OR)
  - f) Any other examination whose scope and standard is found to be equivalent to the intermediate science examination of an Indian University/Board, taking Physics, Chemistry and Biology including a practical test in each of these subjects and English.

- Note: i) The pre-medical course may be conducted either in a Medical College or Science College.
- ii) The marks obtained in Mathematics are not to be considered for admission to MBBS course.
- iii) Candidates possessing qualification of the University / Board of an institution outside the State should produce a Certificate of Equivalence from the Registrar, Dr. NTR University of Health Sciences, Vijayawada

### **III. SELECTION OF STUDENTS :**

The selection of students to medical colleges is based on the merit of the candidates in the EAMCET examination conducted by the Government of Andhra Pradesh.

- a) To be eligible for competitive entrance examination, the candidate must have passed any of the qualifying examinations as enumerated above at II.
- b) A candidate for admission to medical course must have passed Physics, Chemistry, Biology and English individually and must have obtained 50% marks in Physics, Chemistry and Biology taken together, both at qualifying examination.
- c) However, in respect of candidates belonging to scheduled castes / Scheduled Tribes and other Backward Classes (OBC) the qualifying marks should be 40% instead of 50%.

### **IV. REGISTRATION:**

A candidate admitted to the course in any of the affiliated colleges shall apply for registration with this University in the prescribed form within one month from the date of joining the college. The application for registration in the prescribed form along with the fee prescribed should be submitted to this University through the Head of the College. The University in turn will allot an identification number that will be valid till the student completes this course. Without this identification number, the student will not be considered as a bonafide student of the university and his application for the university exam will not be accepted.

### **V. DURATION OF THE COURSE:**

The duration of the certified study of the Bachelor of Medicine and Bachelor of Surgery course shall be 4½ Academic Years followed by one year compulsory rotating Internship. Normally the MBBS course shall commence on the 1<sup>st</sup> August of an academic year.

The period of 4½ years is divided into (9 semesters each semester of 6 months) three phases.

1 <sup>st</sup> MBBS Examination during 2 <sup>nd</sup> (second) Semester	2 <sup>nd</sup> MBBS Examination during 5 <sup>th</sup> (fifth) Semester	3 <sup>rd</sup> MBBS Part -I Examination during 7 <sup>th</sup> (seventh) Semester	3 <sup>rd</sup> MBBS Part -II (final) Examination during 9 <sup>th</sup> (ninth) Semester	<b>Internship</b>						
<b>Phase -1</b>		<b>Phase 2</b>			<b>Phase 3</b>					
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>
<b>Each Semester is of 6 months duration</b>										

- a Phase-I (1<sup>st</sup> MBBS) (1 year two semesters) consists of **preclinical** subjects (Human Anatomy, Physiology including Bio-Physics, Bio-chemistry and introduction to Community Medicine including Humanities). Besides 60 hours for introduction to Community Medicine including Humanities rest of the time shall be somewhat equally divided between Anatomy and Physiology plus Bio-chemistry combined. The time shared between the letter two will be in the ratio of 2:1
- b Phase-II (2<sup>nd</sup> MBBS) (1½ years-three semesters) consists of **para clinical & clinical** subjects. The para-clinical subjects shall consist of Pathology, Pharmacology, Microbiology, Forensic Medicine including Toxicology and part of community Medicine. During this phase teaching of para-clinical and clinical subjects shall be done concurrently. The clinical subjects shall consist of all those detailed below in Phase-III of the time for para-clinical teaching approximately equal time shall be allotted to Pathology, Pharmacology, Microbiology and Forensic Medicine & Community Medicine combined (1/3 Forensic Medicine and 2/3 community Medicine).
- c Phase-III (3<sup>rd</sup> MBBS) (Two year's-four semesters) Continuation of study of **clinical** subjects from Phase-II. The clinical subjects to be taught during phase-II and III are Medicine and its allied specialties, Paediatrics, Surgery and its allied specialties including Orthopaedics, Obstetrics and Gynaecology, Community Medicine and Emergence Medicine.
- i. The training in Medicine and its allied specialties will include General Medicine, Paediatrics, Tuberculosis and Chest diseases, Skin and Sexually Transmitted diseases, Psychiatry, Radio-diagnosis, Infectious diseases etc.
  - ii. The training in Surgery and its allied specialties will include General Surgery, Orthopaedics including Physiotherapy and Rehabilitation, Ophthalmology, Oto-Rhinolaryngology, Anaesthesia, Dentistry, Radio-therapy etc.
  - iii. The Obstetrics & Gynaecology training will include family medicine, family welfare, planning etc.,
  - iv. Emergency Medicine: This must be a general department. Till such time a full fledged department is created this may be under the control of the department of anaesthesia.

Besides clinical postings the rest of the teaching hours should be divided between didactic lectures, demonstrations, seminars, group discussions etc., in various subjects.

The clinical posting in Community Medicine for one month each in the semesters of IV, VI & VII instead of the present of postings in the III, IV & VI semesters. The postings in VII semester will be more useful as the students will be appearing for University examination at the end of 7<sup>th</sup> semester.

**VI. PROMOTION**

- a) Passing in 1<sup>st</sup> professional is compulsory before proceeding to phase II training.
- b) A student who fails in the II professional examination, shall not be allowed to appear in III professional Part-1 examination unless he passes all subjects of II professional examination.
- c) Passing in III Professional (Part 1) examination is not compulsory before entering for 8<sup>th</sup> and 9<sup>th</sup> semester training, however passing of III professional(Part-I) is compulsory for being eligible for III professional (Part-II) examination.

**VIII. MEDIUM OF INSTRUCTION**

English shall be the medium of instruction for study and examinations of the Bachelor of Medicine & Bachelor of surgery course.

**IX. ATTENDANCE:**

75% of attendance in a subject is compulsory inclusive of attendance in non-lecture teaching i.e. seminars, group discussion, tutorials, demonstrations, practicals, hospital postings, bedside clinics, failing which the student will not be permitted to appear for the University exam with his batch of students. Attendance shall be calculated from the total number of hours prescribed by UHS / MCI and not the number of classes conducted.

Referred students should also have 75% of attendance in both theory and practical.

**X. INTERNAL ASSESSMENT :**

- a) General consideration applicable to all subjects of MBBS:
  1. Internal assessment marks including 50% theory and 50% practicals / clinicals in all subjects.
  2. A student must secure at least 35% marks of the maximum marks fixed for internal assessment in a particular subject to be eligible to appear for the final university exam of that subject.
  3. Regular, Periodical notified examinations with, notified syllabus shall be conducted.
  4. Last exam conducted is pre final it is mandatory and should be conducted university exam pattern i.e. theory, practical /clinical.
  5. 5 marks are earmarked for record to be included in practical internal assessment examinations for all subjects.
  6. If only one practical examination is conducted, those marks are mandatory for considering the internal assessment marks. If the candidate is absent for any of the exams, the marks in that exam shall be taken as zero.
  7. The internal assessment marks shall be displayed in the notice board and shall be dispatched to the university soon after each internal assessment examination. As per the existing rules internal assessment marks should be sent so as to reach the University atleast two weeks before the University theory examination.

8. While forwarding the examination application forms of the students, the Principals should check the attendance, internal assessment marks and name as in intermediate / equivalent certificate.
9. Fresh internal assessment examination is mandatory to the referred and detained students. The previous internal assessment marks will not be considered. (vide 183<sup>rd</sup> resolution of Executive Council of Dr. NTR UHS dt,06-06-2009).

**b) 1<sup>st</sup> MBBS :**

Minimum number of internal assessment exams shall be 4 in each subject out of which atleast one will be in Practical / Clinicals. Internal assessment examinations shall be conducted uniformly in all colleges in a particular period as notified by the University. The last internal assessment examination should be completed 20 days before the commencement of final examination with preparation holidays of 10 days. After ignoring the marks of the examination in which the candidate got the least marks, the average marks of the remaining examinations will be counted. The theory and practical marks should be considered separately and computed as below. MCQs can be introduced in the internal assessment examinations.

If marks obtained by a candidate are 12, 16 and 10 out of 20 in the I, II and III internal theory exams i.e. pre final exam then best of the first two exams=16; III exam=10.

Average of the two = 13.

Theory =  $\frac{13}{20}$ ; Practical =  $\frac{17}{20}$ ; Total =  $\frac{30}{40}$

Record marks shall be included in practical internal assessment examinations.

**c) II MBBS :**

Pathology, Microbiology and Pharmacology subjects are allotted 30 marks each while Forensic Medicine subject is allotted 20 marks for Internal assessment.

Two Theory Internal Assessment examinations should be conducted at the end of 3rd and 4th semesters and one theory and one practical internal assessment examinations will be conducted at the end of 5th semester.

**d) Final MBBS Part-I : & Final MBBS Part-II:**

A minimum of Two Theory Internal Assessment examinations and one clinical internal assessment examination will be conducted for all the subjects of Final MBBS. The aggregate of all these three internal assessment examinations will be taken as internal assessment marks and should be reduced to the level of internal assessment marks. ENT, Ophthalmology and Paediatrics have each 20 marks, Obst. + Gynace. 30, Community Medicine 40 and General Medicine and Surgery each has 60 internal assessment marks.



**XI. RE-ADMISSION AFTER DISCONTINUATION BREAK OF STUDY:**

Every student shall attend his/her classes (Theory, Practical and Clinical) on all working days unless the Principals grants him / her leave of absence. If a student absents continuously for a period of 91 days or more and seeks permission to attend the course before one year after discontinuation, his/her application shall be forwarded to Registrar while permitting the student to join. The Vice-chancellor may grant leave of absence attaching such conditions as he may deem necessary. Candidates who are absent for continuous period of one year or more without permission shall be deemed to have forfeited the admission into the course and his/her studentship shall stand cancelled with out any further notice.

**XII. MIGRATION / TRANSFER OF CANDIDATES :**

1. Migration of students from one medical college to another medical college in India shall be granted only in exceptional cases to the most deserving among the applicants for good and sufficient reasons and not on routine grounds. The number of students migrating to / from any one medical college shall be kept to the minimum which shall in any case not exceed the limit of 5% of its sanctioned intake in one academic year. There shall be no migration on any ground from one medical college to another located in the same city.
2. Migration of students from one college to another is permissible only if both the colleges are recognized by the Central Government under section 11(2) of the Indian Medical Council Act, 1956 and further subject to the condition that it shall not result in increase in the sanctioned intake capacity for the academic year concerned in respect of the receiving medical college.
3. The applicant candidate shall be eligible to apply for migration only after qualifying in the first professional MBBS examination. Migration during clinical course of study shall not be allowed on any ground.
4. For the purpose of migration, an applicant candidate shall first obtain 'No Objection Certificates' from the college where he is studying for the present, the University to which it is affiliated, to the college to which migration is sought and the University to which that college is affiliated to. He shall submit his application for migration within a period of one month of passing (declaration of results) of the first professional MBBS examination alongwith the said 'No Objection Certificates' to the Director, Medical Education of the State where the College / Institutions including Deemed Universities to which migration is sought is situated or to the Head of the Institution is case migration is sought to a Central Government institution. The Director, Medical Education of the State concerned or the Head of the Central Government institution, as the case may be, shall take a final decision in the matter as to whether or not to allow migration in accordance with the provisions of these Regulations and communicate the same to the applicant student within a period of one month from the date of receipt of the request for migration.

5. A student who has joined another college on migration shall be eligible to appear in the IInd professional MBBS examination only after attaining the minimum attendance in that college in the subjects, lectures, seminars etc. required for appearing in the examination prescribed under MCI Regulation at clause 12 (1) i.e. about attendance given at rule IX in page No.6 of this book.

Note-1: The State Governments/ Universities/Institutions may frame appropriate guidelines for grant of No Objection Certificate or migration, as the case may be, to the students subject to provisions of these regulations.

Note-2: Any request for migration not covered under the provisions of these Regulations shall be referred to the Medical Council of India for consideration on individual merits by the Director (Medical Education) of the State or the Head of Central Government Institution concerned. The decision taken by the Council on such requests shall be final.

Note-3: The College / Institutions shall send intimation of the Medical Council of India about the number of students admitted by them on migration within one month of their joining. It shall be open to the Council to undertake verification of the compliance of the provisions of the regulations governing migration by the Colleges at any point of time”.

XIII. **VACATION:**

The vacation for the students is 30 days per academic year. The vacation may be declared by the Principal in phased manner at the discretion of the Principal taking into consideration two weeks of summer vacation and the remaining period for religious festivals.

XIV. **COMPULSORY INTERNSHIP:**

1) General:

Internship is a phase of training wherein a graduate is expected to learn methods / modalities for actual practice of medical and health care and acquire skills under supervision so that he/she may become capable of functioning independently.

2) Foundation course stage III:

The purpose, at this stage, is to facilitate intern to put into day to day practice all the knowledge, skills and attitude learnt during the earlier years. The course should be designed so as to relate the same with the national health policies and programmes. The contents to be included are:

1. Professional behaviour and Ethics.
2. Writing clinical notes in outpatient as well as inpatient record along with daily progress. notes, discharge slips and case summaries.
3. Rational therapeutics.
4. Appropriate use of laboratory, radiological and other diagnostic tools.
5. Medicolegal documentations (under supervision/guidance).
6. Proper collection, labeling, storage and dispatch of specimens.

7. Getting informed consent.
8. Introduction to International Classification of Disease.
9. Knowledge about various regulations and code of conduct.
10. Sensitization to the behavioral and sociocultural aspect of the community where he/she is likely to be placed.
11. Obtain dying declaration.
12. BTLS and trauma support.
13. Managerial skills including leadership and team work.
14. Health economics.
15. Management of biomedical waste.
16. Concept of Evidence Based Medicine.
17. Decision making.

**Teaching Learning Methods:**

1. Interactive sessions.
2. Case studies.
3. Triggers.
4. Role plays.

**Assessment:**

Programme evaluation and feedback from participants.

The skills developed should be assessed at the end of each posting, as applicable to the corresponding disciplines.

3) Specific Objectives:

At the end of the internship training, the students shall be able to:

- (i) diagnose clinically common disease conditions encountered in practice and make timely decision for referral to higher level;
  - (ii) use discreetly the essential drugs, infusions, blood or its substitutes and laboratory services;
  - (iii) manage all type of emergencies-medical, surgical obstetric, neonatal and paediatric, by rendering first level care;
  - (iv) demonstrate skills in monitoring of the National Health Programmes and schemes, oriented to provide preventive and promotive health care services to the community;
  - (v) develop leadership qualities to function effectively as a leader of the health team organized to deliver the health and family welfare service in existing socio-economic, political and cultural environment;
  - (vi) render services to chronically sick and disabled (both physical and mental) and to communicate effectively with patient and the community.
- 4) Time allocation to each discipline is approximate and shall be guided more specifically by the actual experience obtained. Thus a student serving in a district or taluk hospital emergency room, may well accumulate skills in surgery, orthopaedics, medicine, Obstetrics and Gynaecology and Paediatrics during even a single night on duty.

Re-sponsible authorities from the medical college shall adjust the intern experience to maximize intern's opportunities to practice skills in patient care in rough approximation of the time allocation suggested.

5) Duration:

- a. Every candidate will be required after passing the Final MBBS examination to undergo 12 months compulsory rotational Internship to the satisfaction of the college authorities and Dr. NTR University of Health Sciences so as to be eligible for the award of degree of Bachelor of Medicine and Bachelor of Surgery (MBBS) and full registration.

COMPULSORY	
Community Medicine	2 months
Medicine including 15 days of Psychiatry	2 months
Surgery including 15 days Anaesthesia	2 months
Obst. & Gynaec, including Family Welfare Planning	2 months
Paediatrics	1 month
Orthopaedics including PMR	1 month
ENT	15 days
Ophthalmology	15 days
Casualty	15 days
Elective posting (1 X 15 days)	15 days

Subjects for Elective posting will be as follows:

- i) Dermatology and Sexually Transmitted Diseases.
- ii) Tuberculosis and Respiratory Diseases.
- iii) Radio-Diagnosis
- iv) Forensic Medicine
- v) Blood Bank
- vi) Psychiatry

Note: Structure internship with college assessment at the end of the internship”.

b) Time Distribution:

12 months compulsory rotational Internship		
i. <u>Compulsory subjects: 11 Months</u>		ii. <u>Elective postings: 1 Month</u> (Elective posting will include two of the following for 15 days in each subject).
COMPULSORY		<ul style="list-style-type: none"> <li>- Dermatology and Sexually Transmitted Diseases.</li> <li>- Psychiatry</li> <li>- Tuberculosis and Respiratory Diseases</li> <li>- Anaesthesia</li> <li>- Radio-diagnosis</li> <li>- Physical Medicine and Rehabilitation</li> <li>- Forensic Medicine and Toxicology</li> <li>- Blood Bank and Transfusion Department</li> </ul>
Community Medicine	2 months	
Medicine including 15 days of Psychiatry	2 months	
Surgery including 15 days Anaesthesia	2 months	
Obst. & Gynaec, including Family Welfare Planning	2 months	
Paediatrics	1 month	
Orthopaedics including PMR	1 month	
ENT	15 days	
Ophthalmology	15 days	
Casualty	15 days	
Elective posting (1 X 15 days)	15 days	

c) House surgeons should maintain Logbooks.

d) At the time of causality posting students should be taught about medico legal documentation & should observe various types of medicolegal cases.

During 2 months period allotted to Community Medicine Department, the Internee shall be trained to acquire filed / practical knowledge, one month at District/ Taluk Hospital (or) U.F.W.C.Centre, one month at P.H.C and one month at R.H.C and during the above 2 months time he shall participate in Government of India / Ministry of Health and Family Welfare Department approved/ sponsored training programmes also . Where the internee shall be posted as per the decision of institution's competent authority.

All parts of the Internship shall be done as far as possible in the teaching hospitals attached to the Institution, where the candidate studied MBBS degree course. He/she has to do the Internship in the Hospitals specified by the University. In case of any difficulties the matter will be referred to Medical Council of India on individual merit.

The University shall issue a provisional MBBS pass certificate on passing the final examination. The State Medical Council will grant provisional registration to the candidate on production of the provisional MBBS pass certificate. The provisional registration will be for a period of one year. In the event of shortage or unsatisfactory work, the appropriate authorities may suitably extend the period of provisional registration and the compulsory rotating internship.

The internee shall be entrusted with clinical responsibilities under direct supervision of senior medical officer. They shall not be working independently. Interns will not issue a medical certificate or a death certificate or a medicolegal document under their signature.

In recognition of the importance of hands-on experience, full responsibility for patient care and skill acquisition, Internship should be increasingly scheduled to utilize clinical facilities available in District Hospital, Taluka Hospital, Community Health Centre and Primary Health Centre, in addition to Teaching Hospital. A critical element of internship will be the acquisition of specific experiences and skills. More emphasis should be given for hands as experience.

Provided that whereas internee is posted to District/Sub-divisional Hospital for training there shall be a committee consisting of representatives of college/university, the State Government and the District administration, who shall regulate the training of such trainee. Further, such trainee shall obtain a certificate of satisfactory completion of training from the relevant administrative authorities and countersigned by the Principal/Dean of college. Adjustment to enable a candidate to obtain training in elective clinical subjects may be made.

Each medical college shall establish links with one entire district extending out-reach activities. Similarly, Reorientation of Medical Education (ROME) scheme may be suitably modified to assure teaching activities at each level of district health system, which will be coordinated by the Dean/Principal of the medical college.

Out of one year, 6 months shall be devoted learning tertiary care being rendered in teaching hospital/district hospital suitably staffed with well qualified staff, 1 (one) month of secondary care in small district or Taluk Hospital / community health centre and 1 (one) month in primary Health care full attention to the implementation of National Health Programme at the community level. One month of Primary care training may be under the preceptorship of a practicing family physician of voluntary agency or other primary health care provider.

One year's approved service in the Armed Forces Medical Services after passing the Final MBBS examination shall be considered as equivalent to the pre-registration training detailed above. Such training as far as possible, be at the Base/General Hospital.

e. Issue of Internship completion Certificate:

The heads of institutions shall issue a certificate of successful completion of internship to each candidate after satisfying that the candidate has completed the training programme and has acquire the skills to function independently.

XV. **AWARD OF DEGREE :**

The University on satisfactory completion of the compulsory internship shall be award the degree.

XVI. **CLASSIFICATION OF RESULTS:**

1. A candidate is declared as passed in second class if he/she secures 50% marks in aggregate in all subjects of the phase with a minimum of 50% in theory plus orals and 50% in practicals in that subject. A candidate securing less marks is failed.

2. First class in a particular phase may be awarded to a candidate who secures 65% or more of aggregate marks in all the subjects of the phase and passes all the subjects in the first regular appearance.
3. First class with distinction in a phase may be awarded to a candidate who secures 75% of aggregate marks and above in all the subjects and passes all the subjects in the first appearance.

**XVII. SCHEME OF UNIVERSITY EXAMINATION:**

There shall be one main and one supplementary examination in a year and should be a gap of 6 months between the main examination and the supplementary examination.

Marks distribution in University examinations								
Examination	Subject	Theory			Viva	Internal Assessment 50% th. + 50% Pra/clin	Practical	Total
		Paper 1	Paper 2	Total				
<b>I MBBS</b> (At the end of 2 <sup>nd</sup> Semester)	Anatomy	50	50	100	20	20+20=40	40	200
	Physiology	50	50	100	20	20+20=40	40	200
	Biochemistry	50	50	100	20	20+20=40	40	200
<b>II MBBS</b> (At the end of 5 <sup>th</sup> Semester)	Pharmacology	40	40	80	15	15+15=30	25	150
	Microbiology	40	40	80	15	15+15=30	25	150
	Pathology	40	40	80	15	15+15=30	25	150
	Forensic Medicine	40	-	40	10	15+15=30	20	100
<b>III MBBS Part -I</b> (At the end of 7 <sup>th</sup> Semester)	ENT	40	-	40	10	10+10=20	30	100
	Ophthalmology	40	-	40	10	10+10=20	30	100
	SPM	60	60	120	10	20+20=40	30	200
<b>III MBBS Part -II</b> (At the end of 9 <sup>th</sup> Semester)	Medicine	60	60	120	20	30+30=60	100	300
	Surgery	60	60	120	20	30+30=60	100	300
	Obstetrics & Gynecology	40	40	80	30	20+20=40	50	200
	Pediatrics	40	-	40	10	10+10=20	30	100
Criteria for Pass 1. Theory & Orals (Viva) together – 50% 2. Practical –50% 3. Internal – 35% for eligibility Aggregate – 50%.								

If any candidate is absent in any component of examinations i.e. either in theory in part, practical or viva voce, he / she deemed to be absent and declared fail in that subject. (recommendations of the academic senate 2009 approved by 183<sup>rd</sup> E.C.)

<b>Scheme of First professional examination:</b> ( Pre-clinical Subjects-Biochemistry, Anatomy, Physiology) conducted at the end 2 <sup>nd</sup> of semester.		
Biochemistry	Anatomy	Physiology
Scheme of practical: a) Qualitative - 15 marks b) Quantitative- 15 marks c) Interpretation of Lab. Data - 5 marks d) Spotters & Charts - 5 marks Total 40	Scheme of practical: <u>Practical – 1</u> Gross Anatomy a) Major exercise – Dissected parts from Head and Neck, Abdomen, Pelvis and Thorax -10marks b) Minor exercises – Dissected parts from Extremities - 5 M c) Surface marking/ clinically Oriented question 5 marks Practical – 1 Total- 20 <u>Practical –2</u> Histology including genetics a) Spotters - 5marks b) Stained Slides for discussion(2slides)- 10marks c) Genetic Exercise- 5marks Practical – 2 Total- 20	Scheme of practical: <u>Practical – 1</u> a) Hematology Long Experiment (RBC, WBC, Hb etc) -10marks b) Identification of graphs Problems & Calculation - 5marks c) Short experiment (Grouping, BT, CT, Reflexes Cranial Nerves) - 5marks Practical – 1 Total- 20 <u>Practical – 2</u> a) Long Experiment Clinical examination of a specific system - 10marks b) Amphibian graph Muscle/Nerve/Heart - 5marks c) Spotters Clinical cases and charts - 5marks Practical – 2 Total- 20
Orals 20marks	Orals 20marks a) Soft parts - 5 marks b) Osteology - 5 marks c) Radiology - 5 marks d) Embryology - 5 marks	Orals 20marks
Internal assessment- 40marks	Internal assessment- 40marks	Internal assessment- 40marks
Theory: 2 ½ hrs duration Biochemistry-1 50marks Biochemistry-2 50marks	Theory: 2 ½ hrs duration Anatomy-1 50marks Anatomy -2 50marks	Theory: 2 ½ hrs duration Physiology-1 50marks Physiology-2 50marks
Scheme of Theory examinations each held on 2 consecutive days 1. One Structured question 10 marks 2. One applied question (structured) 10 marks 3. 5 short answer type questions 5 x 4 = 20 marks 4. 5.brief answer type questions 5 x 2 = 10 marks Total 50 marks		



<b>Scheme of second professional examination:</b> (Para-clinical subjects: Pathology, Microbiology, Pharmacology and Forensic Medicine) conducted at the end 5 <sup>th</sup> of semester.			
Pathology	Microbiology	Pharmacology	Forensic Medicine
Theory: 2 papers of 40 marks each held on 2 consecutive days.- 2 hrs duration	Theory: 2 papers of 40 marks each held on 2 consecutive days.- 2 hrs duration	Theory: 2 papers of 40 marks each held on 2 consecutive days.- 2 hrs duration	Theory: 1 paper of 40 marks.- 2 hrs duration
Scheme of practical: i) Spotters Slides - 4 marks Instrument - 1 mark ii) Two Gross specimens (Morbid anatomy) - 4 marks iii) Short blood exercises HB / blood group - 4 marks iv) Abnormal peripheral Smear - 6 marks v) Urine examination - 6 marks Total - 25 marks	Scheme of practical i) Spotters - 5 marks ii) Grams staining - 5 marks iii) Special staining -5 marks iv) Parasitology examination - 5 marks v) Applied Microbiology exercises - 5 marks Total- 25 marks	Scheme of practical i) Experimental Pharmacology - 8 marks ii) Clinical Pharmacology exercise - 5 marks iii) Prescription writing - 4 marks iv) Criticism - 4 marks v) Spotters - 4 marks Total - 25 marks	Scheme of practical I. Autopsy - 5 marks II. Spotters- 5 marks III. clinical case - 5 marks V. Age estimation - 5 marks Total - 20 marks
Orals 15 marks	Orals 15 marks	Orals 15 marks	Orals 10 marks
Internal assessment -30marks	Internal assessment -30marks	Internal assessment - 30marks	Internal assessment - 30marks
Theory: 2hrs duration Pathology-1 40marks Pathology-2 40marks	Theory: 2 hrs duration Microbiology -1 40marks Microbiology -2 40marks	Theory: 2 hrs duration Pharmacology -1 40marks Pharmacology -2 40marks	Theory: 2 hrs duration Forensic medicine One paper -40marks
Scheme of Theory examinations each paper carries 40 marks and consists of time 2 hours each held on 2 consecutive days			
1. One Structured question = 10 marks			
2. 5 short answer type questions 5 x 4 = 20 marks			
3. 5 brief answer type questions 5 x 2 = 10 marks			
Total = 40 marks			

<b>Scheme of Third professional Part – I examination</b> (Clinical Subjects- ENT, Ophthalmology and Community Medicine) Conducted at the end 7 <sup>th</sup> of semester.		
<b>Ophthalmology</b>	<b>Oto-Rhino- Laryngiology (E.N.T):</b>	<b>Community Medicine (S.P.M.) Including Humanities.</b>
Scheme of practical: Each candidate examines 4 cases. 30 marks A candidate should record the diagnosis & management of the case. A set of examiners (comprising one internal and one external), examines the candidate for two cases.	Scheme of practical: i) Two cases 2X15marks. Duration of the clinical examination will be 20 minutes for each of the 2 cases. ii) A candidate has to secure a minimum of 15 marks out of 30 marks for passing the clinical examination.	Scheme of practical: i) Clinical social case study : 10 marks ii) Problem solving epidemiological exercises: 10 marks iii) Statistical exercises 10 marks
Orals 10 marks	Orals 10 marks	Orals 10 marks Oral examinations shall be conducted by two sets of examiners (internal and External) and each set will carry 5 marks.
Internal assessment-20marks	Internal assessment- 20marks	Internal assessment- 40marks
Theory: 2 hrs duration Ophthalmology One paper -40marks (Should contain one question on pre-clinical and para-clinical aspects, of 10 marks)	Theory: 2 hrs duration E.N.T. One paper -40marks (Should contain one question on pre-clinical and para-clinical aspects, of 10 marks)	Theory: 3 hrs duration SPM-1 60marks SPM-2 60marks ( 20 marks includes problem solving, applied aspects of management at primary level including essential drugs, occupational[agro based] diseases, rehabilitation and social aspects of community.)
<b>ENT&amp; Ophthalmology</b> 1. One structured question: 10 marks 2. 5 short answer type questions 5 x4 = 20 marks 3. 5 brief answer type questions 5 x 2 = 10 marks Total = 40 marks <b>Community medicine(S.P.M.) have 2 papers of 60 marks each</b> <b>Each paper has 2 sections &amp; each section consists of</b> 1. One structured question 10 marks 2. Five short answer questions 5 x 4 20 marks Total 30 marks		

<b>Scheme of Third professional Part – II examination</b> (Clinical subjects: Medicine, Surgery, Obstetrics & Gynecology and Pediatrics) Conducted at the end 9 <sup>th</sup> of semester.			
Medicine	Surgery	Obstetrics & Gynecology	Pediatrics
Scheme of practical: i) Long case: 50 marks ii) Short case: 30 marks iii) Spotters : 20 marks The candidate should write detailed case sheet for the long case The candidate should write the points in favour for short case Total 100marks	Scheme of practical: i. One long case of 30 minutes- 50marks ii. Short case1- } Short case2 } 25 marks iii. Short ortho. case 3 – 25marks 10 minutes each & The short cases should contain brief notes. Total -100marks Note : 25% of the marks are allotted for Orthopedic cases.	Scheme of practical: i.Obstetrics-1 case - 25 marks ii. Gynaecology-1 case - 25 marks Total - 50 marks (A detailed case sheet to be written. The marks distribution of case History taking – 5 Examination - 10 Discussion – 10 )	Scheme of practical: i. Long case-15marks ii. Short case-10marks iii. Spotters- 5 marks <u>Note</u> : In the long case student should write the case sheet in detail. For short case only diagnosis and salient features are to be written. For spotters only diagnosis to be written.
Orals 20 marks i) Discussion-10 marks ii) Instruments, ECG, X-Ray etc.-10 marks	Orals 20 marks	Orals 30 marks i. Record (of at least 10 delivery cases) -10 marks ii. Gynaec & Family Planning -10 marks iii. Obstetrics-10marks (Note:- In obstetrics pelvis and Foetal skull – 5 marks Specimens & instruments – 5 marks)	Orals 10 marks
Internal assessment -60marks	Internal assessment -60marks	Internal assessment - 40marks	Internal assessment - 20marks
Theory: 3hrs duration Medicine-1 60marks Medicine-2 40marks	Theory: 3hrs duration Surgery-1 60marks Surgery-2 60marks	Theory: 2hrs duration Gyn & Obst -1 40marks Gyn & Obst -2 40marks	Theory: 2 hrs duration Pediatrics One paper -40marks
Medicine & Surgery each have 2 papers of 60 marks each with 2 sections Time 3 hours. each section consists of 1. One structured question 10 marks 2. three short answer questions 3 x 4 12 marks 3. Four brief answer type questions 4 x 2 = 8 marks Total 30 marks Gynecology & Obstetrics has 2 papers of 40 marks each Time 2 hours. 1. One structured question: 10 marks 2. Five short answer type questions 5 x 4 = 20 marks 3. Five brief answer type questions 5 x 2 = 10 marks Total = 40 marks Pediatrics has one Paper of 40 marks and consists of: Time 2 hours. 1. One structured question : 10 marks 2. Five short answer type questions 5 x 4 = 20 marks 3. Five brief answer type questions 5 x 2 = 10 marks Total = 40 marks			

**XVIII MODEL QUESTION PAPERS:**

1<sup>ST</sup> MBBS DEGREE EXAMINATIONS

**BIOCHEMISTRY PAPER-I**

Time: 2½ hours

Max.Marks:50

ANSWER ALL QUESTIONS

1. Write are ketone bodies? How are they synthesized? Name the conditions characterized by excessive production of ketone bodies. Explain the metabolic derangements and consequences of ketosis.  
(1+3+1+5=10)
2. What are the metabolic fates of glucose –6- phosphate? Explain HMP shunt path way and mention its significance.

(2+6+2=10)

WRITE SHORT NOTES ON:

(5 X 4 = 20)

3. what is competitive inhibition ? Write its clinical applications.
4. High energy compounds.
5. Porphyrins.
6. Biochemical functions and deficiency manifestations of Folic acid
7. Calorific value.

WRITE BROEF NOTES ON:

(5 X 2 = 10)

8. Essential fatty acids
9. Redox potential
10. Sources and deficiency manifestation of Vitamin 'A'
11. Detoxification by Hydrolysis (two examples)
12. Composition and importance of Insulin

1<sup>ST</sup> MBBS DEGREE EXAMINATIONS  
**BIOCHEMISTRY PAPER-II**

Time: 2½ hours

Max.Marks:50

**ANSWER ALL QUESTIONS**

1. Name aromatic amino acids. Give an account on the metabolism of tyrosine. What are the biologically important compounds derived from tyrosine? Which are the inborn errors associated with this amino acid?

(1+6+1+2=10)

2. Give an account of the sources, absorption, requirement, functions and regulation of calcium.

(1+2+1+3+3 = 10)

**WRITE SHORT NOTES ON:**

(5 X 4 = 20)

3. induction and repression
4. Structure and function of tRNA
5. Respiratory and metabolic acidosis
6. Gout
7. Name four different types of nucleotides and mention their biological importance.

**WRITE BROEF NOTES ON:**

(5 X 2 = 10)

8. Tumor Markers
9. Structural features of cell membrane
10. Urea clearance
11. Define mutagens and give two examples
12. Hybridoma

1<sup>ST</sup> MBBS DEGREE EXAMINATIONS

**PHYSIOLOGY PAPER-I**

Time: 2½ hours

Max.Marks:50

ANSWER ALL QUESTIONS

1. Describe the blood groups and their significance; What is the importance of Rh factor?

(8+2=10)

2. Draw a diagram to show the structure of the respiratory membrane and enumerate the haemodynamic factors influencing the exchange of gases across the membrane.

(5+5 = 10)

WRITE SHORT NOTES ON:

(5 X 4 = 20)

3. Factors influencing coronary blood flow
4. Eccrine type of sweat gland
5. Name the different movements of the small intestines and mention their significance.
6. Juxta medullary nephron
7. P-R interval significance

WRITE SHORT NOTES ON:

(5 X 2 = 20)

8. Describe the thermal changes during muscle contraction.
9. Describe the functions of Bile
10. What is the Physiological importance of normal oncotic pressure of Plasma?
11. Artificial Respiration
12. Fick's principle.

1<sup>ST</sup> MBBS DEGREE EXAMINATIONS

**PHYSIOLOGY PAPER-II**

Time: 2½ hours

Max.Marks:50

ANSWER ALL QUESTIONS

1. Discuss the function of reticular formation. (10)
  2. What is tetany? Describe one hormone which is the causative factor, in detail. (1+1+8=10)
- (5+2+3 = 10)

WRITE SHORT NOTES ON:

3. Factors influencing spermatogenesis
4. Role of ADH in fluid balance of the body
5. Otolith organs
6. Functions of C.S.F.
7. Taste pathway

(5 X 4 = 20)

WRITE SHORT NOTES ON:

8. Myopia
9. Function of Glucagon
10. Saltatory conduction
11. Lower Motor Neurone Paralysis
12. Adrenal Medullary Hormones.

(5 X 2 = 20)

1<sup>ST</sup> MBBS DEGREE EXAMINATIONS

**ANATOMY PAPER-I**

Time: 2½ hours

Max.Marks:50

ANSWER ALL QUESTIONS

1. Describe the gross features, Blood and Nerve Supply, Lymphatic drainage and development of Parotid gland.  
(4+3+1+2 = 10)
2. Describe the course, relations, branches and applied anatomy of ulnar nerve.  
(2+3+3+2 = 10)

SHORT ANSWER TYPE QUESTIONS (3 TO 7)

(5 X 4 = 20)

3. Microscopic Anatomy of Pituitary gland.
4. Middle meningeal artery
5. Lateral wall of the nose.
6. Quada Equina.
7. Caudate Nucleus.

BRIEF ANSWER TYPE QUESTIONS (8 TO 12)

(5 X 2 = 10)

8. Surgical neck of the humerus.
9. Carotid sheath.
10. Insula.
11. Sensory decussation.
12. Cervical cyst.



1<sup>ST</sup> MBBS DEGREE EXAMINATIONS

**ANATOMY PAPER-II**

Time: 2½ hours

Max.Marks:50

ANSWER ALL QUESTIONS

1. Describe external, internal features, Blood supply and development of Right atrium.

(3+3+1+3 = 10)

2. Describe the gross anatomy, relations, interior, Blood and Nerve Supply and development of urinary bladder.

(2+2+2+2+2= 10)

SHORT ANSWER TYPE QUESTIONS (3 TO 7)

(5 X 4 = 20)

3. Gall bladder.
4. Portal vein
5. Hila of the lungs.
6. Microscopic anatomy of stomach fundus.
7. Adductor canal.

BRIEF ANSWER TYPE QUESTIONS (8 TO 12)

(5 X 2 = 10)

8. Dorsalis pedis artery
9. Saphenous opening
10. Sex chromosomes
11. Periosteum
12. Oblique Popliteal Ligament.

2<sup>nd</sup> MBBS DEGREE EXAMINATIONS

**PHARMACOLOGY PAPER-I**

Time: 2 hours

Max.Marks:40

1. Classify antihypertensive drugs. Write the pharmacological actions, uses and adverse effects of Ramipril.

(10)

WRITE SHORT NOTES ON:

(5x4 = 20)

2. Newer antiepileptic drugs
3. Drugs used in glaucoma
4. Pharmacokinetic drug interactions
5. Treatment of Morphine poisoning.
6. Use of  $\alpha$  - adrenergic blockers.

WRITE BRIEFLY ON :

(5x2 = 10)

7. What is drug synergism? Give two examples
8. Two drugs used sublingually and two advantages of sublingual route.
9. Two contraindications for the use of Atrophine. Explain the rationale.
10. Two uses and two adverse effects of Hydrochlorothiazide.
11. Write two drugs inducing parkinsonism and two drugs used in drug induced parkinsonism.

2<sup>nd</sup> MBBS DEGREE EXAMINATIONS

**PHARMACOLOGY PAPER-II**

Time: 2 hours

Max.Marks:40

1. Enlist Hypoglycemic agents. Write the mechanism of action, pharmacological actions and adverse effects of any one oral hypoglycemic agent.

(10)

Write Short notes on:.

(5x4 = 20)

2. Adverse effects and therapeutic uses of Metronidazole.
3. Fluconazole
4. Anticancer antibiotics
5. Mechanism of action and uses of Heparin
6. Antitussives.

Write briefly on :

(5x2 = 10)

7. Two drugs useful in acid peptic disease. Give reasons for their use.
8. Mechanism of action and one use of Methyl ergometrine.
9. Two advantage of loratidine over Diphenhydramine
10. Rationale of combination of two drugs in Cotrimoxazole, write one use.
11. Deferiprone – Mechanism of action and one use.

2<sup>nd</sup> MBBS DEGREE EXAMINATIONS  
**MICROBIOLOGY PAPER-I**  
(Bacteriology and Immunology)

Time: 2 hours

Max.Marks:40

1. Classify hypersensitivity reactions with examples. (5+5=10)  
Describe type I hypersensitivity.

Write Short notes on: (5x4 = 20)

2. Complement
3. Lab diagnosis of Helicobacter infection.
4. Pathogenesis of autoimmune diseases
5. compare Exotoxins and Endotoxins
6. Types of bacteriological Media

Write Briefly on (5x2 = 10)

7. Adjuvants.
8. Rapid plasma Reagin (RPR) test
9. Acinetobacter
10. Prophylaxis of whooping cough
11. Plague.

2<sup>nd</sup> MBBS DEGREE EXAMINATIONS  
**MICROBIOLOGY PAPER-II**  
(Virology, Mycology & Parasitology)

Time: 2 hours

Max.Marks:40

1. List the intestinal amoebae. Describe the pathogenicity and life cycle of *E. histolytica*.

(2+3+5 = 10)

Write Short notes on:

(5x4 = 20)

2. Prophylaxis of Polio-myelitis
3. *Cryptosporidium*
4. Dimorphic fungi
5. General characters of viruses
6. Flaviviruses.

Write Brief notes on

(5x2 = 10)

7. Morphology of *Haemoflagellates*
8. Penicilliosis
9. Hydatid cyst
10. Cell cultures for growing viruses
11. Eggs of Nematodes.

2<sup>nd</sup> MBBS DEGREE EXAMINATIONS  
**PATHOLOGY PAPER-I**  
(General Pathology & Haematology)

Time: 2 hours

Max.Marks:40

1. A male child presented with recurrent painful haemarthrosis and haematomas. History of bleeding in male relatives on the maternal side of the family was available. (10)
- a) What is the probable diagnosis?
  - b) Describe the Inheritance of the disease?
  - c) Describe the lab.diagnosis of the disease?
  - d) Mention the complications following the therapy?

Write Short notes on:

(5x4 = 20)

- 2. Giant cells
- 3. Nature of amyloid.
- 4. Thrombo embolism
- 5. Tumour markers
- 6. Pathogenesis of Sickle cell disease.

Write Briefly on

(5x2 = 10)

- 7. Barr body
- 8. Shock lung
- 9. Lesions of Vit. A Deficiency
- 10. Juvenile chronic myeloid leukaemia
- 11. Rhinosporidiosis

2<sup>nd</sup> MBBS DEGREE EXAMINATIONS

**PATHOLOGY PAPER-II**

(Systemic Pathology)

Time: 2 hours

Max.Marks:40

1. A 8 years old boy was admitted with malaise, fever, oliguria, cocoa-coloured Urine 2 weeks after recovery from sore throat. On examination, he was found to have perio orbital oedema and moderate hypertension. (10)
  - a) What is the probable diagnosis?
  - b) Describe the aetio pathogenesis of the conditions?
  - c) What is the morphology of the organ?

Write Short notes on:

(5X 4 = 20)

2. Bacterial endocarditis
3. Carcinoma cervix
4. Reed-Sternberg (R-S) cell
5. Malignant melanoma
6. Bronchiectasis

Write Briefly on

(5x2=10)

7. Phylloides tumour
8. Barrett oesophagus
9. Pigment gall stones
10. Brain abscess
11. Tuberculous osteomyelitis.

2<sup>nd</sup> MBBS DEGREE EXAMINATIONS

**FORENSIC MEDICINE**

Time: 2 hours

Max.Marks: 40

1. Classify mechanical wounds. Describe briefly the various types of abrasions and their medico legal significance.

(10 Marks)

Write short notes on:

5 X 4 = 20

2. Different types of strangulations.
3. Causes of impotency in males.
4. Chronic alcohol poisoning.
5. Suspended Animation.
6. Hallucinations.

Write briefly on:

5 X 2 = 10

7. Cardiac Tamponade.
8. Fat Embolism
9. Infamous conduct
10. Rule of nine
11. Post mortem lividity.



FINAL MBBS DEGREE EXAMINATIONS  
**OTORHINOLARYNGOLOGY (ENT)**  
(THEORY MODEL PAPER)

Time: 2 hours

Max. Marks: 40

- 1) How will you manage a 40 year old woman presenting with dysphagia (10)

Write Short notes on : (5x4 = 20)

- 2) Anatomy of nasal septum
- 3) Physiology of equilibrium
- 4) Symptoms of Meniere's disease
- 5) Signs of Atrophic Rhinitis
- 6) Management of Otosclerosis

Write Briefly on : (5x2=10)

- 7) Symptomatology of ear disease
- 8) Vocal nodule
- 9) Universal neonatal hearing screening
- 10) Ludwig's angina
- 11) Myringotomy.

FINAL MBBS DEGREE EXAMINATIONS PART-I

**OPHTHALMOLOGY QUESTIONS**

Time: 2 hours

Max.Marks: 40

Answer All Questions

- 1) Etiology, signs, symptoms, diagnosis and treatment of hypopyon ulcer cornea.

(10 marks)

Write Short notes on:

(5x4 = 20)

- 2) Traumatic Cataract
- 3) Contact lens
- 4) Pilocarpine
- 5) Primary Eye Care System
- 6) Ptosis.

Write Briefly on :

(5x2=10)

- 7) Blepharitis
- 8) Corynebacterium Diphtheria.
- 9) Papilloedema
- 10) Keratic Precipitates
- 11) Dacryocystectomy.

FINAL MBBS PART-I EXAMINATION  
**SOCIAL & PREVENTIVE MEDICINE – PAPER -I**  
**(Concepts, Social Sciences, Nutrition, Environmental Sanitation,  
Statistics and General Epidemiology)**

Time: 3 hours

Max.Marks: 60

PART – A

30 Marks

1. List the Ecological Factors related to 'Malnutrition'. Describe in detail the preventive and social measures against malnutrition at the community level.

10 Marks

Write Short Notes on

(5x4=20)

2. Periodic Fluctuations in Disease Occurrence.
3. Physical Quality of Life Index (PQLI).
4. Anti-Rodent Measures
5. Doctor – Patient Relationship
6. Normal Distribution Curve

PART – B (30 Marks)

7. Describe in detail with suitable examples the different modes of intervention available for disease prevention.

(10)

Write short notes on:

5 X 4= 20

8. Prevention and Control of 'Air Pollution'.
9. Ice berg Phenomenon of Disease
10. Primordial Prevention of Disease
11. Effects of Noise Exposure
12. Non-Randomized Trials

FINAL MBBS PART-I EXAMINATION  
**SOCIAL & PREVENTIVE MEDICINE – PAPER -II**  
**(Concepts, Social Sciences, Nutrition, Environmental Sanitation,  
Statistics and General Epidemiology)**

Time: 3 hours

Max.Marks: 60

PART – A

1. Discuss in detail extent of problem, causes, epidemiological factors and prevention of blindness in India 10 Marks

Write Short Notes on (5x4=20)

2. Immediate Care of Newborn
3. Parameters of Malaria Surveillance.
4. Hazards of Obesity and their Prevention and Control
5. Highlights of Reproductive and Child Health (RCH) Programme
6. Post – Operative Advice after Vasectomy.

PART – B (30 Marks)

7. Discuss in detail the extent of problem, epidemiology, prevention and containment of Hepatitis 'B' Infection.

Write short notes on: 5 x 4 = 20

8. Domiciliary Midwifery Service
9. Group Approach in Health Communication.
10. Job Description of Health Worker (Female)
11. Functions of Voluntary Health Agencies
12. Work of World Health Organization (W.H.O.)

**FINAL MBBS PART – II EXAMINATION  
GENERAL MEDICINE PAPER-I**

**PAPER – A (30 Marks)**

Time: 3 hours

Max. Marks: 60

1. Discuss the clinical features, laboratory investigations and management of megaloblastic anaemia. (3+3+4=10)

Write short notes on:

3 X 4 = 12 marks

2. General principles in management of poisoning.
3. Systemic Lupus Erythematosus
4. Management of Acute Severe Asthma.

Write briefly on:

4 X 2 = 8 marks

5. Etiology of community acquired pneumonia
6. Rheumatoid Arthritis
7. Medical management of gout
8. Disseminated intravascular coagulation.

**PART – B (30 marks)**

9. Discuss the clinical features, laboratory investigations and management of Thyrotoxicosis. (3+3+4=10)

Write short notes on:

3 X 4 = 12 marks

10. Liver function tests.
11. Indications of dialysis
12. Newer Insulin delivery devices

Write briefly on:

4 X 2 = 8 marks

13. Management of acute variceal bleeding
14. Metformin
15. Scabies
16. Prokinetic drugs

**FINAL MBBS PART – II EXAMINATION  
GENERAL MEDICINE PAPER-II**

**PAPER – A (30 Marks)**

Time: 3 hours

Max. Marks: 60

1. Describe diagnostic criteria, clinical features, laboratory investigations and management of Acute Rheumatic fever. (2+2+2+4=10)

Write short notes on:

3 X 4 = 12 marks

2. Serum markers in acute myocardial infarction.
3. Complications of falciparum malaria
4. Target organ damage in hypertension

Write briefly on:

4 X 2 = 8 marks

5. Digitalis
6. Etiology and clinical presentation in leptospirosis
7. Fallots tetralogy
8. Cor pulmonale.

**PART – B (30 marks)**

9. Discuss the clinical features, laboratory investigations and management of Pyogenic meningitis. (3+3+4=10)

Write short notes on:

3 X 4 = 12 marks

10. Duchenne muscular dystrophy.
11. Treatment of multibacillary leprosy
12. Management of Status epilepticus

Write briefly on:

4 X 2 = 8 marks

13. Trigeminal neuralgia
14. Paranoid schizophrenia
15. Tropical pulmonary eosinophilia
16. Thiamine deficiency

## FINAL MBBS PART – II EXAMINATION

### PAEDIATRICS

Time: 2 hours

Max.Marks: 40

1. Describe five important nutritional causes of growth retardation. Describe the treatment of nutritional rickets. 10Marks

Write short notes on:

( 5 X 4 = 20 )

2. Life threatening complications of Acute Post Streptococcal glomerulonephritis.
3. Secondary Rheumatic Prophylaxis.
4. Classification of congenital cyanotic heart diseases.
5. Genetic basis of Down's Syndrome
6. Investigations for suspected neonatal hypothyroidism.

Write Brief answers on:

(5 X 2 = 10)

7. Four causes of delayed closure of fontanelle
8. Peripheral blood smear picture of Nutritional Anemias.
9. Treatment of scabies.
10. Side effects of steroid therapy.
11. Drug treatment of Hypertensive Emergencies.

## FINAL MBBS PART – II EXAMINATION

### SURGERY – PAPER - I

Time: 2 hours

Max.Marks: 40

#### PART – A (30 marks)

- 1.Enumerate the various blood products. Discuss the indications, complications and their treatment following blood transfusion. 10 marks

Write Short Notes on (3x4=12)

2. Hidradenitis Suppurativa
3. Thiersch Graft
4. Ludwig's Angina

Write Brief answers on (4x2=8)

5. Preauricular sinus
6. Epidermoid cyst
7. Cold abscess
8. Breslow's staging

#### PART – B (Orthopaedics –30 marks)

9. Classify fracture neck of femur. Write down the management of fracture neck of femur in an adult and its possible complication. 10 marks

Write short notes on: 3 X 4 =12

10. Volkman Ischaemic contracture
11. Brodies' abscess
12. Autonomic bladder

Write briefly on: 4 x 2=8

13. Achondroplasia
14. Mallet finger
15. Foot drop
16. Unicameral bone cyst



**FINAL MBBS PART – II EXAMINATION**

**SURGERY – PAPER - II**

Time: 2 hours

Max.Marks: 40

**PART – A (30 marks)**

1. Define goiter. How would you classify goiter. Describe the symptoms, signs, investigations and treatment of multinodular goiter. 10 marks

Write Short Notes on (3x4=12)

2. Hypertrophic pyloric stenosis
3. Fine Needle Aspiration Cytology
4. Pseudocyst of pancreas

Write Brief answers on (4x2=8)

5. Lymphatic drainage of stomach
6. Desmoid tumour
7. Buschke – Lowenstein tumour
8. Pantaloon hernia

**PART – B (Orthopaedics –30 marks)**

9. Discuss the classification, clinical features, staging and management of testicular tumours. 10 marks

Write short notes on: 3 X 4 =12

10. Barrett's esophagus
11. Mesenteric cyst
12. Solitary nodule thyroid.

Write briefly on: 4 x 2=8

13. Hesselbach's triangle
14. Extradural haemorrhage
15. Varicocoele
16. Porto-systemic anastomosis

FINAL MBBS PART – II EXAMINATIONS.  
**OBSTETRICS INCLUDING SOCIAL OBSTETRICS**

Time: 2 hours

Max.Marks: 40

PAPER-I

Answer all questions:

1. What are the symptoms, signs and how do you manage a case of Ruptured  
Ectopic Pregnancy? (2+3+5= 10)

Write Short Answers:

5 x 4=20

2. Missed abortion
3. Hydramnios
4. Gestational Diabetes.
5. Management of postpartum Haemorrhage
6. Outlet forceps.

Write Brief answers on

5x 2=10

7. Convelaire uterus
8. Macafae's Regime in placenta praevia.
9. Complications drugs caesarean section
10. Pritchard's Regime in eclampsia
11. Complications of twin pregnancy.

FINAL MBBS PART- II EXAMINATIONS.

**GYNAECOLOGY FAMILY WELFARE AND DEMOGRAPHY**

Time: 2 hours

Max.Marks: 40

PAPER-II

Answer all questions:

1. What are the causes of leucorrhoea? Describe the clinical features, diagnosis and management of Trichomonal Vaginitis. (1+3+3+4=10)

Write Short Answers:

5x4=20

2. Usages of progestogens in gynaecology
3. Menorrhagia
4. Chocolate Cyst of the Ovary
5. Dilatation and Curettage
6. Methods of medical termination of pregnancy in second trimester.

Write Short Answers:

5x4=20

7. Rectovaginal – Fistula
8. Dysmenorrhoea
9. Staging of Cancer Cervix
10. Cervical Biopsy
11. Cryptomenorrhoea

## BACHELOR OF MEDICINE & BACHELOR OF SURGERY (M.B.B.S.)

### SYLLABUS

A. 1 <sup>st</sup> PROFESSIONAL	Hours
1. Foundation course – Stage– I	
2. Community Medicine	60
3. Anatomy	650
4. Biochemistry	240
5. Physiology	480
B. 2 <sup>nd</sup> PROFESSIONAL	
1. Foundation course – Stage– II	
2. Pathology	300
3. Microbiology	250
4. Pharmacology	300
5. Forensic Medicine	100
6. Community Medicine	200
C. 3 <sup>rd</sup> PROFESSIONAL PART-I	
1. Otorhinolaryngology	70
2. Ophthalmology	100
3. Community Medicine	50
D. 3 <sup>rd</sup> PROFESSIONAL PART-II	
1. General Medicine and allied subjects	400
(General Medicine 300Hrs. Pulmonary Medicine 20 Hrs., Psychiatry 20 Hrs. , Skin and STD 30 Hrs., Radiology 20 Hrs. & Dentistry 10 Hrs. )	
2. Pediatrics	100
3. General Surgery & Orthopedics and allied subjects	420
(General Surgery 300Hrs. Orthopeadics 100 Hrs., Anaesthesia Including emergency medicine 20 Hrs. )	
4. Obstetrics & Gynecology	300

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY (M.B.B.S.)**

**SYLLABUS FOR 1<sup>st</sup> PROFESSIONAL**

- 1) FOUNDATION COURSE – STAGE– I**
- 2) COMMUNITY MEDICINE**
- 3) ANATOMY**
- 4) BIOCHEMISTRY**
- 5) PHYSIOLOGY**

## 1<sup>st</sup> PROFESSIONAL- SYLLABUS

### 1) FOUNDATION COURSE – STAGE– I

The main purpose of foundation course at this stage is to help the learners in adjusting to the new environment in a medical college and develop skills for learning, so as to cope up with a vast curriculum. Many students who pursued rote learning in secondary/higher secondary education find it difficult to cope up with new subjects. Besides students coming from diverse backgrounds in terms of culture and language barriers, should be helped to settle down properly. It is also necessary to sensitize students with interpersonal and communication skills, besides the role of information and communication technology (ICT)

The topics suggested for foundation course at this stage are:

1. Study Skills, learning Techniques, use of Computers and information retrieval including use of internet.
2. Management of time.
3. Behavioral skills, group dynamics.
4. Stress management and coping skills.
5. Introduction to ethics, professional etiquettes.
6. Psychosocial issues and introduction to health economics.

#### Teaching Learning Methods

The foundation course, at this stage, may be organized for a week involving faculty from anatomy, Physiology, Biochemistry, Community Medicine, Behavioral ad Social Scientists and expert in library science and informatics.

#### The methods may include:

1. Structured interactive sessions
2. Case studies and simulated cases and triggers
3. Role play/Role Models
4. Video Clippings

#### Assessment

Assessment may be conducted in the form of programme evaluation and feedback from the participants at the end of the programme. It is strongly recommended that the concepts learned during the foundation course should be reinforced throughout the course and assessed in the final examination, in the respective discipline

## **1<sup>st</sup> PROFESSIONAL- SYLLABUS**

### **2) COMMUNITY MEDICINE**

Total hours for teaching and training in community Medicine are 60.

#### **I. Lectures / Demonstrations / Seminars / Group Discussions :(30 hours)**

The following topics to be covered:

- 1) Concept of community Medicine
- 2) National Health Policy and health for all as National Goal
- 3) Demography
- 4) Health Economics
- 5) Medical Sociology
- 6) Hospital Management
- 7) Behavior Science
- 8) Psychology

#### **II. Practical /Field visits :(30 hours)**

- 1) Visit to PHC for 1 day
- 2) Visit to Sub-center and Village – 1 day
- 3) Visit to U.H.C. and other Health Care Providers (ICDS) – 1 day
- 4) Visit to Hospitals - 1 day

#### **NOTE :**

- 1) The teaching and training in community medicine shall be arranged by the department of community medicine in consultation with pre- clinical departments at institutional level.
- 2) The attendance of the students in the community medicine shall be added to the attendance in subject of Anatomy, for sending the students for the examination.

### 3) HUMAN ANATOMY

#### (i) Goal :

The broad goal of teaching anatomy to undergraduate students aims at providing comprehensive knowledge of the gross and microscopic structure and development of human body to provide basis for understanding the clinical correlation of organs or structures involved and the anatomical basis for the disease presentations.

#### (ii) Objectives:

##### A. Knowledge:

At the end of the course the student shall be able to

- a) Comprehend the normal disposition, clinically relevant interrelationships, functional and cross sectional anatomy of the various structures in the body;
- b) Identify the microscopic structure and correlate elementary ultrastructure of various organs and tissues and correlate the structure with the functions as a prerequisite for understanding the altered state in various disease processes;
- c) Comprehend the basic structure and connections of the central nervous system to analyse the integrative and regulative functions of the organs and systems. Locate the site of gross lesions according to the defects encountered;
- d) Demonstrate knowledge of the basic principles and sequential development of the organs and systems, recognise the critical stages of the development and the effects of common teratogens, genetic mutations and environmental hazards. Understand the developmental basis of the major variations and abnormalities.

##### B. Skills :

At the end of the course the student shall be able to :

- a) Identify and locate all the structures of the body and mark the topography of the living anatomy;
- b) Identify the organs and tissues under the microscope;
- c) Understand the principles of karyotyping and identify the gross congenital anomalies;
- d) Understand principles of newer imaging techniques and interpretation of Computerised Tomography (CT) Scan, sonogram etc.
- e) Understand clinical basis of some common clinical procedures i.e. intramuscular and intravenous injection, lumbar puncture kidney biopsy etc



### **C. Integration:**

Integrated teaching of basis sciences with reference to clinical medicine.

An integrated teaching programs on Ethics and personality development has to be included to improve students discipline & Capabilities.

#### **Topics for integrated teaching :**

- a) Femoral Sheath – femoral Hernia
- b) Lymphatic drainage of Lower Limb
- c) Inguinal Hernia
- d) Ischio-rectal fossa
- e) Extra Hepatic biliary apparatus
- f) Porto-systemic Anastomoses
- g) Diameters of the pelvis and its applied Anatomy
- h) Supports of Uterus
- i) Thyroid Gland
- j) Mammary Gland
- k) Fascial Spaces of Hand
- l) Coronary Arteries
- m) Stomach: Histological structure & functions of Gastric glands, Mechanism of secretion, gastric function tests – Hyperchlorhydia, Achorhydia.
- n) Kidney: Structure of Nephron, functions of Nephron and Renal function tests.
- o) Liver: Structure of Liver, formation and functions of Bile and Liver function tests.
- p) Thyroid Gland – Structure; Synthesis and Metabolism of Thyroid Hormones and Thyroid function tests.
- q) Adrenal gland: related disorders, structure, synthesis of Adrenal, Medullary hormones and their functions.

#### **Note :-**

1. A minimum of Five topics each, covering 2 hours are to be taught in a year. The Vice- principal(Academic ) of the institution will be the co-ordenator for the integrated teaching programme.
2. Common topics suggested by Academic Senate (13 to 17), 2001 for integrated teaching in Biochemistry, Anatomy and Physiology:

**Total (650) 1/3 didactic lecturer**

**(iii) Syllabus of Anatomy**

Distribution of theory hours

No	Topics	Hours
1	Introduction	1
2	Descriptive Anatomy	1
3	General Anatomy	5
4	Embryology	42
	a) General Embryology (12)	
	b) Systemic Embryology (30)	
	I. Muscle, bone, skin, appendages and development of mammary gland	- 2
	II. Cardio-Vascular system including heart	- 6
	III. Lymphatic system	- 1
	IV. Brachial Arches and Pouches	- 5
	V. Gastro intestinal system and associated glands	- 6
	VI. Development of face, palate & teeth	- 3
	VII. Respiratory System	- 1
	VIII. Genito Urinary system	- 6
5	Histology	30
	c) General Histology (10)	
	d) Systemic Histology (20)	
6	Neuro Anatomy	20
7	Human Genetics	10
	a) Introduction.	
	b) Mitosis and Meiosis	
	c) Normal Chromosomal pattern	
	d) Mutation	
	e) Culture of Chromosomes (Karyotyping)	
	f) Abnormalities of Chromosomes (Numerical & structure)	
	g) Linkage	
	h) Blood groups	
		Total 109

**LECTURE DEMONSTRATIONS / GROUP DISCUSSIONS / TUTORIALS / SEMINARS**

	Osteology	Soft parts	Hours
1 Upper Extremity	10	10	20
2 Lower Extremity	10	10	20
3 Head & Neck	15	25	40
4 Abdomen & Pelvis	4	21	25
5 Thorax	5	10	15
6 A maximum of two seminars of two hours duration for each semester.			8
		Total	128

**IV) Practical should aim at familiarising student with Introduction:**

Gross Anatomy of the whole body with more stress on location, position, surface anatomy and important relations of the various organs and other structures. Each student has to dissect whole human body ignoring minor details, which are not important clinically, and stressing more on applied aspect.

**Distribution of Anatomy Practicals**

Dissection (Each practical class is of 2 hours duration 182X 2=364 )		
	No. of practical	Hours
1 Upper Extremity	25	50
2 Lower Extremity	25	50
3 Thorax	18	36
4 Head & Neck	45	90
5 Abdomen & Pelvis	44	88
6 Brain and spinal cord	25	50
Histology (Each practical class is of 2 hours duration 35 X 2 = 70)		
General Histology	12	24
Systemic Histology	23	46
Genetics		
Practicals in Genetics	3	6

**List of Histology Slides- General**

1 Squamous Epithelium	15	Bone -LS
2 Cuboidal Epithelium	16	Plain Muscles
3 Columnar Epithelium	17	Skeletal Muscles
4 Pseudo stratified Epithelium	18	Cardiac Muscles
5 Ciliated Columnar Epithelium	19	Lymph gland
6 Ureter (Compound Epithelium)	20	Thymus
7 Oesophagus (Compound Epithelium)	21	Tonsil
8 Skin (Compound Epithelium)	22	Spleen
9 areolar connective tissue	23	Artery-Medium size
10 Adipose tissue	24	Aorta
11 Hyaline Cartilage	25	Vein-inferior vena cava
12 White fibro cartilage	26	Neuron - Multipolar
13 Elastic Cartilage	27	Peripheral nerve
14 Bone -TS		

**List of Histology Slides - Systemic**

1 Trachea	13	Ileum
2 Lung	14	Colon- Large Intestine
3 Serous Salivary Gland	15	Vermiform Appendix
4 Mucous Salivary Gland	16	Liver
5 Mixed Salivary Gland	17	Pancreas
6 Tongue	18	Gall bladder
7 Tooth	19	Kidney
8 Esophagus	20	Ureter
9 Stomach - Fundus	21	Urinary bladder
10 Stomach - Pylorus	22	Ovary
11 Duodenum	23	Fallopian tube
12 Jejunum	24	Uterus

25	Placenta	33	Supra-renal Gland
26	Mammary gland	34	Cerebrum
27	Testis	35	Cerebellum
28	Epididymis	36	Spinal cord
29	Vas deference	37	Cornea
30	Prostate	38	Retina
31	Thyroid	39	Skin
32	Hypophysis cerebri		

#### Practicals in Genetics

(Karyotyping of normal male & female and some genetic disorders and photographs)

1	Male Karyo typing	5	Klinefelter's Syndrome 47 – XXY
2	Female Karyo typing	6	Super Female 47 – XXX
3	Down's Syndrome – 21 Trisomy	7	Sex-Chromatin (Barr Body)
4	Turner's Syndrome 45 – XO		

Demarcation of Syllabus for University Exam between Paper I & Paper II

#### **PAPER-I Portions :**

Upper Extremity  
 Head and Neck  
 Brain and Spinal cord  
 General Histology  
 General Embryology  
 Systemic Embryology,  
 concerned with Head & Neck and Brain.

#### **PAPER-II Portions :**

Lower Extremity  
 Thorax , Abdomen, Pelvis  
 Systemic Histology and Embryology  
 Concerned with Thorax,  
 Abdomen & Pelvis  
 Genetics  
 General Anatomy.

#### **Books Recommended:**

1. Text book of Anatomy by T.S. Ranganathan
2. Embryology  
 Langmann's Embryology  
 IB Sing Embryology  
 Reference Book – Embryology by A.K.Datta.
3. Histology  
 Difiories atlas of Histology,  
 Asian Edition - BY Victor P. Eresanchko.
4. Dissection Manuals  
 Cunningham's Dissection manuals I, II & III
5. Gross Anatomy text book by A.K. Datta (3 vols) and text book by inderbir singh (3 vols)
6. Neuro Anatomy  
 Clinical Neuro Anatomy  
 by Vishnam Singh,  
 I.B.Singh  
 Reference Book – A.K.Datta's Neuro Anatomy  
 Text book

#### **Reference books:**

1. Gray's Anatomy.
2. Embryology by Hamilton & Mossman.

# 1<sup>st</sup> PROFESSIONAL- SYLLABUS

## 4) BIOCHEMISTRY

Syllabus of Biochemistry including Molecular Biology

### (i) Goal :

The broad goal of the teaching of Biochemistry to undergraduate students is to make them understand the scientific basis of the life processes at the molecular level and to orient them towards the application of the acquired, in solving clinical problems.

### (ii) Objectives:

#### A. Knowledge:

At the end of the course, the student shall be able to :

- a) describe the molecular and functional organization of a cell and list its subcellular components;
- b) delineate structure, function and inter-relationship of biomolecules and consequences of deviation from normal;
- c) summarize the fundamental aspects of enzymology and clinical application wherein regulation of enzymatic activity is altered;
- d) describe digestion and assimilation of nutrients and consequences of malnutrition;
- e) integrate the various aspects of metabolism and their regulatory pathways;
- f) explain the biochemical basis of inherited disorders with their associate sequelae;
- g) describe mechanisms involved in maintenance of body fluid and pH homeostasis;
- h) outline the molecular mechanisms of gene expression and regulation, the principles of genetic engineering and their application of medicine;
- i) summarize molecular concept of body defences and their application in medicine;
- j) outline the biochemical basis of environmental health hazards, biochemical basis of cancer and carcinogenesis;
- k) familiarize with the principles of various conventional and specialized laboratory investigations and instrumentation; analysis and interpretation of a given data;
- l) suggest experiments to support theoretical concepts and clinical diagnosis;

#### B. SKILLS:

At the end of the course the student shall be able to:

- a) make use of conventional techniques/instruments to perform biochemical analysis relevant to clinical screening and diagnosis;
- b) analyze and interpret investigative data;
- c) demonstrate the skills of solving scientific and clinical problems and decision making;

#### C. INTEGRATION:

The knowledge acquired in biochemistry shall help the students to integrate molecular events with structure and function of the human body in health and disease.

**(iii) Syllabus Of Biochemistry****Total hours 240****Theory:**

Sl. No.	Name of the Unit	No. of Hours
1.	Introduction to biochemistry	1
2.	Cell- Molecular & functional organisation	2
3.	Chemistry of Carbohydrates: a)Classification of Carbohydrates: b)Structural and functional aspects of Mono-saccharides, Disaccharides, Homo and Hetero Polysaccharides	5
4.	Chemistry of Lipids: a)Classification b) Structural and functional aspects of simple, compound and Derived lipids including saturated, unsaturated and Essential Fatty acids.	4
5.	Chemistry of Proteins: a)Classification & functional aspects. b)Electrophoretic separation of proteins c)Classification and Properties of amino acids d)Separation of Amino acids by Chromatography e)Outlines of elucidation of Protein Structure. f) Biologically active Peptides	8
6.	Nucleic Acids: a)Bases, nucleotides, Nucleic acids,(structural and functional aspects) b) synthetic nucleotides	4
7.	Enzymes: a)Classification b)Mechanism of Enzyme action c)Enzyme kinetics d)Factors affecting enzyme activity e)Isoenzymes f) Coenzymes g)Enzyme Inhibition h)Cellular & Plasma enzymes i) Diagnostic importance of Enzymes j) Regulation of Enzyme activity	6
8.	Biological Oxidation: a)Bioenergetics b)Exergonic & Endergonic reaction c)Oxidases d)Electron Transport Chain e)Oxidative Phosphorylation f) High energy Compounds g) Low Energy Compounds	4
9.	Vitamins: a)Classification b)Structure, Sources, Daily requirement, Physiological role and deficiency disorders of Fat soluble vitamins – A,D,E,& K and water soluble vitamins-B. complex group and Vit. C.	10

10. Carbohydrate Metabolism:	10
a) Digestion	
b) Absorption	
c) Metabolism of Glucose	
i) Entry of Glucose into Cells	
ii) Glycolysis	
iii) Rapaport – Leubering Cycle	
iv) Pyruvate Dehydrogenase Complex	
v) Citric Acid Cycle	
vi) Gluconeogenesis	
vii) Glycogenesis	
viii) Glycogenolysis	
ix) Glycogen Storage Diseases	
x) Hexose Mono Phosphate Shunt Pathway	
xi) Uronic Acid Pathway	
xii) Metabolism of Galactose & Fructose	
xiii) Blood Glucose Homeostasis, Glucose Tolerance Test, Diabetes Mellitus and Hypoglycemia	
11. Metabolism of Proteins:	10
a) Protein Digestion & Absorption	
b) General Pathways of metabolism including	
c) Transamination & Deamination and Ammonia transport	
d) Urea Cycle	
e) Metabolism of individual amino acids & Molecular disorders.	
f) Creatine & Creatinine	
12. Metabolism of Nucleic Acids:	9
a) Outlines of Metabolism of Purines & Pyrimidines & Metabolic disorders	
b) DNA replication and transcription	
c) Protein Biosynthesis (Translation)	
d) Regulation of Gene Expression	
e) Outlines of Genetic Engineering	
13. Lipid Metabolism :	9
a) Digestion & Absorption	
b) Plasma Lipids	
c) Mobilisation of Fats from adipose tissue	
d) Oxidation of Fatty acids	
e) Biosynthesis of Fatty acids	
f) Metabolism of Phospholipids and triacylglycerols	
g) Metabolism of Ketone bodies	
h) Metabolism of Cholesterol	
i) Lipo Proteins – Metabolism and Disorders	
j) Lipotropic factors	
k) Chemistry and metabolism of Prostaglandins.	
14 Hemoglobin structure, Functions and Metabolism, Porphyrins and Hemoglobinopathies <b>Catabolism of heme</b>	4
15 Integration of Metabolism	2
Metabolic integration; liver, adipose tissue, Skeletal Muscle and Brain	

16. Mineral Metabolism	4
Sodium, Potassium, Calcium, Phosphorus, Magnesium, Manganese, Sulphur, Iron, Copper, Zinc, Iodine, Cobalt, Fluorine, Selenium and chromium.	
17. Nutrition :	4
a) Calorific Value	
b) Specific Dynamic Action	
c) Energy Requirements	
d) Balance Diet, Nitrogen balance, Dietary fiber	
e) Foodfads	
f) Nutritional disorders kwashiorkor and marasmus	
18. Detoxification:	2
19. Hormones :	5
i) General Principles of Hormonal action	
ii) Outline of Hormone Structure	
iii) Mechanism of Action and metabolic roles of	
a) Pituitary	
b) Pancreas	
c) Adrenal	
d) Gonadal	
e) Thyroid	
20. Functional Tests :	4
a) Renal	
b) Hepatic	
c) Pancreatic	
d) Gastric	
21. Fluid- Electrolyte and Acid - Base Balance	5
22. Plasma Proteins & Immunoglobulins	3
23. Biological Membrane	2
24. Carcinogenesis Malignancy and cell cycle	2

Division of syllabus for university exam

**PAPER-I**

1. Enzymes
2. Biological Oxidation
3. Digestion and absorption
4. Detoxification
5. Carbohydrate Chemistry and Metabolism
6. Vitamins
7. Nutrition
8. Lipid Chemistry and Metabolism
9. Hemoglobin Structure, functions & metabolism, Porphyrias and Hemoglobinopathies

**PAPER-II**

1. Protein Chemistry and Metabolism
2. Mineral metabolism
3. Nucleic acid chemistry and metabolism
4. Genetics
5. Hormones
6. Functional tests
7. Plasma Proteins and Immunoglobulins
8. Biological membranes
9. Carcinogens
10. Acid-base balance and water – Electrolyte balance



**PRACTICALS IN BIOCHEMISTRY:****40 Hrs.**

## A. Qualitative :

	No.of Practicals
1.Reactions of Carbohydrates	
a) Glucose & Fructose	1
b) lactose, Maltose and sucrose	1
c) Identification of Carbohydrates	1
2.Reactions of Proteins :	
a) Precipitation reactions	1
b) General colour reactions of Proteins and	
c) Albumin and above a&b	1
d) Casein	1
e) Gelatin and peptone	1
f) Identification	2
3.Normal Constituents of Urine	2
4.Abnormal Constituents of Urine	2
Identification of Abnormal Constituents of urine	2

## B. Quantitative :

1. Blood glucose	1
2. Blood Urea	1
3. S. Proteins	1
4. Urinary Creatinine	1
5. CSF Analysis	1
a) Proteins (I) Sulphosalicylic acid test (ii) Pandy's test	
b) Glucose	
c) Chlorides	

**10 Hrs.**

## C. Demonstrations :

1. Chromatography
2. Electrophoresis
3. GTT
4. S. Uric acid estimation
5. S. Bilirubin estimation

**Revision and conduct of Tests = 5 Practicals      20 Hrs.**  
**Tutorials and group discussions = 10 Practicals      50 Hrs.**

NOTE: Each Practical Carries two hours.

#### RECOMMENDED BOOKS :

1. Review of Biochemistry \_ Harper
2. Biochemistry by Debajyoti das
3. Text book of Biochemistry for Medical Students by D.M. Vasudevan & Sreekumari
4. Text book of Medical Biochemistry by M.N.Chatterjea and Rana shinde
5. **Medical Biochemistry by Dinesh Puri**

#### REFERENCE BOOKS

- |                                       |           |
|---------------------------------------|-----------|
| 1. Biochemistry                       | Lehninger |
| 2. Biochemistry                       | Stryer    |
| 3. Text Book of Clinical Biochemistry | Tietz     |
| 4. Clinical Biochemistry              | Varley    |

## 1<sup>st</sup> PROFESSIONAL- SYLLABUS

### (5) HUMAN PHYSIOLOGY INCLUDING BIO-PHYSICS

#### (i) Goal :

The broad goal of teaching Physiology to undergraduate students aims at providing the student a comprehensive knowledge of the normal functions of the organ systems of the body to facilitate an understanding of the Physiological basis of health and disease.

#### (ii) Objectives:

##### (a) KNOWLEDGE:

At the end of the course, the student shall be able to:

1. Explain the normal functioning of all the organ systems and their interactions for well coordinated total body function.
2. Assess the relative contribution of each organ system to the maintenance of the milieu interior
3. Elucidate the Physiological aspects of normal growth and development
4. Describe the Physiological reasons and adaptations to environmental stresses.
5. List the Physiological principles underlying pathogenesis and treatment of disease.

##### (b) SKILLS:

At the end of the course, the student shall be able to

1. Conduct experiments designed for study of Physiological phenomena;
2. Interpret experimental / investigative data
3. Distinguish between normal and abnormal data derived as a result of tests which he/she has performed and observed in the laboratory.

##### (c) INTEGRATION:

At the end of the integrated teaching the student shall acquire an integrated knowledge of organ structure and function and its regulatory mechanisms.

- 1) Source and functions of Reticulo-endothelial system;
- 2) Structure and sequence of events at Neuro-muscular junctions, Neuro-muscular blocking drugs and clinical disorders pertaining to Neuro-muscular junctions;
- 3) Structure of Gastric glands, composition and functions of gastric juice. Regulation of gastric, secretion Cytoprotection and peptiulcer;
- 4) Gastro-intestinal hormones – Source of production, structure and functions;
- 5) Blood pressure – Structure of Blood Vessels – Neural regulation, Hormonal regulation;
- 6) Anatomical location of Respiratory centers – Neural & chemical regulation of respiration;

- 7) Microcirculation-Structure – Mechanism of filtration and regulation of Microcirculation;
- 8) Counter-current Multiplier and exchange system – functions – clinical importance;
- 9) Thyroid gland – structure, synthesis – Metabolism of Thyroid hormones – Actions of Thyroid hormones – Disorders of Thyroid glands;
- 10) Pituitary gland – histological structure – Hormones of Anterior pituitary;
- 11) Ovary – Structure, endocrinal regulation – Structure and mechanism of female sex hormones and contraception;
- 12) Histology of cerebral cortex, Neural circuits and their importance;
- 13) Histology of Retina – Synthesis of Photopigments – Light and dark adaptation – Central pathway and its lessons.

### BIOPHYSICS

#### (i) GOAL AND OBJECTIVES:

The broad goal of teaching Bio physics to undergraduate students is that they should understand basic physical principles involved in the functioning of body organs in normal and diseased conditions.

Total time for teaching Biophysics	- 5 hours
Out of which :	
a. Didactic lectures	- 3 hours
b. Tutorial/group discussion	- 1 hour
c. Practical	- 1 hour

#### (ii) Topic distribution :

- a. Didactic lectures:
  - (i) Physical principles of transport across cell membranes and across capillary wall.
  - (ii) Biopotentials
  - (iii) Physical principles governing flow of blood in heart and blood vessels.  
Also physical principles governing flow of air in air passages.
- b. Tutorial/group discussion: On the topics covered in didactic lectures.
- c. Practicals:
 

Demonstration of:

  - (i) Bio potential on oscilloscope
  - (ii) Electro Encephalogram (E.E.G)
  - (iii) Electro Myelogram (E.M.G)
  - (iv) Electro Cardiogram (E.C.G)

#### iii) Theory Syllabus ( Physiology) :

Sl.No.	Name of the Unit	No.of Hours
1.	General Physiology	6
2.	Cell Physiology Muscle & Nerves	12
3.	Blood, Body fluids & RES	18
4.	Cardiovascular System	30
5.	Respiratory & Environmental Physiology	18

**Total 480 Hrs.**

6.	Digestive System	18
7.	Excretion & Skin	18
8.	Endocrines & Reproductive System	30
9.	Central Nervous System	30
10.	Autonomic Nervous System	3
11.	Special Senses	18
12.	Bio Physics	4
Total No. of Hours including Biophysics		<b>210</b>

**Division of syllabus paperwise:**

**PAPER I**

Cell, Blood, Biophysics, CVS, Respiration, Digestion, Excretion, Regulation of body temperature, Body fluids and RES.

**PAPER II**

Endocrines, reproduction, Muscle and Nerve, CNS, ANS and Special senses.

iv) Practicals in Physiology:

Sl.No.	Name of the Unit	No. of practicals
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**a. Human Practicals:**

1.	Introduction – Use of Microscope and Laboratory Protocol	1
2.	R.B.C.Count	1
3.	Total Leucocyte Count	1
4.	Bleeding Time & Clotting Time	1
5.	Blood Groups	1
6.	E.S.R.	1
7.	Estimation of Hemoglobin	1
8.	Hematological Indices	1
9.	Recording of Pulse & Blood Pressure	1
10.	Effect of Posture & Exercise on Blood Pressure	1
11.	Lung Function Tests – Spirometry & PEF	1
12.	Clinical Examination of Cardiovascular System	1
13.	Clinical Examination of Respiratory System	1
14.	Clinical Examination of Sensory Nervous System	1
15.	Clinical Examination of Motor Nervous System	1
16.	Clinical Examination of Cranial Nerve Functions	1
17.	Reflexes	1
18.	Tests for Hearing-Rinne's & Weber's Tests	1
19.	Acuity of vision & Tests for colour vision	1
20.	Platelet Count	1
21.	Reticulocyte Count	1

**b. Amphibian practical demonstrations & Interpretation of Graphs & Charts**

1.	Recording of simple Muscle Twitch	1
2.	Effect of Two successive stimuli of Muscle contraction	1
3.	Effect of Fatigue on Muscle-Nerve preparation	1
4.	Effect of Increasing strength of stimuli on Muscle contraction	1

5.	Genesis of Tetanus	1
6.	Effect of Temperature variation of Muscle contraction	1
7.	Effect of After load and Free load on Muscle twitch	1
8.	Determination of velocity of Nerve conduction	1
9.	Recording of normal Cardiogram	1
10.	Effect of Temperature variation on Heart beat	1
11.	Refraction period on beating Heart	1
12.	Properties of Cardiac Muscle-Stannius Legature, Summation, All-or-None Law, Treppe	1
13.	Effect of Vagosympathetic Stimulation on Frog's Heart	1
14.	Effect of Ions & Drugs on perfused frog's heart	1

**c. General Demonstrations**

1.	E.C.G.	1
2.	Pregnancy test	1
3.	E.M.G.	1
4.	Perimetry	1
5.	Ophthalmoscope	1
6.	E.E.G.	1
7.	Mosso's ergography	1
8.	Bicycle ergography	1
9.	Treadmill	1
10.	Pulmonary function tests	1
11.	Applied Physiology 30 x 2 = 60	30
12.	Tutorial and group discussions 60 x 2 = 120	60

Total no. of hours for practicals : 135 x 2 = **270**

**Recommended Text Books.**

- |    |                                   |  |
|----|-----------------------------------|--|
| 1. | Text book of Physiology           | – Dr.A.K.Jain II Vol.III Edn. Avichal Pub. |
| 2. | Concise Med. Physiology           | – Chaudhari                                |
| 3. | Human Physiology                  | – Sharada III Edn. Subramanyam, H.D.singh  |
| 4. | Understanding physiology III Edn. | – Bijilani                                 |

**Practical Books:**

- |    |                                   |                  |
|----|-----------------------------------|------------------|
| 1. | Practical Physiology              | – C.L.Ghai       |
| 2. | Text book of practical physiology | – Dr.A.K.Jain.   |
| 3. | A manual of practical Physiology  | – Pravathi Paul. |

**Reference books:**

- |    |                                       |   |
|----|---------------------------------------|---|
| 1. | Medical Physiology                    | – Guyton + Hall 10 <sup>th</sup> edn.   |
| 2. | Review of Medical Physiology          | – A.F.Ganong – 21 <sup>st</sup> Edn.    |
| 3. | Anatomy & Physiology                  | – Tora – Tora                           |
| 4. | Physiologic Basis of Medical Practice | – Best & Taylor – 10 <sup>th</sup> Edn. |

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY (M.B.B.S.)**

**SYLLABUS FOR 2<sup>nd</sup> PROFESSIONAL**

- 1) FOUNDATION COURSE STAGE – II**
- 2) PATHOLOGY**
- 3) MICROBIOLOGY**
- 4) PHARMACOLOGY**
- 5) FORENSIC MEDICINE**

## SYLLABUS FOR 2<sup>nd</sup> PROFESSIONAL

### 1) FOUNDATION COURSE STAGE – II

At this stage, the learners come into clinical contact for the first time. At the same time they need to pursue studies in the para clinical and clinical disciplines. The purpose of the foundation course, at this stage, should be to sensitize the learners to the basic principles of the following in an ethical manner.

The topics suggested are:

1. Art and science of history taking
2. Art and science of general physical examination.
3. Communication and behavioral skills.
4. Professional etiquettes and ethics.
5. Professionalism and ethical issues to be reinforced.
6. Prescription writing.
7. Sensitization to rational use of drugs, laboratory practice.

**The teaching learning methods are:**

1. Interactive lectures
2. Demonstration, Triggers
3. Case vignettes
4. Role play and role modeling

The course, at this stage, should involve Medicine as a lead department with support from other departments. A behavioral scientist, faculty from Community Medicine and representatives from other departments should be associated.

#### **Assessment**

Assessment should be conducted in the form of programme evaluation and feedback at the end of course. As indicated earlier, all aspects covered in this foundation course, should be duly assessed. Due weightage should be given for assessing all knowledge and skills in the final assessment in their respective discipline.



## **2) PATHOLOGY:**

### **(i) GOAL:**

The broad goal of the teaching of under graduate student in Pathology is to provide the students with a comprehensive knowledge of the mechanisms and cause of disease in order to enable him/her to achieve complete understanding of the natural history and clinical manifestations of disease.

### **(ii) OBJECTIVES:**

#### **(a) KNOWLEDGE:**

At the end of the course, the student shall be able to:

- (1) Describe the structure and ultra structure of a sick cell, mechanisms of cell degeneration, cell death and repair and be able to correlate structural and functional alterations.
- (2) Explain the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and curricular manifestations associated with it;
- (3) Describe the mechanisms and patterns to tissue response to injury such that he/she can appreciate the pathophysiology of disease process and their curricular manifestations;
- (4) Correlate normal and altered morphology (gross and microscopic) of different organ systems in common disease to the extent needed for understanding of disease processes and their clinical significance.

#### **(b) SKILLS:**

At the end of the course, the student shall be able to:

- (1) Describe the rationale and principles of technical procedures of the diagnostic laboratory tests and interpretation of the results.
- (2) Perform the simple bed-side tests on blood, urine and other biological fluid sample.
- (3) Draw a rational scheme of investigations aimed at diagnosing and managing the cases of common disorders;
- (4) Understand biochemical/physiological disturbances that occur as a result of disease in collaboration with pre-clinical department.

#### **(c) INTEGRATION:**

At the end of training he/she shall be able to integrate the causes of disease and relationship of different ethological factors (social, economic and environmental) that contribute to the natural history of diseases most prevalent in India.

## PATHOLOGY SYLLABUS

### i) Theory

Sl. No.	Name of the Unit	No. of Hours
GENERAL PATHOLOGY:		
1.	Cellular injury & Cellular death	3
2.	Cellular growth & differentiation normal regulation and adaptation	3
3.	Inflammation & Repair	5
4.	Haemodynamic disorders, Thrombosis & shock	5
5.	Genetic Disorders: Sex Chromatin, Turner's, Klinefelter's, Down's	3
6.	Diseases of Immunity including: a) S. L. E. b) Amyloidosis	4
7.	Neoplasia	6
8.	Infectious diseases a) Tuberculosis b) Leprosy – Integrated teaching c) Syphilis d) Typhoid e) Amoebiasis f) Rhino Sporidiosis g) Madura Micosis h) Aids – Integrated teaching	5
9.	Vitamins and Nutritional Disorders	
HAEMOTOLOGY:		
1.	Anemias	3
2.	Bleeding disorders	2
3.	Leukemias	2
4.	Plasma cell disorders	1
5.	Lymhnodes and spleen	3
SYSTEMIC PATHOLOGY:		
DISORDERS OF THE BLOOD VESSELS		4
a) Atherosclerosis b) Aneurysms C) Tumors d) Hypertension – Integrated teaching		
CVS		4
1. Pericardial diseases		
2. Ischaemic heart diseases		
3. Rheumatic heart disease – Integrated teaching		
4. Infective endocarditi		
5. Myocardial diseases		
6. Congenital heart diseases		

RESPIRATORY DISEASES	7
1. COPD	
2. Pulmonary infections and Lung abscess	
3. Pneumoconiosis	
4. ARDS (Adult Respiratory Distress Syndrome)	
5. Tumors	
6. <u>Diseases</u> of the Pleura	
DISEASES OF THE G.I.T	11
1. Salivary Gland diseases	
a) Tumors b) Inflammatory conditions	
2. Disease of the oral cavity and Esophagus	
3. Stomach	
a) Gastritis b) Peptic Ulcers – Integrated teaching	
c) Tumors integrated teaching	
4. Intestines	
a) I.B.D b) Mal absorption syndromes c) Tumors	
DISEASES OF THE LIVER AND BILIARY TRACT	5
1. Cirrhosis	
2. Hepatitis – Integrated teaching	
3. Tumors of Liver	
4. Tumors of Gall bladder	
5. Inflammatory diseases of Gall bladder	
6. Gall stones	
DISEASES OF PANCREAS	3
1. Pancreatitis 2. Tumors	
3. Diabetes Mellitus – Integrated teaching	
KIDNEY & LOWER UNIVARY TRACT	7
1. Cystic conditions of Kidney	
2. Glomerular diseases	
3. Tubular diseases	
4. Nephrotic Syndrome – Integrated teaching	
5. Pyelonephritis	
6. Renal stones	
7. Tumors of the Kidney	
8. Inflammatory conditions and tumors of the bladder	
MALE GENITAL TRACT	3
Inflammatory conditions & Neoplastic lesions involving Penis, Testis & Prostate	
FEMALE GENITAL TRACT	5
1. Cervicitis	
2. Carcinoma cervix – Integrated teaching	
3. Dysfunctional uterine bleeding	
4. Ovarian tumors	
5. Trophoblastic tumors	

DISEASES OF THE BREAST	3
Inflammatory conditions & Neoplasms	
ENDOCRINE DISORDERS	6
1. Thyroid disorder	
a) Hyper Thyroid b) Thyroiditis c) Goiters d) Tumors	
2. Para-thyroid disorder	
3. Pituitary gland disorders	
4. Adrenal glands disorders	
a) Disorders of hypertension b) Tumors and infections	
DISORDERS OF THE SKIN	1
DISORDERS OF THE BONES, JOINTS & MUSCLES	4
DISORDERS OF THE CENTRAL & PERIPHERAL NERVOUS SYSTEM	
a) Inflammatory b) neoplastic lesions	5

**ii) TOPICS FOR INTEGRATED TEACHING:**

1. Hypertention
2. Myocardial infarction
3. Peptic Ulcer
4. Diabetic mellitus
5. Nephrotic syndrome
6. Carcinoma cervix
7. Carcinoma stomach
8. Leprosy
9. Hepatitis
10. AIDS

**iii) DIVISION OF SYLLABUS PAPERWISE:**

PAPER I : General Pathology including Haematology  
PAPER II : Systemic Pathology.

**BASIC GUIDELINES FOR PATHOLOGY PRACTICALS, GROUP DISCUSSIONS**  
**INTEGRATED TEACHING, INTERNAL ASSESSMENT etc.,**

Total Hours : 200

**HAEMATOLOGY**

Topics	No. of Hours
1. Estimation of HB:	
a) Demonstration	1
b) Conduction of Practicals with Basic standard questionnaire & model disease charts for interpretation	1
2. RBC & WBC counts:	
a) Demonstration	1
b) Conduction of Practicals with Basic standard questionnaire & model disease charts for interpretation	1
3. Hematocrit & ESR:	
a) Demonstration	1
b) Basic standard questionnaire & model disease charts for Interpretation	1
4. Peripheral smear:	
a) Techniques of smear making & staining with demonstration	1
b) Identification of cells - demonstration	1
c) Model disease charts for interpretation	1
d) Practicals:	
i) Smears of Microcytic Hypochromic & Macrocytic Anaemial & Haemolytic Anaemias	1
ii) Smears of CLL	1
Smears of CML	1
Smears of Acute Irukemia: AML or ALL	1
iii) Eosinophilia	1
All the above with basic standard Questionnaire	
5. Bleeding Time, Clotting Time & Platelet Demonstration	1
6. Reticulocyte count Demonstration with basic standard Questionnaire	1
7. Bone marrow Examination	
a) Methods of collection and demonstration	1
b) Study of normal marrow	1
c) Study of 2 abnormal bone marrows	1
8. Blood groups & related things	1

**EXAMINATION OF URINE**

1. Physical characters & different samples with pH & Sp gravity Demonstration	1
2. Chemistry of Urine with Albumin, Blood, Sugar, Ketone bodies, Bilesalts & pigments Demonstration with discussion about errors in interpretation	1
3. Practical Tests for students:	
a) Albumin + Blood Physical properties & Clinical correlation	1
b) Sugar + Ketone bodies Physical properties & Clinical correlation	1
a & b with case charts for interpretation	

- |  |   |
|--|---|
| 4. Microscopy:   |   |
| a) Casts, crystals, RBC, Puscells Demonstration  | 1 |
| b) Case charts for interpretation  | 1 |
| 5. Pregnancy Test: Demonstration, discussion of normal & Molar pregnancies & Choriocarcinoma | 1 |

**EXAMINATION OF BODY FLUIDS**

- |   |   |
|---|---|
| 1. Demonstration of CSF, Plueral fluid, Ascitic fluid & Sputum – Normal Inflammation and malignancy | 1 |
| 2. Exfoliative Cytology :   |   |
| a) Techniques   | 1 |
| b) Demonstration of PAP, H & E of Cervical smears and Bronchial Wash                                | 1 |
| c) 3 disease samples with discussion & Clinical correlation   | 1 |
| 3. FNAC   |   |
| a) Techniques Demonstration   | 1 |
| b) inflammatory & Neoplastic cases for discussion & Interpretation                                  | 1 |
| 4. Sex Chromatin demonstration- Buccal smear interpretation   |   |

**EXAMINATION OF AUTOPSY**

Techniques of Autopsy and Autopsy demonstration & recording of 4 diseases	4
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**INSTRUMENTS**

**3**

1. RBC & WBC pipettes & diluting fluids
2. Neubauer chamber & Others
3. PCV Tube
4. ESR Tube
5. Hb Meter
6. Urino meter
7. Esbach's albumino meter
8. L.P. Needle
9. Bone marrow aspiration needles (Salah and Klima)
10. Cuvette of an autoanalyser

**GROSSING OF SPECIMENS**

5 Practical demonstration classes for 5 groups ( min 30 specimens)	5 hours
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**INTEGRATE TEACHING**

Topics as given by the University in the regulations of MBBS degree course	- 20 hrs
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## HISTOPATHOLOGY

Total Hours : 44

- |  |          |
|--|----------|
| 1. Histopathology Lab – Practical demonstration of steps involved  | 1        |
| 2. Staining Techniques, H&E Special stains :<br>PAS, Vangieson, Sudan (Fat), Iron  | 2        |
| 3. Preparation of Requisition for Pathology Lab<br>Points to remember - fixatives<br>Clinical details Specific points regarding the lesion | 1        |
| 4. Slides : Any 44 of the following with at least 16 from General Pathology  | 40 hours |

### General Pathology slides

- |  |                                     |
|--|-------------------------------------|
| 1) Cloudy swelling                       | 11) Actinomycosis                   |
| 2) Fatty change                          | 12) Mycetoma                        |
| 3) Hyaline change                        | 13) Filarial Lymph node             |
| 4) Coagulation and caseous Necrosis      | 14) Leprosy                         |
| 5) Cells of Acute & Chronic inflammation | 15) Squamous papilloma, adenoma     |
| 6) Granulation tissue                    | 16) Lipoma, fibroma                 |
| 7) CVC Lung & Liver                      | 17) Capillary & Cavernous angioma   |
| 8) Thrombus                              | 18) Cellular features of malignancy |
| 9) Amyloidosis (Spleen)                  | 19) Squamous cell Ca. & adeno Ca.   |
| 10) Rhinosporidiosis                     | 20) Fibrosarcoma                    |

### Systemic Pathology slides

1. Blood Vessels & Heart :
  - a. Atherosclerosis
  - b. Monckeberg's arteriosclerosis
  - c. Hyaline arteriosclerosis
  - d. TAO
  - e. Aschoff's body
  - f. Myocardial infarction
2. Respiratory system :
  - a. Emphysema
  - b. Bronchiectasis
  - c. Lobar & Bronchopneumonias
  - d. Pulmonary tuberculosis
  - e. Carcinoma Lung
3. Kidney
  - a. Chronic Glomerulonephritis
  - b. Chronic Pyelonephritis
  - c. Benign Nephrosclerosis
  - d. Wilm's Tumor
  - e. Renal Cell carcinoma
4. Breast.
  - a. Fibroadenoma
  - b. Duct cell carcinoma
5. Thyroid
  - a. Hashimoto's Thyroiditis
  - b. Grave's disease
  - c. Follicular adenoma
  - d. Papillary Carcinoma
6. Lymphonodes
  - a. Hodgkin's lymphoma
  - b. Non-Hodgkin's Lymphoma
  - c. TB Lymph node
7. Salivary glands:  
Pleomorphic adenoma
8. Liver
  - a. Cirrhosis
  - b. Hepatoma
9. GIT
  - a. Chronic Gastric ulcer
  - b. Carcinoma stomach & colon
  - c. Carcinoid appendix
10. Testis & FGT
  - a. Seminoma
  - b. Endometrium Proliferative Secretory
  - c. Leiomyoma
  - d. Dermoid Cyst
  - e. Vesicular mole
11. Skin
  - a. Basal cell carcinoma
  - b. Melanoma
12. Musculo Skeletal
  - a. Osteomyelitis
  - b. Osteo sarcoma
  - c. Chondro sarcoma
  - d. Giant cell tumor
  - e. Ewing's sarcoma

### GROUP DISCUSSIONS PRACTICAL - ORIENTED & THEORY- ORIENTED

-78 Hours

Topics: (with standard basic questionnaire) (14+64) 7 x 2 : 14

- a) Collection of blood, methods & anticoagulants
- b) Anaemias
- c) Haemorrhagic disorders
- d) Leukemias & Lymphomas
- e) Blood groups & Transfusion reactions
- f) Urine changes \_ Physical & Chemical Characters with clinical correlation  
Discussion of Jaundice



- g) Body fluids sampling ( collection ) preservation Techniques , variability in disease
- h) Topics of certain common disorders in general and systemic pathology in the form of questionnaire and Group discussion - 32 topics excluding topics covered in integrated teaching. - 64 Hours
- i) HIV

Each topic not more than 2 Hours.

**INTERNAL ASSESSMENT** - 12 hours

- a. Three(3) Theory examinations of 2 hours each
- b. One (1) Practical examination in divided batches together 6 hours.

**NUMBER OF CLASSES (HOURS)**

1.	Theory	:	113
2.	Practicals (Haematology-20, Urine-7, Fluids-6,Histopathology-44)	:	77
3.	Instruments	:	3
4.	Grossing of specimens	:	5
5.	Group discussion (Practical & Theory Oriented topics)	:	78
6.	Autopsy	:	4
7.	Integrated Teaching	:	20
	TOTAL	:	<b><u>300 Hours</u></b>

**BOOKS RECOMMENDED :**

1. Robbins Text Book of Pathology. \*
2. Robbins Pathologic Basis of Disease by cotran, Kumar of Robbins— 6<sup>th</sup> / latest
3. Muiri's text book of Pathology edited by J.R. Anderson
4. Text book of Pathology edited by Nagalothinath, K.P. Deodher & V.H. Talib
5. Text book of Pathology by Harsh Mohan 3<sup>rd</sup> edition / latested.
6. A Text book of Pathology by N.c. Dey & T.K. Dey

**REFERENCE BOOKS :**

1. Boyd Text Book of Pathology – 2 vols. \*
2. Anderson's Pathology Vol I & II 10th ed
3. Oxford text book of Pathology Vol I Vol II a 7 lib

## SYLLABUS FOR 2<sup>nd</sup> PROFESSIONAL

### **(3) MICROBIOLOGY :**

#### **(i) Goal :**

The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease in order to deal with the etiology pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

#### **(ii) Objectives :**

##### **(a) KNOWLEDGE :**

At the end of the course, the student shall be able to :

- 1) State the infective micro-organisms of the human body and describe the host parasite relationship;
- 2) List pathogenic micro-organisms (bacteria, viruses, parasites, fungi) and describe the pathogenesis of the diseases produced by them;
- 3) State indicate the modes of transmission of pathogenic and opportunistic organisms and their sources including insect vectors responsible for transmission of infection;
- 4) Describe the mechanisms of immunity to infections;
- 5) Acquire knowledge on suitable antimicrobial agents for treatment of infections and scope of immunotherapy and different vaccines available for prevention of communicable diseases;
- 6) Apply methods of disinfections and sterilization to control and prevent hospital and community acquired infections.
- 7) Recommend laboratory investigations regarding bacteriological examination of food, water, milk and air.

##### **(b) SKILLS :**

At the end of the course, the student shall be able to :

- (1) plan and interpret laboratory investigation for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent;
- (2) identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents ;
- (3) perform commonly employed bed-side tests for detection of infectious agents such as blood film for malaria, filaria, Gram staining and Acid Fast Bacilli(AFB) staining and stool sample for ova cyst etc.,
- (4) use the correct method of collection, storage and transport of clinical material for microbiological investigations.

(C) INTEGRATION:

The student shall understand infectious diseases of national importance in relation to the clinical, therapeutic and preventive aspects.

2) **SYLLABUS OF MICROBIOLOGY** :

Sl. No.	Name of the unit (Lectures)	No.of.Hours
1.	General Bacteriology	8
2.	Immunology	20
3.	Parasitology	20
4.	Systemic Bacteriology	25
5.	General Virology AND Systemic Virology	15
6.	Mycology	6
	Total No. of Hours	<b><u>94</u></b>

**TEACHING HOURS CAN BE DIVIDED AS FOLLOWS :**

1.	Lectures	94
2.	Practicals	50
3.	Demonstrations	50
4.	Symposia & Seminars	40
5.	Internal assessment	16
	Grand Total	<b><u>250</u></b>

**NOTE : THE DETAILED SYLLABUS IS VIDE ANNEXURE (A)**

2) **Syllabus of Microbiology** :

i) BROAD AREAS OF STUDY

- a. General bacteriology : Those aspects of general bacteriology which help the student to understand the bacterial pathogenesis, diagnosis, treatment, prevention and control' should be 'must know' category.
  1. Introduction to microbes and methods of studying them.
  2. Source and spread of microbes and infection control and containment including principles and use of antimicrobial agents
  3. The pathogenic mechanisms of microbes and pathogenesis of infectious diseases.
  4. Principles and methods of diagnosis of infections and infectious diseases.
- b. Immunology : The basic principles of immunity and immunological phenomenon which help to understand the pathogenesis, laboratory diagnosis and control of infectious diseases and non-infectious diseases should be 'must know' category.
  - The immune system and host's response to infection.
- c. Systematic microbiology
- d. Prevention of infectious diseases
- e. Infections and diseases of various systems of the body.

ii) DETAILED SYLLABUS

**Chapter 1: Introduction to Microbes and Methods of studying them :**

**Theory :**

Objectives : At the end of the chapter, the student should be able to

- a. Describe the unique properties of unicellular organism prokaryote, and viruses in contrast with those of eukaryotes
- b. State the rationale of classifying microbes into bacteria, fungi, parasites and viruses.
- c. Recall the growth requirements of microbes
- d. Use microscopes, media, wire loops, staining procedures & similar equipment and processes
- e. The nature of bacteria: morphology
- f. Growth requirements of bacteria (includes the study of media); metabolism and genetics
- g. Nomenclature and classification of microorganisms
- h. Microscopy-types and their principles
- i. The biology of Protozoa
- j. The nature and properties of viruses, Bacteriophage
- k. The laboratory methods of cultivating viruses
- l. The nature of fungi: basic structure and classification
- m. Growth requirements of fungi

**Practical :**

Objectives : At the end of the chapter, the student shall be able to

- a. identify various morphological forms of bacteria, fungi, viruses and parasites that cause human infections.
- b. Perform simple, differential staining and other techniques to demonstrate micro-organisms and also to interpret their results.
- c. To identify common laboratory methods used for cultivation and identification of microbes.

**Practical exercises :**

- a. Introduction of media; smear making; simple and differential stains; other basic techniques to demonstrate micro – organism and microscopy
- b. The microscope; the morphology of micro-organisms. Bacteria :
- c. Cell cultures, cytopathic effect; haemagglutination by viruses; inclusion bodies; animal inoculation.

## **Chapter 2: The Source and Spread of Microbes**

### **Theory :**

Objectives: At the end of the chapter, the student will be able to

- a. define the terms: reservoir, source, exposure, colonization, infection, diseases, vector, fomite, epidemiology, endemicity, epidemic, pandemic, epizootic, incidence, prevalence, zoonosis, attack rate, asepsis, antisepsis, sterilization, disinfections
- b. list various routes of exposure to microbes
- c. Routes of spread of infections; endogenous vs. exogenous; source and reservoir of infections
- d. Sterilization, antisepsis, disinfection and asepsis
- e. Hospital acquired infections

### **Practical**

objective : At the end of the chapter, the student shall be able to

- a. observe the presence of microbes in our environments by studying settle plates
- b. observe the presence of normal flora in nose, throat, etc.
- c. interpret sterility tests done on various materials
- d. sample appropriate clinical materials for tracing the source and spread of both community and hospital acquired infections.
- e. Interpret the findings of various 'surveillance' procedures

### **Practical demonstrations :**

- a. Demonstration of the equipments and agents used in sterilization and disinfection.
- b. Study of microbes in our environment by settle plates; effect of hand washing method
- c. Study of normal flora of man by examining throat and nasal swabs and also by cough plate method
- d. Visit to the Microbiology Laboratory and Central Sterilization and Supplies Department (CSSD)

### **Chapter 3 : The pathogenic mechanisms of microbes and pathogenesis of infectious diseases**

#### **Theory :**

Objectives : At the end of the chapter, the student shall be able to

- a.enumerate the variety of interactions between microbes and humans, ranging from commensalism to pathogenesis
- b.define words: saprophyte, commensal, carrier state, latency, chronic infection, virulence, opportunism, toxin, invasion, viraemia, bacteriaemia and septicaemia
- c.Cite examples of different pathogenic mechanisms of bacterial, fungal, parasitic and viral illness
- d.state the principles of quantitation of microbial dose in animal inoculation , such as minimum infectious dose, lethal dose and of neutralization
- e.Host parasite interactions- mechanisms of microbial pathogenesis; infection; host response; virulence; toxigenicity
- f. Pathogenesis of bacterial infections
- g.Pathogenesis of parasitic infestations
- h.Pathogenesis of viral infections
- i. Pathogenesis of fungal infections

#### **Practical :**

Objective : At the end of the chapter, the student shall be able to demonstrate the virulence factors of microorganisms, using simple techniques

#### **Practical demonstrations :**

- a.demonstration of capsule; coagulase test
- b.demonstration of Elek's test; experimental tetanus
- c. case study : bacterial diseases viral diseases

## Chapter 4 : The immune system and host's response to infection

### Theory :

Objectives ::At the end of the chapter the student shall be able to

- a.describe the anatomy and physiology of primary and secondary lymphoid organs tissues and cells of immune system
- b.describe the terms: natural resistance, immunity, antigen, epitope, hapten, antibody, immunoglobulin, local immunity, systemic immunity, cell mediated immunity, hypersensitivity, autoimmunity, memory and also correlate them with normal physiology and pathology;
- c. describe with examples various types of antigen – antibody reactions in vitro and in vivo
- d.enumerate the immune deficiency states and their causes
- e.describe the tests used to measure the immune functions
- f. state the principles of histocompatibility
- g.anatomy of immune apparatus
- h.Antigens; antigen presentation and cell cooperation in immunity
- i. Immunoglobulins and their role in immunity
- j. Antigen – Antibody reactions – 1
- k. Antigen – Antibody reactions – 2
- l. Cell mediated immunity and their role in immunity
- m. Complement and its role in immunity
- n.Hypersensitivity
- o.Measuring immune functions
- p.Autoimmunity
- q.Immunodeficiency and tolerance
- r. Transplantation immunology
- s.Immunization
- t. Tumour immunology

### Practical :

Objectives : At the end of the session, the student shall be able to identify and interpret the results of the following tests:

- a.Slide and tube agglutination, latex agglutination and coagglutination; indirect and reverse passive haemagglutination tests
- b.Capillary and gel precipitation tests counter immunoelectrophoresis and radial immunodiffusion
- c. Complement fixation test
- d. ELISA test
- e. Various skin tests

### Practical:

- a.Phagocytosis; opsonization
- b.Immunoprecipitation tests
- c.Agglutination test
- d.Delayed hypersensitivity ; and tests for CMI
- e.Rheumatoid factor, antinuclear antibody

## **Chapter 5: The Principles and methods of diagnosis of infections and infectious diseases and their treatment :**

### **Theory:**

Objectives : At the end of the chapter, the student shall be able to

- a. List the diagnostic tests used for common and important infections and identify the specimens necessary for each
- b. State the principles of isolating/culturing bacteria, viruses & fungi
- c. Describe the principles of antigen detection methods
- d. List various serological tests and state their principles, applications in diagnosis
- e. Demonstrate various microbes / parasites / ova /cysts by direct microscopy
- f. collection and transport of clinical samples; culture of microbes
- g. Serological methods of diagnosis of bacterial infections
- h. Serodiagnosis of fungal infections
- i. Serodiagnosis of viral infections
- j. Serodiagnosis of parasitic infections
- k. Rapid diagnostic methods especially with reference to viruses

### **Practical :**

Objective: At the end of the session, the student shall be able to perform and interpret the following techniques

- a. Simple stains, Gram stain, Acid fast staining techniques; saline and iodine preparations for ova & cysts and also concentration methods; peripheral blood smear for parasites; lactophenol cotton blue & KOH preparations for fungi rapid diagnostic methods
- b. Be able to collect appropriate clinical material for laboratory diagnosis
- c. Be able to do preliminary processing of clinical materials

### **Practical demonstrations :**

- a. Demonstration of specimen container, collection of specimens, transport and media; preliminary processing in the laboratory
- b. Demonstration of common methods used for demonstration of pathogenic microorganisms
- c. Culture of bacteria, fungi, protozoa, viruses
- d. Rapid diagnostic tests for various microorganisms



## **Chapter 6: Principles and uses of antimicrobial agents**

### **Theory:**

Objectives : At the end of the chapter, the student shall be able to

- a. list antimicrobial agents and classify them as antibiotics and chemotherapeutic agents.
- b. Define the terms : susceptibility, resistance and describe the mechanisms of transferable and nontransferable drug resistance
- c. Describe the tests necessary to determine drug susceptibility, antibiotic concentration and serum bactericidal level
- d. Antimicrobial resistance
- e. Laboratory monitoring of antimicrobial therapy

### **Practical:**

Objectives : At the end of the course, the student should be able to interpret the results of

- a. Disc diffusion tests
- b. MIC/MBC value, break – points, MIC 50, MIC 90, etc.
- c. Assays for antimicrobial levels in body fluids

### **Practical demonstration :**

- a. Demonstration of antimicrobial susceptibility tests both diffusion and dilution tests
- b. Demonstration of antimicrobial assay

## Chapter 7 : Systematic microbiology

### Theory:

Objectives: At the end of chapter, the student shall be able to

- a. State the basic taxonomy of common and important microorganisms
- b. Recall the basic principles of identifying microbes
- c. List the basic biological properties of common and important microbes
- d. Describe the role of physician in initiating microbiological investigations

### Bacteriology

- a. Staphylococci
- b. Streptococci
- c. Neisseria
- d. Corynebacteria
- e. Mycobacteria
- f. Bacillus
- g. Clostridium
- h. Actinomycetes
- i. Haemophilus and Bordetella
- j. Enterobacteriaceae
- k. Vibrios and Campylobacter
- l. Brucella, Francisella and Legionella
- m. Pseudomonas and other non-fermenters
- n. Spirochaetes – Treponema, Borrelia, Leptospira
- o. Rickettsia
- p. Chlamydia
- q. Nonsporing anaerobic bacteria
- r. Mycoplasma and L Forms
- s. Helicobacter, Listeria, Ratbite fever, Erysipelothrix, Kingella Miscellaneous bacteria – Ref. Ananthanarayana's text book of Microbiology.

### Mycology

- a. Agents of very superficial mycoses
- b. Agents of superficial mycoses; dermatophytoses
- c. Agents of subcutaneous mycoses
- d. Agents systemic mycoses
- e. Opportunistic fungi, Mycotoxicosis.

### Virology

#### RNA Viruses:-

- a. Picorna viruses
- b. Orthomyxo and Paramyxo
- c. Rhabdo viruses
- d. Arbo and Robo
- e. Slow viruses
- f. Retro viruses
- g. Oncogenic viruses
- h. Viruses causing gastroenteritis
- i. Hepatitis viruses

DNA Viruses:-

- a. Pox viruses
- b. Herpes viruses
- c. Adeno viruses
- d. Papova Viruses
- e. Parvo viruses
- f. Oncogenic viruses

Parasitology

- a. Entamoeba histolytica and free living amoeba
- b. Giardia, Trichomonas, Sarcocystis, and Toxoplasma, cryptosporidium, isospora
- c. Leishmania and Trypanosomes.
- d. Plasmodia and Babesia
- e. Medically important helminths belonging to Cestoda, Trematoda and Nematoda

Practical: Objectives:

- a. Bacteriology: The student shall be able to identify pathogenic bacteria by Gram stain, morphology, colony characters and key biochemical reactions
- b. Mycology: the student shall be able to identify pathogenic fungi by their appearance in Lactophenol cotton blue preparation, KOH, Indian Ink preparations, Gram and other staining as well as pertinent colony morphology
- c. Parasitology: the student shall be able to identify ova and cysts of common intestinal parasites, identify blood and tissue parasites

## Chapter 8 : Prevention of Infectious Diseases

### Theory:

Objectives: At the end of the chapter the student shall be able to define terms; passive and active immunity, live and killed vaccine; efficacy of vaccine; disease control and eradication

- a. Epidemiology of infectious diseases
- b. Hygiene and protection of food and water
- c. Immunization schedules in India; vaccine efficacy; universal immunization

### Practical:

Objectives: At the end of the session, the student shall be able to

- a. discuss a case study on an outbreak situation
- b. apply principles of asepsis, antisepsis and disinfection in day-to-day clinical practice
- c. interpret results of sterility tests done on various materials

### Practical demonstrations:

- a. Case study of an epidemic/outbreak of nosocomial infection
- b. Demonstration of vaccines & toxoids, antisera & infection specific immunoglobulins
- c. Bacteriological analysis of water; Pasterization of milk

## Chapter 9 : Systemic Microbiology

( Infections & Diseases of the various systems of the Body)

- a. List infectious diseases of each system and correlate them with probable aetiological agents
- b. Understand the aetiology, pathogenesis and methods of laboratory diagnosis and apply that knowledge in the treatment and prevention of common communicable diseases caused by all types of microorganisms
- c. Gastrointestinal infections caused by bacteria; Peptic ulcer disease; enteric fever, gastroenteriti; shigellosis; food poisoning
- d. Gastrointestinal infections caused by parasites:
- e. Gastrointestinal infections caused by viruses
- f. Hepatitis and other infections of liver and biliary tract
- g. Upper respiratory tract infections – viruses
- h. Acute infections of lower respiratory tract
- i. Chronic infections of lower respiratory tract; national TB control program
- j. Sexually transmitted diseases; national STD control program
- k. Urinary Tract infections
- l. Infections of Central Nervous System – bacterial
- m. Infections of Central Nervous System – non bacterial
- n. Wound infections
- o. Superficial fungal infections: dermatomycoses; national leprosy control program
- p. Deep mycoses
- q. Eye infections: national program for prevention of blindness
- r. Septicaemic conditions
- s. Bone, joint and related conditions
- t. Exanthematous conditions

- u. Opportunistic infections
- v. Blood and tissue parasites; national filariasis control program, national malaria control program

**Practical :**

Objectives : At the end of the session, the student shall be able to identify the agents causing infections of various systems of the body and the student shall be able to collect appropriate specimens at an appropriate time and send them to the laboratory.

**Practical exercises:**

- a. Viable counts on normal faeces
- b. Case study – dysentery; stool with ova and cysts
- c. Case study – cholera with demonstrations
- d. Case study – typhoid with demonstrations
- e. Case study – infective and serum hepatitis with demonstrations
- f. Case study – diphtheria with demonstrations
- g. Case discussion – diagnosis of tuberculosis
- h. Microscopic morphology of agents causing STD; Demonstrations of syphilis and HIV serology
- i. Case study – UTI with demonstrations
- j. Microbiology of CNS infections – demonstrations
- k. Carrier study of Staphylococcus on skin, throat and nose
- l. Diagnosis of dermatomycosis, mycetoma and chromomycosis
- m. Laboratory diagnosis of candidiasis and cryptococcosis
- n. Demonstration of fungi causing deep mycoses
- o. Demonstration of agents causing eye infections
- p. Case study – endocarditis, Gram negative septicaemia, brucellosis, enteric fever and parasitaemia
- q. Case study- acute infections of bone ,etc.

**Division of Syllabus paperwise :**

**PAPER I :** General bacteriology, immunology & systemic bacteriology

**PAPER II:** Parasitology, Virology and Mycology.

**Microbiology books recommended :**

1. Text book of Microbiology – Dr. R. Anantanarayan – C.J. Paniker
2. Medical Microbiology – Dr. C.P. Baveja
3. Microbiology – Dr. Arora
4. Microbiology – Chakrabarthy
5. Essential Microbiology – Rajesh Bhatia & R.L. Ichpujanti
6. Text book of Microbiology – David Greenwood

**Reference Books:**

1. Review of Microbiology – Jawetz
2. Essential Immunology – Ivon Roitt
3. Text Book of Parasitology – S.C. Parija (Reference)
4. Text book of Parasitology – C.J. Panicker

## SYLLABUS FOR 2<sup>nd</sup> PROFESSIONAL

### 4) PHARMACOLOGY & THERAPEUTICS

#### (i) Goal:

The broad goal of the teaching of undergraduate student in pharmacology is to inculcate a rational and scientific basis of therapeutics.

#### (ii) Objectives:

##### (a) KNOWLEDGE:

At the end of the course, the student shall be able to:

- (1) Describe the pharmacokinetics and pharmacodynamics of essential and commonly used drugs;
- (2) List the Indications, contraindications, interactions and adverse reactions of commonly used drugs;
- (3) Indicate the use of appropriate drug in a particular disease with consideration to its cost, efficacy and safety for
  - (i) Individual needs;
  - (ii) Mass therapy under national health programmes
- (4) Describe the pharmacokinetic basis clinical presentation, diagnosis and management of common poisonings;
- (5) List the drugs of addition and recommend the management;
- (6) Classify environmental and occupational pollutants and state the management issues;
- (7) Indicate causations in prescription of drugs in special medical situations such as pregnancy, lactation, infancy and old age;
- (8) Integrate the concept of rational drug therapy in clinical pharmacology;
- (9) State the principles underlying the concept of Essential Drugs;
- (10) Evaluate the ethics and modalities involved in the development and introduction of new drugs;

##### (b) SKILLS:

At the end of the course, the student shall be able to:

- (1) Prescribe drugs for common ailments;
- (2) Recognise adverse reactions and interactions of commonly used drugs;
- (3) Observe experiments designed for study of effects of drugs, bioassay and interpretation of the experimental data;
- (4) Scan information on common pharmaceutical preparations and critically evaluate drug formulations;

##### (c) INTEGRATION:

Practical knowledge of use of drugs in clinical practice will be acquired through integrated teaching with clinical departments are pre clinical departments.

#### 4) SYLLABUS OF PHARMACOLOGY:

i) Theory		
Sl.No.	Name of the Unit	No. of Hours
1.	General pharmacology	10
2.	Autonomic nervous system	8
3.	Central nervous system	16
4.	Cardio vascular system	8
5.	Biogenic amines & Autocoids	3
6.	Respiratory system	2
7.	Blood and blood forming agents Anticoagulants, fibrinolytic drugs etc.,	4
8.	Kidney – diuretics	2
9.	Gastro intestinal system	3
10.	Drugs acting on the Uterus	1
11.	Chemotherapy	22
12.	Endocrinology	10
13.	Dermatological Pharmacology	1
14.	Geriatric pharmacology	1
15.	Paediatric Pharmacology/Neonatal Pharmacology	1
16.	Safety of drugs in Pregnancy	1
17.	Hazards of smoking, alcohol, narcotics, Environmental pollution	2
18.	Immuno Pharmacology	1
19.	Metallic poisoning	1
20.	Vitamins & Sex Hormones	1
21.	National programmes including Management of AIDS	2
<b>Total Hours</b>		<b>100</b>

#### DETAILED SYLLABUS OF PHARMACOLOGY

##### 1) General Pharmacology

- Sources of drugs
- Routes of drug administration
- Drug absorption
- Drug distribution
- Drug Bio transformation
- Drug excretion
- Methods of prolonging drug action
- Mechanisms of drug action
- Factors modifying drug action
- Bio-availability, Biological half-life, Bioequivalence
- Adverse drug reactions
- Drug dependence
- Drug Interactions
- Structural activity relationship
- Clinical evaluation of a New drug

##### 2) Autonomic Nervous System

- Introduction to Automic Nervous System
- Adrenergic transmission
- Adrenergic drugs
- Adrenergic blocking agents
- Cholinergic transmission
- Cholinergic drugs
- Cholinergic blocking agents
- Anticholinesterases
- Treatment of parkinsonism
- Treatment of Organophosphorous poisoning.

### 3) Central Nervous System

- Introduction of historical aspects, alcohols
- General Anaesthetics, basal anaesthesia of Premedication
- Depressants - Barbiturates, Opioids, Benzodiazepines, Antipyretics and analgesics, (NSAIDS)
- Stimulants – Central nervous system stimulants and spinal stimulants Epilepsy and anticonvulsants
- Drug addiction
- Skeletal Muscle relaxants
- Local Anaesthetics
- Psycho-pharmacology

### 5) Autocoids

- Histamine, Antihistamines
- Serotonin & its antagonists
- Prostaglandins, Brady Kinins
- Polypeptides, Rennin-Angiotensin mechanism

### 7) Chemotherapy

- Introduction and principles of Antimicrobial Therapy
- Sulfonamides, Cotrimoxazole and Fluoroquinolones
- Penicillins and Newer Penicillins
- Cephalosporins
- Macrolides and other Antibiotics
- Aminoglycosides Antibiotics
- Broad spectrum antibiotics
- Chemotherapy of UTI
- Antituberculosis drugs
- Anti leprotic drugs
- Anti fungal drugs
- Anti viral drugs & Chemotherapy of AIDS
- Anti Malarials
- Antiamoebic drugs
- Chemotherapy of other Anti protozoal infections
- Anthelmintics
- Antiseptics, Disinfectants and ectoparasites
- Chemotherapy of neoplastic diseases.

### 4) Cardio vascular system

- Cardiac glycosides
- Anti arrhythmic agents
- Anti hypertensives
- Anti anginal drugs
- Pharmacology of shock, Vasodilators and management of myocardial infarction, cardiogenic shock, left ventricular failure.
- Plasma lipid lowering agents
- Diuretics

### 6) Miscellaneous topics

- Heavy metal Poisoning
- Environmental Poisoning
- Hazards of smoking
- Drugs of addiction
- Geriatric Pharmacology
- Paediatric pharmacology
- Dermatological pharmacology
- General Principles of management of Poisoning
- Drugs during pregnancy, Lactation
- Drugs and preventive measures for AIDS, and National World Health Organisation programmes.

### 9) Blood

- Megaloblastic anaemias
- Microcytic (Iron deficiency) Anaemias
- Anti coagulants
- Fibrinolytic agents & Anti platelet agents

### 10) Drugs acting on uterus

- Uterine stimulants
- Uterine relaxants

### 11) Respiratory system

- Cough suppressants & Mucolytic agents
- Treatment of Bronchial Asthma



**8) Drugs acting on Uterus, Respiratory System and G.I.T. & Blood**

- Appetite stimulants & suppressants
- Emetics & Anti emetics (Prokinetic agents)
- Anti diarrhoeal agents Treatment of diarrhoea
- Treatment of peptic ulcer
- Purgatives

**12) Hormones (Endocrinology)**

- Posterior pituitary hormones & related factors, ADH.
- Anterior pituitary growth hormones
- Thyroid hormone & Antithyroid drugs
- Diabetes mellitus – Insulin, oral Antidiabetic drugs and newer antidiabetic drugs
- Adrenal cortical Steroids – Miners corticoids and synthetic steroids
- Parathyroid – Parathormone – Calcitonin – Calcium metabolism
- Sex hormones – Estrogens, Progestins and anti estrogens, antiprogestins
- Androgens – Antiandrogens

**Division of Pharmacology syllabus paper wise:**

**PAPER I** : General Pharmacology, ANS, CNS, CVS AND drugs actings on renal systems.

**PAPER II** : Chemotherapy, hormones, GIT, Blood, Drugs acting on uterus, Heavy metal poisons, Drugs for Resp. diseases.

ii **PRACTICAL SYLLABUS** (Pharmacology)

60 hours

This includes preparation of different dosage forms, formulations, prescription writing, clinical Pharmacy exercises, problem bases clinical study of cases, drug interactions, adverse drug reactions, demonstrations of the museum specimens attached to the department, visit to a pharmaceutical company, bedside teaching.

**EXPERIMENTAL PHARMACOLOGY DEMONSTRATION** 60 hours

- Effects of Cholinergic, adrenergic, histaminergic drugs and their antagonists on dogs.
- Skeletal muscle relaxant effect in rabbits.
- Opioid analgesic effect, straub's test in mice
- Convulsant and anticonvulsant effects of certain drugs in rats and mice by different methods.
- General anaesthetic effect of ether of certain drugs in rats and mice by different methods
- Analgesic and anti inflammatory effects of certain drugs in rats and mice by different methods.
- Prothromben time estimation
- Respiratory function tests and the effect of drugs in their alteration – Beta Blockers – Selective and non-selective.
- General principles of spectroscopy, Colorimetry, Fluorimetry HPLC etc., with live demonstration if possible
- Clinical Pharmaco Kinetics:

Study of half life of a drug, bio-availability etc., wherever facilities are available in the college or locally at any other institute.

iii) CLINICAL ORIENTED PROBLEMS: 60 hours

- Problem based learning (PBL)
- Continuing Medical Education (CME)
- Integrated teaching (ITC) classes
- Seminars
- Visit to Pharmaceutical firms

iv) Tutorials: 20 hours

The tutorial hours can be enhanced by reducing the same from either i), ii) or iii)

#### **SUGGESTED STANDARD TEXT BOOKS**

1. Pharmacology & Pharmacotherapeutics by Dr. Satoskar
2. Essentials of Medical Pharmacology by Dr. Tripathi.

#### **REFERENCE BOOKS:**

1. Applied & clinical Pharmacology by Rang Dale & Katzung.
2. Pharmacological basis of Therapeutics by Goodman & Gillman.
3. Clinical Pharmacology by Laurance.
4. Illustrated book in Pharmacology by Lippincott.

## SYLLABUS FOR 2<sup>nd</sup> PROFESSIONAL

### 5) FORENSIC MEDICINE INCLUDING TOXICOLOGY:

#### (i) Goal :

The broad goal of the teaching of undergraduate students in Forensic Medicine is to produce a physician who is well informed about medicolegal responsibilities in practice of medicine. He / She will also be capable of making observations and inferring conclusions by logical deductions to set enquiries on the right track in criminal matters and connected medicolegal problems. He / She acquires knowledge of law in relation to medical practice, medical negligence and respect for codes for medical ethics.

#### (ii) Objectives:

##### (a) KNOWLEDGE:

At the end of the course, the student shall be able to :

- (1) Identify the basic medicolegal aspects of hospital and general practice;
- (2) Define the medicolegal responsibilities of a general physician while rendering community service either in a rural primary health centre or an urban health centre;
- (3) Appreciate the physician's responsibilities in criminal matters and respect for the codes of medical ethics;
- (4) Diagnose, manage and identify also legal aspects of common acute and chronic poisonings;
- (5) Describe the medicolegal aspects and findings of postmortem examination in case of death due to common unnatural conditions and poisonings;
- (6) Detect occupational and environmental poisoning prevention and epidemiology of common poisoning and their legal aspects particularly pertaining to Workmen's Compensations Act;
- (7) Describe the general principles of analytical toxicology.

##### (b) SKILLS:

At the end of the course, the student shall be able to:

1. Make observations and logical inferences in order to initiate enquiries in criminal matters and medicolegal problems.
2. Diagnose and treat common emergencies in poisoning and manage chronic toxicity;
3. Make observations and interpret findings at postmortem examination;
4. Observe the principles of medical ethics in the practice of medical Profession.

##### (c) INTEGRATION:

Department shall provide an integrated approach towards allied disciplines like Pathology, Radiology, Forensic Sciences, Hospital Administration etc., to impart training regards medicolegal responsibilities of physicians at all levels of health care. Integration with relevant disciplines will provide scientific basis of clinical toxicology e.g. medicine, pharmacology etc.,

## 5) SYLLABUS OF FORENSIC MEDICINE:

Sl. No.	Name of the Unit	No. of Hours	
		Theory	Practical
1.	Introduction to legal procedure at an inquest, Criminal courts and their powers and procedures, examination of a medical witness in the court, Medical evidence, Types of witness. Conduct and duties of doctor in the witness box, procedures of examination of the body at the scene of crime, criminal trial.	4	-
2.	Medical law and Ethics-functions of medical councils, code of medical ethics, infamous conduct, rights and duties of medical practitioners, physician's responsibility in criminal matters, professional negligence, Vicarious liability, Medical records, Products liability, Medical indemnity, insurance, Euthanasia, consent in Medical practice, medical experimentation. Malingering. Consumer protection Act & Consumer courts.	4	-
3.	Identification of the living and the dead.	2	5
4.	Medicolegal Autopsy. Rules for autopsies, Autopsy of a dead body of decomposed and mutilated bodies; preservation of viscera for chemical analysis; skeletal remains; Exhumation.	2	2
5.	Death and Postmortem changes – Medicolegal aspects of death, modes of death, causes of death, Negative autopsy, sudden death, signs of death and changes following death with special reference to time since death.	2	4
6.	Mechanical wounds – Mechanism of wound production, Detailed study of wounds, Medicolegal aspects in relation to accident, suicide and Homicide, Traffic accidents, Regional injuries, Examination of wounded person.	5	6
7.	Death from starvation, cold, burns, electricity and lightning and dowry deaths.	2	-
8.	Death due to mechanical asphyxia- Hanging, strangulation, suffocation, drowning etc.	4	4
9.	Impotence, sterility, artificial insemination	2	-
10.	Medicolegal aspects of Virginity, Pregnancy and delivery & legitimacy.	3	-
11.	Sexual Offences – Rape, Unnatural offences, sexual perversions.	3	2
12.	Abortion and infanticide.	2	2

Sl. No.	Name of the Unit	No. of Hours	
		Theory	Practical
13.	Medicolegal importance of Examination of blood stains, seminal stains, hair, weapons, clothes etc.,	-	2
14.	Forensic Psychiatry	4	-
15.	Artefacts and their medicolegal Importance.	1	1
16.	Poisons-Medicolegal aspects, classification, Routes of administration, mode of action and Disposal in the body, diagnosis of poisoning in the living and dead, duties of doctor in poisoning cases in general	4	2
17.	Detailed study of poisons commonly used in India: Sulphuric acid, Oxalic acid, Carbolic acid, aspirin, pain killers, potassium permanganate, Organic irritant poisons, such as ricinus, croton, Abrus ergot, semicarpus, calotropis, cantharides, Snakes, scorpions, Bees & Wasp: opium, alcohol, Methyl alcohol, Barbiturates, Chloral hydrate, Kerosine, Anti-histaminics, Tranquillisers, Bromides, Datura, Cannabis, Cocaine, Strychnine, Cardiac poisons like Digitalis, Oleander, quinine, aconite, Hydrocyanic acid; Asphyxiants like, CO, CO <sub>2</sub> , H <sub>2</sub> S, Drug dependence and food poisoning, Metallic poisons, organo phosphorus compounds, weedicides, insecticides and rodenticides.	10	10
18.	Integrated teaching with clinical departments (Radiology, Casualty, Pharmacology, Pathology, Medicine)	6	-

#### RECOMONDED BOOKS

- |    |   |                       |
|----|---|-----------------------|
| 1. | Essentials of Forensic Medicine & Toxicology                | Dr.K.S.Narayana Reddy |
| 2. | Modi's Text Book of Medical Jurisprudence & Toxicology      | Dr.V.Subramanyam.     |
| 3. | M.K.R.Krishna's Hand Book of Forensic Medicine & Toxicology | Dr.V.V.Pillay.        |
| 4. | Principles of Forensic Medicine                             | DrApurba Nandy.       |
| 5. | Medical Jursiprudence & Toxicology                          | C.K.Parikh            |
| 6. | Forensic Medicine by  | P.V.Guharaj.          |

#### REFERENCE BOOKS:

- |    |   |                |
|----|---|----------------|
| 1. | Pathology of Homicide                           | Bernard Knight |
| 2. | Text Book of Medical Jurisprudence & Toxicology | Glaisster      |
| 3. | Essentials of Forensic Medicine                 | C.J.Posson.    |
| 4. | Modern Medical Toxicology                       | Dr.V.V.Pillay. |
| 5. | Mannual of Legal Medicine                       | G.Radnal.      |

**BACHELOR OF MEDICINE & BACHELOR OF SURGERY**

**III rd PROFESSIONAL - PART – I SYLLABUS**

- 1) ENT (OTO RHINOLARYNGOLOGY)**
- 2) OPHTHALMOLOGY**
- 3) COMMUNITY MEDICINE**

### III rd PROFESSIONAL - PART – I SYLLABUS

#### (1) OTO – RHINO – LARYNGOLOGY (ENT) :

**Goal :**

The broad goal of the teaching of under graduate students in Otorhinolaryngology is that the under graduate students have acquired adequate knowledge and skills for optimally dealing with common disorders and emergencies and principles of rehabilitation of the impaired hearing.

**Objectives:**

(a)KNOWLEDGE:

At the end of the course, the student shall be able to:

- (1) Describe the basic pathophysiology of common Ear Nose and Throat (ENT) diseases and emergencies;
- (2) Adopt the rational use of commonly used drugs, keeping in mind their adverse reactions;
- (3) Suggest common investigative procedures and their interpretation.

(b) SKILLS:

At the end of the course, the student shall be able to :

- (1) examine and diagnose common Ear, Nose and Throat (ENT) problems including the pre-malignant and malignant disorders of the head and neck;
- (2) Manage Ear, Nose and Throat (ENT) problems at the first level of care and be able to refer whenever necessary;
- (3) Assist / Carry out minor surgical procedures like ear syringing, ear dressings; nasal packing etc;
- (4) Assist in certain procedures such as tracheostomy, endoscopies and removal of foreign bodies.

(c) INTEGRATION:

The undergraduate training in Ear, Nose and Throat (ENT) will provide an integrated approach towards other disciplines especially Neuro sciences ophthalmology and general surgery.

## **Syllabus of Oto Rhino Laryngology (ENT):**

Theory – 70 hours

Sl. No.	Name of the Unit.	No. of Hours
<b>NOSE, PARANSASAL SINUSES AND NASOPHARYNX</b>		
1)	Surgical Anatomy and Physiology of the Nose, paranasal Sinuses and Nasopharynx	1
2)	Examination of Nasal Passages, Nasopharynx and Paranasal sinuses.	1
3)	Disease of the Nose: Congenital Malformations, Stenosis of Anterior nares, Posterior Choanal atresia, Dermoid Cyst, injuries, C.S.F. Rhinorrhoea, Oro-antral fistula, Nasal Furunculosis, Vestibulitis.	2
4)	Diseases of Nasal Septum: Haematoma, Abscess, Ulceration, Perforation, Deviation and Spurs.	1
5)	Diseases of the Nasal Cavity: Foreign bodies, Rhinoliths Acute Rhinitis: Nonspecific : common cold Specific: Diphtheria, Lupus, TB, Syphilitic, Leprosy, Rhinosporidiosis, Other diseases: Rhinoscleroma, Malignant Granuloma, Nasal Allergy, Nasal Polyposis	2
6)	Epistaxis.	1
7)	Sinusitis: General Consideration of Acute and Chronic Sinusitis, Diagnosis: & Treatment. Frontal Sinusitis, Ethmoiditis, Sphenoiditis. Acute and Chronic Maxillary Sinusitis.	2
8)	Complications of Suppurative Sinusitis-Frontal Osteomyelitis, Osteomyelitis of Maxilla, Orbital complication, Intracranial Complications, Secondary effects of Sinusitis.	2
9)	New Growths and Cysts of the Nose and Sinuses: Papilloma, Angioma, Carcinoma, Sarcoma and simple cysts.	1
10)	Diseases of the Nasopharynx:- congenital Dermoid, Nasopharyngitis-Acute and Chronic, Adenoids, New growths: Benign Juvenile Angiofibroma, Malignant-Carcinoma.	1
<b>PHARYNX</b>		
1)	Surgical Anatomy and Applied Physiology, (Pharynx- Oropharynx, Laryngopharynx, Parapharyngeal space).	1
2)	Examination of the Pharynx.	1
3)	Diseases of the Pharynx; Foreign bodies, Trauma, Inflammations, - Acute- Non-specific and specific. Vincent's angina. Acute Diphtheritic Pharyngitis. Moniliasis. Chronic non specific Pharyngitis. Specific – Tuberculosis, Syphilis, Leprosy, Rhinoscleroma.	1
4)	Acute Tonsillitis – Chronic Tonsillitis	1
5)	Abscesses of the Pharynx. Peritonsillar Abscess, Para Pharyngeal abscess, Acute and Chronic Retropharyngeal abscess, Ludwig's angina.	1
6)	New growths- Beneign and Malignant.	1



Sl. No.	Name of the Unit.	No.of Hours
<b>EAR SURGICAL ANATOMY AND APPLIED PHYSIOLOGY</b>		
1)	Examination of the Ear: Clinical Examination of the Ear. Functional Examinations – Tests for hearing. Tests for Vertigo and Eustachian tube.	1
2)	Disease of External Ear: Congenital malformations, Affections of the auricles: Perichondritis, Haematoma auris, affections of the External auditory canal – Furuncle, Otitis Externa, Herpes, Myringitis Bullosa, Otomycosis, Wax, Foreign bodies, New growths, Injuries of External Ear and Tympanic Membrane.	2
3)	Acute Inflammations of Middle Ear Cleft. Eustachian Salpingitis-Acute and chronic Acute Catarrhal Otitis media, Acute Suppurative otitis media, Acute Mastoiditis.	2
4)	Chronic Suppurative Otitis media-safe and unsafe.	1
5)	Other types (Non suppurative)Chronic Catarrhal Otitis media, Secretory Otitis media, Otitis Barotrauma, Tuberculous Otitis media, Syphilitic Otitis media.	1
6)	Complications of Suppurative Otitis media; extracranial: Mastoiditis, Mastoid abscess, Petrositis, facial nerve paralysis, Labyrinthitis. Intracranial.	1
7)	Otosclerosis: Etiology, Pathology, Clinical features,management.	1
8)	Prevention of Otitis media and Prevention of complications of Otitis media.	1
9)	Diseases of Inner Ear : Congenital inner ear disorders, Traumatic disorders of the inner ear, ear, Otogenic labyrinthitis, Mumps, Herpes, zoster Oticus, Rubella, Meningitis, deafness.	2
10)	Noise trauma, Drug toxicity, Presbycusis, Meniere's disease, Auditory Nerve tumour.	2
11)	Newgrowths: Middle ear and mastoid: Carcinoma, Glomus Jugulare tumour.	1
12)	Rehabilitation of Deaf and Dumb.	1
<b>LARYNX, TRACHEA AND BRONCHI :</b>		
1)	Surgical Anatomy and applied physiology of Larynx, Trachea and bronchi.	1
2)	Examination of the Larynx and lower respiratory tract	
3)	Diseases of the Larynx-Congenital malformations of Larynx. Foreign bodies in the air passages.	1
4)	Inflammations:- Acute-Non specific simple Laryngitis. Laryngo-Tracheo-Bronchitis.Specific-Diphtheria. Chronic(Non- specific):- Simple Laryngitis, Leukoplakia, Pachydermia and vocal nodules. Specific:-Tuberculosis, Lupus, Syphilis, Scleroma, Leprosy.	1
5)	Functional aphonia.	
6)	STRIDOR	1
7)	New –growths of the Larynx: Beneign, Malignant	1
8)	Tracheostomy : Indications, Technique, after treatment, complications.	1
9)	Endoscopy in ENT – Method, indications of Laryngoscopy and Bronchoscopy.	

<b>OESOPHAGUS :</b>		
1)	Anatomy and Physiology of deglutition, Diseases of Oesophagus, P.V .Syndrome, Cardiospasm. Stricturs of Oesophogus- Beneign & Malignant, corrosive burns and carcinoma of Oesophagus.	1
2)	F.B. in food and air Passages Indications and contraindications of Oesophagoscopy. Technique & complications.	1
3)	Neck swellings – Differential diagnosis & Management.	

**TEACHING PROGRAMME DURING CLINICAL POSTINGS OF ENT:**

Total Time: 30 hours

Sl. No	Name of the Unit.	hours
a)	Surgical anatomy of the Ear, Lecture and Demonstration of dissected temporal bone.	1
b)	Applied physiology of Hearing. Auditory function tests. Demonstration of audiometry test.	2
c)	Applied physiology of Equilibrium Vestibular function tests. Lecture / Demonstration in Otoneurology Dept. using E.N.G.Machine.	2
d)	History taking in ear diseases and clinical examination of the ear. Demonstration.	1
e)	Audiometry – various types of hearing aids.Cochlear Implants. Lecture / Demonstration in speech & hearing Department.	2
f)	Congenital deafness. Causes, prevention and management.	1
g)	Common surgical procedures on the ear Lecture / Video demonstration. Instruments X-Ray.	2
h)	Anatomy and Physiology of Nose & PNS.	1
i)	History taking in the diseases of the Nose and PNS and Clinical Examination of Nose & PNS.	1
j)	Respiratory allergy. Pathology, clinical presentation. Diagnostic tests and specific desensitization. Lecture / Demo. Allergy Clinic, ENT.	1
k)	D.D. of nasal obstruction & Discharge. Disorders of olfaction.	1
l)	Head ache and Facial Pain. D.D.Clinical case demonstration.	1
m)	F.E.S.S. basic principles. Lecture Demo / Video presentation	1
n)	Common surgical procedures on Nose and P.N.S. Lecture / Video / Live operation. Surgical instruments and X-Rays and C.Ts. pertaining to Nose and P.N.S.	2
o)	Anatomy of Pharynx. Physiology of Deglutition.	1
p)	History taking and clinical exam of Pharyngeal diseases.	1
q)	Ulceromembraneous lesions of Pharynx.	1
r)	Cancer of oro and Hypopharynx. Recent trends in management.	1
s)	Anatomy of larynx. Physiology of Phonation.	1

Sl. No	Name of the Unit.	hours
t)	History taking and clinical exam. of laryngeal diseases.	1
u)	Hoarseness of Voice. Disorders of voice & speech.	1
v)	Stridor in infancy and childhood	1
w)	Cancer larynx. Aetiology and diagnosis. Recent trends in management / prevention.	1
x)	Per oral endoscopy	1
y)	Tracheostomy. Lecture / Video	1
z)	Common surgical procedures in the throat. Lecture / Video. Surgical instruments and X-Rays pertaining to throat.	2

**Books recommended**

1. Text book of ENT by Logan & Turner
2. Diseases of ENT by Dr. Ramanjaneyulu
3. Diseases of ENT by Dr. K.K. Ramalingam
4. Diseases of ENT by Maqbool
5. Diseases of ENT by Scott & Brown

**Reference books**

1. Shambaugh Ear Surgery
2. North American Clinics of ENT
3. Journal of Otolaryngology
4. Indian Journal of Otolaryngology.

### III rd PROFESSIONAL - PART – I SYLLABUS

#### **(2) OPHTHALMOLOGY:**

##### **(i) Goal :**

The broad goal of the teaching of under graduate students in ophthalmology is to provide such knowledge and skills to the student that shall enable him/her to practice as a clinical and as a primary eye care physician and also to function effectively as a community health leader to assist in the implementation of national Programme for the prevention of blindness and rehabilitation of the visually impaired.

##### **(ii) Objectives:**

###### **a) KNOWLEDGE :**

At the end of the course, the student shall be able to:

- 1) common problems affecting the eye;
- 2) principles of management of major ophthalmic emergencies;
- 3) main systemic diseases affecting the eye;
- 4) effects of local and systemic diseases on patient's vision and the necessary action required to minimise the sequelance of such diseases;
- 5) adverse drug reactions with special reference to ophthalmic manifestations;
- 6) magnitude of blindness in India and its main causes;
- 7) national programme for control of blindness and its implementation at various levels;
- 8) eye care education for prevention of eye problems;
- 9) role of primary health centre in organization of eye camps;
- 10) organization of primary health care and the functioning of the ophthalmic assistant;
- 11) integration of the national programme for control of blindness with the other national health programmes.
- 12) Eye bank organization;

###### **b) SKILLS:**

By the end of the course the student shall be able to:

- 1) Elicit a history pertinent to general health and ocular states:
- 2) Assist in diagnostic procedures such as visual acuity testing, examination of eye, Schiotz tonometry, Staining for Corneal pathology confrontation perimetry, Subjective refraction including correction of presbyopia and aphakia direct ophthalmoscopy and conjunctival smear examination and Cover test:
- 3) Diagnose and treat common problems affecting the eye:
- 4) Interpret ophthalmic signs in relation to common systemic disorders.
- 5) Assist/observe therapeutic procedures such as subconjunctival injection, corneal/conjunctival foreign body removal, carbolic cautery for corneal ulcers, Nasolacrimal duct syringing and tarsorrhaphy:
- 6) Provide first aid in major ophthalmic emergencies:
- 7) Assist to organise primary eye care service through primary health centres:
- 8) assist to organise community surveys for visual check up:
- 9) Use effective means of communication with the public and individual to motivate for surgery in cataract and for eye donation:
- 10) Establish rapport with his senior colleagues and paramedical workers, so as to effectively function as a member of the eye care team:

**NOTE:** 40 Hrs. teaching for theory in VI & VII Semesters.

60 Hrs. for Practical based Learning, Seminars, Group discussions.

Theory - 25 Hrs VI Semester

Seminars - 30 Hrs VI Semester

Theory - 15 Hrs VII Semester

P.B. Learning & seminars - 30 Hrs VII semester

### Theory Syllabus in Ophthalmology

Sl. No.	Name of the Unit
1)	Introduction to Ophthalmology.
2)	Anatomy and Physiology, colour vision:- Visual acuity, Photo Chemistry of vision.
3)	Orbit, Ocular adnexa (Lids and Lacrimal apparatus) and optic nerve pathways.
4)	Conjunctiva, Cornea, Sclera, Contact Lenses and Eye Banking, Bacterial, Viral and Fungal Keratitis.
5)	Lens, Glaucoma.
6)	Iris, Choroid and Ocular Tumors.
7)	Ocular Manifestation of Systemic diseases.
	1) Hypertension 2) Leprosy 3) Thyroid 4) Tuberculosis and 5) Diabetes 6) AIDS
8)	Fundus and Ophthalmoscopy Examination : (Theory), RETINA AND OPTIC NERVE.
9)	Refraction and Optics, Drugs acting on Eye.
10)	Squint, Amblyopia and Neuro Ophthalmology.
11)	Primary Eye care: a) Progressive loss of vision b) Sudden loss of Vision.
12)	Ocular Trauma, FIRST AID
13)	Visual Standards, Certification, Ocular Hygiene
14)	National Programme for control of Blindness.
15)	Eye Bank Organisation and its procedures.

### TEXT BOOKS RECOMMENDED:

- 1) Parsons' Diseases of the Eye By Stephen J.H.Miller
- 2) Ophthalmology by Khurana
- 3) Text book of Ophthalmology by Sarma
- 4) Text book of Ophthalmology by neema

### REFERENCE BOOKS:

- 1) Ophthalmology by Yanoff
- 2) Ophthalmology by Duans
- 3) System of Ophthalmology by Sir Duke-Elder

### III rd PROFESSIONAL - PART – I SYLLABUS

#### **(3) COMMUNITY MEDICINE(S.P.M.):**

**(i) Goal :**

The broad goal of the teaching of under graduate students in the community medicine is to prepare them to function as community and first level physicians in accordance with the institutional goals.

**(ii) Objectives:**

**(a) KNOWLEDGE:**

At the end of the course, the student shall be able to :

- a. Describe the Health care delivery system including rehabilitation of the disabled in the country;
- b. Describe the National Health programs with particular emphasis on maternal and child health programs, family welfare and pollution control;
- c. List epidemiological methods and describe their applications to communicable and non-communicable diseases in the community or hospital situation;
- d. Apply biostatistical methods and techniques;
- e. Outline the demographic pattern of the country and appreciate the roles of the individual, family, community and socio-culture milles in health and disease;
- f. Describe the health information systems;
- g. Enunciate the principles and components of primary health care the national health policies to achieve the goal of 'HEALTH FOR ALL';
- h. Identify the environmental and occupational hazards and their control;
- i. Describe the importance of water and sanitation in human health;
- j. To under stand the principles of health economics and administration, health education in relation to community;

**Syllabus of Community Medicine (S.P.M.) :**

<u>Sl.No.</u>	<u>Name of the Unit</u>	<u>No. of Hours</u>	
		<u>Theory</u>	<u>Practical</u>
1.	History of Community Medicine	2	Visit to
2.	Definition, concept of Health & illness of diseases	2	hospital PHC.,
3.	Natural History of diseases, levels & prevention	2	Anganwadi Community
4.	Sociology, its relation to Health & disease, Social institution, role of Family in Health & disease. Role of Cultural section in Health, disease & Group dynamics.	6	<b>I SEMESTER</b>
5.	Psychological aspects in disease & Health, Role of individual, Family and Society.	6	

Syllabus of Community Medicine (S.P.M.) Continued...

Sl.No.	Name of the Unit	No. of Hours	
		Theory	Practical
6.	Demography & Population dynamics i) Population structures ii) Population growth iii) Population problem iv) Effect of over population on Scological degeneration	6	
<b>II SEMESTER</b>			
7.	Statistics i) Basic statistical method ii) Summarisation & presentation of data iii) Tests of significance	6	
8.	Environmental sanitation & Medical entomology i) Water ii) Waste disposal iii) Tests of significance	10	Seminars/ practicals: Lab work, Group discussion 10 hours
9.	Genetics i) Prevention of genetic diseases ii) Genetic counselling	1	Field visits 10 hours
10.	General Epdemiology i) Descriptive epidemiology a) Time b) Place c) Person ii) Analytical epidemiology a) Case control b) Cohort studies iii) Experimental Epidemiology randamised control trial iv) Investigation of an epidemic	10	5
11.	Systemic epidemiology i) Vector borne diseases ii) Water borne diseases iii) Air born diseases iv) Contact diseases v) Diseases of major public health importance along with national health programmes wherever applicable	30	Seminars/ Clinico social case review  45 hours Field trips  15 days;3hrs/day (45 hours)

**IV SEMESTER**

12.	Non-communicable diseases:	5	15
	i) Diabetes		
	ii) Hypertension		
	iii) Heart diseases		
	iv) Blindness		
	v) Accidents		
	vi) Geriatric problems		

13.	Occupational Health problems:		
	i) E.S.I.	5	10

14.	M.C.H. and family welfare programmes	10	10	<b>V SEMESTER</b>
15.	Health care delivery in the community	5	5	
16.	National Health Policy	2	4	

17.	Nation Health Programmes including Rehabilitation, Evaluation of Health Programmes, Health Planning Organisation Structure of Health care system in the Country including P.H.C. District level State Level and Central level.	30	5	<b>VI SEMESTER</b>
	ii) P.H.C. Organisation and Function	2	4	
	iii) Role of Non Governmental Organisations	1	2	

18.	Health Education			<b>VII SEMESTER</b>
	i) Principles of Health promotion	9	3	
	ii) Methods, approaches and media for I.E.C.(Information, Education & Communication)			

19.	Medical and Health / Information system	4	4
20.	Mental Health	1+1	2
21.	Nutrition	15	

**NOTE :** Hours of practicals and field visits are shown together. Depending upon the facilities available locally the arrangements of practicals and field visits can be flexible.

Demarcation of Syllabus for University exam between Paper I & II



Syllabus for Paper-I	Syllabus for Paper-II
1. Concepts 2. Social Sciences: a) Sociology b) Psycho Socisal Problem 3. Nutrition 4. Environmental sanitation 1. Statistics 2. General Epidemiology	1. Systemic epidemiology 2. Non communicable diseases 3. Occupational diseases 4. National Health progremmes 5. MCH & Family Welfare 6. Public Health Administration 3. N.G.O.S. and International Health 8. Health education

**Books Recommended:**

- 1) Parks text book of preventive & social medicine - K. Park
- 2) Kulkarnis text book of preventive & social medicine - Kulkarn
- 3) Nutritive value of Indian foods - C.Gopalan
- 4) Methods in biostatistics - BK. Mahajan

**Reference books**

- 1) Public health & preventive medicine -Maxcy-rosenau
- 2) Oxford text book of public health -Oxford medical publication
- 3) O.P. Ghai's text book of applied medicine -O.P.Ghai
- 4) An outline of sociology as applied to medicine- David armstrong
- 5) Uses of epidemiology - Morris
- 6) Short textbook of medical statistics - Hicc
- 7) Preveaive & community medicine - Clark
- 8) Human nutrition & Dietetics - Passmore
- 9) Epidemiology-principles & methods - Macmohan
- 10) Practical epidemiology - Barker
- 11) Theory & practice of public health - Hobson
- 12) An introduction to epidemiology - Michael Acderson
- 13) Food poisoning & Food hygiene - Hobbs

## **BACHELOR OF MEDICINE & BACHELOR OF SURGERY**

### **III rd PROFESSIONAL- PART – II SYLLABUS**

- 1) GENERAL MEDICINE**  
(General Medicine including Pulmonary Medicine  
Psychiatry, Skin and STD, Radiology & Dentistry)
- 2) PAEDIATRICS**
- 3) GENERAL SURGERY INCLUDING PAEDIATRIC  
SURGERY ORTHOPAEDICS & TRAUMATOLOGY**
- 4) OBSTERICS AND GYNAECLOLOGY**

### III rd PROFESSIONAL - PART – II SYLLABUS

(1) **GENERAL MEDICINE:**

(i) **Goal:**

The broad goal of the teaching of under graduate students in the medicine is to have the knowledge skills and behavioral attributes to function effectively as the first contact physician.

(ii) **Objectives:**

**KNOWLEDGE:**

At the end of the course, the student shall be able to:

- (1) Diagnose common clinical disorders with special reference to infectious diseases and nutritional disorders, tropical and environmental diseases;
- (2) Outline various modes of management including drug therapeutics especially dosage, side effects, toxicity, interactions, indications and contraindications;
- (3) Propose diagnostic and investigative procedures and ability to interpret them;
- (4) Provide first level management of acute emergencies promptly and efficiently and decide the timing and level of referral, if required.
- (5) Recognise geriatric disorders and their management;

**Theory Syllabus**

Sl. No.	Name of the Unit	No.of Hours	
		Theory	Practical
1.	<b>HAEMATOLOGY:</b> a) Introduction and Iron deficiency Anaemias b) Megaloblastic anaemias, B12 & Folic acid deficiency. c) Haemolytic anaemias d) Aplastic anaemia and bone marrow Transplantation e) Acute Leukaemias. f) Chronic myeloid and lymphatic Leukaemias. g) Polycythemia and agranulocytosis h) Multiple myeloma. i) Disorders of coagulation-haemophilia. j) Purpuras and consumption coagulopathy.	20	30
2.	<b>IMMUNOLOGY, BONES &amp; JOINTS, TOXICOLOGY:</b> <b>IMMUNOLOGY:</b> a) Introduction/Immunoglobulins Introduction, Immunoglobulins, Complement, cytokines, H.L.A. b) Hypersensitivity reaction c) Immune deficiency diseases, Immunosuppressive drugs.  <b>BONES &amp; JOINTS:</b> a) Rheumatoid arthritis b) Gout c) S.L.E. d) Osteomalacia and Osteoporosis e) Ankylosing spondylitis/Reitor's Disease/Osteo- arthritis	20	30

Sl. No.	Name of the Unit	No.of Hours	
		Theory	Practical
	<p><b>TOXICOLOGY :</b></p> <p>a) Introduction and general measures of management of poisoning</p> <p>b) Barbiturate poisoning.</p> <p>c) Organophosphorous poisoning</p> <p>d) Aluminum Phosphide poisoning</p> <p>e) Lead poisoning, Arsenic poisoning</p> <p>f) Carbon Monoxide poisoning, MIC Poisoning</p> <p>g) Copper sulphate and yellow oleander poisoning</p> <p>h) Chelating agents</p> <p>i) Drug overdosage.</p>		
3.	<p><b>PULMONARY DISEASES &amp; ENDOCRINOLOGY :</b></p> <p><b>PULMONARY DISEASES:</b></p> <p>a) Pneumonias</p> <p>b) Secondary Pneumonias/Lung abscess</p> <p>c) Bronchial asthma</p> <p>d) Chronic bronchitis, emphysema</p> <p>e) Bronchiectasis</p> <p>f) Pleural effusion, empyema</p> <p>g) Pneumothorax</p> <p>h) Pulmonary fibrosis-occupational lung disease</p> <p>i) Bronchogenic carcinoma</p> <p>j) Respiratory failure</p> <p>k) A.R.D.S</p> <p>l) Cystic fibrosis/pulmonary eosinophilia Loeffler's Syndrome</p> <p>m) Pulmonary function tests</p> <p>n) Pulmonary tuberculosis</p> <p>o) Occupational lung diseases</p> <p><b>ENDOCRINOLOGY:</b></p> <p>a) Thyrotoxicosis</p> <p>b) Myxoedema</p> <p>c) Anterior Pituitary gland</p> <p>d) Posterior Pituitary gland</p> <p>e) Addison's disease</p> <p>f) Cushing's syndrome</p> <p>g) Hyperaldosteronism, Pheochromocytoma</p> <p>h) Hyper- parathyroidism</p> <p>i) Hypoparathyroidism</p> <p>j) Hypogonadism</p> <p>k) Pineal gland</p> <p>l) Hypoglycaemia</p> <p>m) Diabetes Mellitus</p>	20	30

Sl. No.	Name of the Unit	No.of Hours	
		Theory	Practical
4.	KIDNEY, G.I.T.& LIVER : KIDNEY : a) Renal imaging b) Acute Nephritis c) Nephrotic syndrome d) Nephrotic syndrome-individual types e) Urinary tract infections including pyelonephritis f) Acute renal failure g) Chronic renal failure h) Renal Tubular acidosis i) Polycystic kidney/drug induced nephropathy  G.I.T & LIVER a) Dysphagia b) Acid peptic disease c) Malabsorption syndrome d) Inflammatory bowel disease e) Irritable bowel syndrome f) Tropical sprue & coeliac disease g) Liver function tests h) Acute Hepatitis i) Chronic hepatitis j) Cirrhosis of liver k) Hepatic encephalopathy l) Portal hypertension m) Acute Pancreatitis n) Chronic pancreatitis o) Hepatoma/Liver transplantation.	20	30

**PAPER-II**

Sl. No.	Name of the Unit	No.of Hours	
		Theory	Practical
5	PSYCHIATRY	7	13
6.	C.V.S., C.N.S. : C.V.S. a) Acute rheumatic fever b) Mitral stenosis c) Mitral regurgitation and tricuspid regurgitation d) Aortic stenosis and aortic regurgitation e) Congestive heart failure f) Infective endocarditis g) Hypertension h) Ischaemic heart disease- i) Pericardial effusion, constrictive pericarditis. j) Cardiomyopathy k) Arrhythmias including atrial fibrillation l) Cardio-pulmonary resuscitation m) Congenital heart disease	20	30

C.N.S.:

- a) Cranial nerves – trigeminal neuralgia, Bell's palsy
- b) Coma
- c) Pyogenic meningitis
- d) Tuberculous meningitis
- e) Encephalitis
- f) C.V.A – (Ischaemic)
- g) C.V.A. – (Haemorrhagic )
- h) Epilepsy
- i) Headache – Malignant
- j) Motor neurone disease
- k) Parkinsonism and Chorea
- l) Demyelinating diseases
- m) Myopathy and myasthenia
- n) Syphilis of nervous system
- o) Peripheral neuritis /syringomyelia
- p) Paraplegia / Raised I.C.T

7. INFECTIOUS DISEASES, TROPICAL DISEASES, VITAMINS, 20 30  
NUTRITION, ONCOLOGY, GERIATRIC MEDICINE, AIDS,  
GENETICS ETC.

INFECTIOUS DISEASES :

- a) Staphylococcal & Streptococcal infections
- b) Diphtheria, Pertussis
- c) Tetanus – Botulism
- d) Enteric fever, food poisoning
- e) Cholera, Shigella
- f) Pasteurella, Anthrax, Brucellosis
- g) Mumps / Measles /German Measles
- h) Chicken pox, small pox
- i) Herpes, Yellow fever
- j) Typhus fever
- k) Haemorrhagic viral fevers
- l) Influenza
- m) Leptospirosis
- n) Fungal infections-systemic
- o) Nosocomial infections

TROPICAL DISEASES :

- a) Malaria including cerebral Malaria
- b) Kala – azar
- c) Nematodes
- d) Cestodes
- e) Amoebiasis
- f) Filariasis
- g) Guinea worm
- h) Snake bite
- i) Heat & environmental diseases

VITAMINS & NUTRITION :

- a) Vit. A and Vit.D
- b) B-complex deficiency
- c) C,K&E
- d) Obesity
- e) Anti- oxidants/ Trace elements
- f) Total parenteral nutrition.

ONCOLOGY :

GERIATRIC MEDICINE :

GENETICS :

A.I.D.S.

8.	PSYCHIATRY	7	13
9.	DERMATOLOGY& VENEREOLOGY	10	20

**NOTE:** Out of 370 classes 1/3<sup>rd</sup> should be for Theory and the remaining 2/3<sup>rd</sup> classes shall be for Lecture Demonstration/ Integrated teaching.

**Text Books Recommended:**

- a. Davidson's Principles and practice of Medicine.
- b. Latest edition of Kumar & Clark's Clinical Medicine.
- c. Tropical Medicine from 14<sup>th</sup> edition of Davidson's Principles and Practice of Medicine. (as the chapter is deleted in the present edition.)
- d. Parasitology in relation to Clinical Medicine by KD Chatterjee.

**Clinical Methods Books recommended:**

- 1) Hutchison's Clinical Method.
- 2) Macleod's Clinical Examination
- 3) Chamberlain's Clinical Methods.

**\* Reference Books:**

- 1) Harrison's Principles of Medicine
- 2) Cecil's Text book of Medicine
- 3) Oxford text book of Medicine
- 4) Brain's Neurology, Cardiology 'HURST' API Text Book of Medicine.

Paper – I	Paper - II
a. Haematology:	a. Psychiatry
b. Immunology, bones & joints, toxicology	b. C.V.S., C.N.S.
c. Pulmonary diseases & endocrinology	c. Infectious diseases, tropical diseases, vitamins, nutrition, oncology, geriatric medicine, aids, genetics etc.
d. Kidney, G.I.T.& liver :	d. Psychiatry
	e. Dermatology& Venereology

### III rd PROFESSIONAL - PART – II SYLLABUS

#### 2 PAEDIATRICS :

##### i) Goal:

The broad goal of the teaching of undergraduate students in Paediatrics is to acquire knowledge and appropriate skills for optimally dealing with major health problems of children and to ensure their optimal growth and development.

##### ii) Objectives:

###### a) Knowledge:

At the end of the course, the student shall be able to:

- 1) Describe the normal growth and development during foetal life, neonatal period, childhood and adolescence and outline deviations thereof;
- 2) Describe the common pediatric disorders and emergencies in terms of epidemiology, etiopathogenesis, clinical manifestations, diagnosis, rational therapy and rehabilitation;
- 3) State age related requirements of calories, nutrients, fluids, drugs etc., in health and disease;
- 4) Describe preventive strategies for common infectious disorders, malnutrition, genetic and metabolic disorders, poisoning, accidents and child abuse;
- 5) Outline national programmes relating to child health including immunization programmes;

###### b) Skills:

At the end of the course, the student shall be able to:

- 1) Take a detailed pediatric history, conduct an appropriate physical examination of children including neonates, make clinical diagnosis, conduct common bedside investigative procedures, interpret common laboratory investigations and plan and institute therapy;
- 2) Take anthropometric measurements, resuscitate newborn infants with bag and mask at birth, prepare oral rehydration solution, perform tuberculin test, administer vaccines available under current national programmes, start an intravenous line and provide nasogastric feeding, observe venesection and intraosseous infusion if possible.
- 3) Conduct diagnostic procedures such as lumbar puncture, bone marrow aspiration, pleural tap and ascitic tap and observe kidney biopsy.
- 4) Distinguish between normal newborn babies and those requiring special care and institute early care to all new born babies including care of preterm and low birth weight babies, provide correct guidance and counseling in breast feeding.
- 5) Provide ambulatory care to all sick children, identify indications for specialized / inpatient care and ensure timely referral of those who require hospitalization.

###### c) Integration:

The training in pediatrics should be done in an integrated manner with other disciplines, such as Anatomy, Physiology, Forensic Medicine, Community Medicine, Obstetrics and Physical medicine and Rehabilitation, to prepare the student to deliver preventive, promotive, curative and rehabilitative services for care of children both in the community and at hospital as part of a team.



**Training schedule:**

A model timetable that is suggested is given below:

Semester	Time	Teaching Schedule
4 <sup>th</sup> & 5 <sup>th</sup>	* 08-09 AM * 09-12 AM	Lecturers (8) Clinical Posting (2 wks)
6 <sup>th</sup> & 7 <sup>th</sup>	* 08-09 AM * 09-12 AM	Lecturers (20) Clinical Posting (4 wks)
8 <sup>th</sup> & 9 <sup>th</sup>	* 08-09 AM * 09-12 AM * 12-01 PM * 02-04 PM	Lecturers (40) Clinical Posting (4 wks) Demonstrations / training tutorial Practical demonstration.

\* Additional 08-16 hours of Integrated Seminars.

**A. Training During 4<sup>th</sup> and 5<sup>th</sup> Semester:**

Learning Objective:

**1) Normal Child & his assessment**

Cognitive domain- normal child, growth, development, feeding, immunization of normal new born.

**2) Skills**

- a) Take a detailed Pediatric History
- b) Understand normal growth and development.
- c) Conduct physical examination of children.
- d) Perform anthropometry and interpret growth of the child.
- e) Developmental assessment of a child.
- f) **Ethical conduct ? Medical Conduct** during patient examination

**3) Lectures**

- 1) Introduction to Pediatrics
- 2) Normal growth.
- 3) Normal development.
- 4) Immunization.
- 5) Introduction to newborn and normal newborn baby.
- 6) Temperature regulation in newborn.
- 7) Breast feeding and lactation management.
- 8) Infant and child feeding (include complimentary feeding).

**4) Clinical Training**

Clinical Posting shall be from 9.00 am – 12.00 noon

**i) Tutorials cum demonstration for first one week**

Subjects for demonstration:

- a. Scope of pediatrics, learning objectives and teaching schedule.
- b. History taking – I (Present, Past and family)
- c. History taking-II (Antenatal, Development, Immunization, Feeding)
- d. General Physical examination.
- e. Anthropometry.
- f. Normal Development.

ii) **Case discussion** in wards with emphasis on history, general physical and systemic examination and demonstration of anthropometric techniques, during next one week.

**5) Assessment (End of Posting)** (components related to Pediatrics): Examination skills especially recording of special features of Pediatric history and anthropometry.

## **B) Training During 6<sup>th</sup>, 7<sup>th</sup>, 8<sup>th</sup> and 9<sup>th</sup> Semesters**

### **i. Learning Objectives**

- a) 6<sup>th</sup> / 7<sup>th</sup> Semester: New born: normal & abnormal and common childhood diseases.
- b) 8<sup>th</sup> / 9<sup>th</sup> Semester: Diseases in Childhood – diagnosis and management.

### **ii. Lectures 6<sup>th</sup> / 7<sup>th</sup> / 8<sup>th</sup> / 9<sup>th</sup> Semester**

1. Birth Asphyxia.
2. Normal fluid and electrolyte balance in children.
3. Low birth weight babies.
4. Neonatal respiratory distress.
5. Jaundice in new born.
6. Neonatal infections.
7. Neonatal convulsions.
8. PEM and its management.
9. Vitamins deficiencies.
10. Nutritional anemia in infancy and childhood.
11. Acute diarrhea.
12. Hypothyroidism in children.
13. Congestive heart failure – diagnosis and management.
14. Congenital heart disease.
15. Rheumatic heart disease.
16. Hypertension in children, including hypertensive emergencies.
17. Acute respiratory infections.
18. Bronchial asthma including status asthmaticus.
19. Nephrotic syndrome.
20. Acute glomerulonephritis and hematuria.
21. Chronic liver disease,
22. Hemolytic anemia including thalassemia.
23. Leukemias.
24. Bleeding and coagulation disorders.
25. Seizure disorders including status epilepticus
26. Cerebral palsy.
27. Common exanthematous illnesses
28. Childhood tuberculosis.
29. Fluid and electrolyte balance – pathophysiology and principles of management and acid-base balance.
30. Shock and anaphylaxis.
31. Adolescent growth and normal puberty.
32. Other childhood malignancies (neuroblastoma, wilms tumour, lymphomas).
33. Coagulation disorders – Haemophilia.

34. Mental retardation.
35. Behaviour disorders.
36. Meningitis.
37. Diphtheria, Pertussis and Tetanus.
38. Enteric fever.
39. Immunization.
40. Common childhood poisonings.
41. Down's syndrome
42. Medical ethics.
43. Pediatric prescription & rational drug therapy.

**Note:**

1. Some of the subjects may require more than one lectures.
2. 8-16 hours of integrated seminars (i.e. 4-8 seminars of 2 hours each) should be incorporated in the syllabus with other departments (i.e., Medicine, Obstetrics and Community Medicine). Individual departments can choose depending on local requirements or faculty. Adjustments may be made in the lecture schedule accordingly to prevent overlap of topics. A list of suggested topics is provided in

**iii. Clinical Training in 6th and 7th Semesters:**

a) Specific Learning Objectives (Skills)

1. Take a detailed Pediatric History.
2. Conduct physical examination of children.
3. Perform anthropometry and interpret growth of the child.
4. Developmental assessment of a child.
5. Distinguish between normal newborn babies and those requiring special care (including low birth weight and preterms).
6. Care of new born at birth and lying in ward.
7. Counselling for breast feeding / infant feeding.

b) Clinical Posting (9.00 am to 12.00 noon)

1. Clinical demonstration.  
Subjects in Neonatology (for 1 week):
  - a. Neonatal History taking.
  - b. Newborn – Nomenclature and assessment of gestational age.
  - c. Care of normal newborn at birth.
  - d. Examination of Newborn.
  - e. Breast feeding.
  - f. Identification of sick new born (common danger signs).
  - g. Low birth weight including temperature regulation and aspects (one day of the posting for immunization related services).
2. Paediatrics - Case discussion – History taking and examination for 3 weeks in wards.
3. Assessment (End of Posting): Emphasis on detailed history, physical examination, interpretation and correlation of abnormal physical findings and normal new born.

**iv. Clinical Training in 8th and 9th Semesters:**

- a) Specific Learning Objectives (Skills)
1. Take detailed pediatric history, conduct an appropriate physical and developmental examination of children including neonates, make clinical diagnosis, conduct common bedside procedures (peripheral smear, Hb, Urine and stool examination, CSF examination by microscope), interpret common laboratory investigations and plan and institute therapy.
  2. Recognize emergencies including neonatal resuscitation and CPR and care to be instituted and relevant procedures performed.
  3. Prepare oral rehydration solution, perform tuberculin test and administer vaccines.
  4. Exposure to diagnostic and therapeutic procedures such as intravenous access, nasogastric feeding, venesection, pleural tap, ascitic tap, bone marrow aspiration, lumbar puncture, liver and kidney biopsy.
- b) Clinical Posting (9.00 am to 4.00 pm)
1. Bed side Demonstration (9.00 am to 12.00 noon) (atleast 1 week of the 4 week posting to be in new born wards) in wards and outpatient department from 9.00 am to 12.00 noon outpatients visits atleast once a week.  
\* Case discussion (20 hours) (Suggested list of Clinical cases to be discussed is provided in Annexure-III)
  2. Clinical tutorials (12-1 pm) (list of subjects in Annexure-III)  
\* Tutorials 20 Hours.
  3. Afternoon Postings (2-4 p.m.)
    - a) Immunization clinic posting.
    - b) Emergency Room Posting.
    - c) Diarrhea Treatment unit posting.
    - d) Nutrition tray & visit to kitchen  
(items c-g constitutes 20 hours).
  4. Assessment (End of Posting)
    - a) Case discussion -50%
    - b) Viva on instrcuments and X-ray/OSCE -25%
    - c) New Born -25%

**COURSE CONTENT IN PEADIATRICS:**

1) **Vital Statistics:**

**Must know:**

- Definition and overview of Paediatrics with special reference to age related disorders. Population structure, pattern of morbidity and mortality in children.
- Maternal, perinatal, neonatal, infant and preschool mortality rates. Definition, causes, present status and measures for attainment of goals.
- Current National programmes such as ICDS, RCH, Vitamin A prophylaxis, UIP, Pulse Polio, ARI, Diarrhea control programme, etc.

**Desirable to know:**

- Other National Programmes.

## 1) Growth and Development:

### Must know:

- Normal growth from conception to maturity.
- Anthropometry – measurement and interpretation of weight, length / height, head circumference, mid-arm circumference. Use of weighing machines, infantometer.
- Interpretation of Growth Charts: Road to Health Card and percentile growth curves.
- Abnormal growth patterns – failure to thrive, short stature.
- Growth pattern of different organ systems such as lymphoid, brain and sex organs.
- Normal pattern of teeth eruption.
- Principles of normal development.
- Important milestones in infancy and early childhood in the areas of Gross Motor, Fine motor, language and Personal-Social development. 3-4 milestones in each of the developmental fields, age of normal appearance and the upper age of normal.
- Preventable causes and assessment of developmental retardation
- Psychological and behavioural problems.

### Desirable to know:

- Age-independent anthropometric measurement-principles and application.
- Sexual Maturity rating.

## 2) Nutrition:

### Must know:

- Normal requirements of protein, carbohydrates, fats, minerals and vitamins for newborn, children and pregnant and lactating mother. Common food sources.
- Breast feeding, Physiology of lactation, composition of breast milk, Colostrum, Initiation and technique of feeding. Exclusive breast feeding – Definition and benefits. Characteristic and advantages of breast milk. Hazards and demerits of prelacteal feed, top milk and bottle feeding. Feeding of LBW babies.
- Infant feeding / weaning foods, method of weaning.
- Assessment of nutritional status of a child based on history and physical examination.
- Protein energy malnutrition – Definition, classification according to IAP / Welcome Trust, acute versus chronic malnutrition. Clinical features of marasmus and Kwashiorkor. Causes and management of PEM including that of complications, Planning a diet for PEM.
- Vitamins – Recognition of vitamin deficiencies (A, D, K, C, B-Complex). Etiopathogenesis, clinical features, biochemical and radiological findings, differential diagnosis and management of nutritional rickets & scurvy. Hypervitaminosis A and D.

### Desirable to know:

- Characteristics of transitional and mature milk (foremilk & hind milk). Prevention and management of lactational failure and feeding problems.
- Definition, causes and management of obesity.

### 1) Immunization:

#### Must know:

- National Immunization Programme.
- Principles of Immunization. Vaccine preservation and cold-chain.
- Types, contents, efficacy storage, dose, site, route, contra-indications and adverse reactions of vaccines – BCG, DPT, OPV, Measles, MMR, and Typhoid: Rationale and methodology of Pulse Polio Immunization.
- Investigation and reporting of vaccine preventable diseases. AFP (Acute Flaccid Paralysis) surveillance.

#### Desirable to know

- Special vaccines like Hepatitis B, H. influenza b, Pneumococcal, Hepatitis A, Chickenpox, Meningococcal, Rabies.

### 2) Infectious Diseases:

#### Must know:

- Epidemiology, basic pathology, natural history, symptoms, signs, complications, investigations, differential diagnosis, management and prevention of common bacterial, viral and parasitic infections in the region, with special reerence to vaccine-preventable diseases: Tuberculosis, Poliomyelitis, Diptheria, Whooping cough, Tetanus including neonatal tetanus, Measles, Mumps, Rubella, Typhoid, Viral Hepatitis, Cholera, Chickenpox, Giardiasis, Amoebiasis, Intestinal helminthiasis, Malaria, Dengue fever, AIDS.

#### Desirable to know:

- Kala-azar, Leprosy, Chlamydia infection.

### 3) Hematology:

#### Must know:

- Causes of anemia in childhood, Classification based on etiology and morphology.
- Epidemiology, recognition, diagnosis, management and prevention of nutritional anemia-iron deficiency, megaloblastic.
- Clinical approach to a child with anemia with lymphadenopathy and hepatosplenomegaly.
- Epidemiology, clinical features, investigations and management of thalassemia.
- Approach to a bleeding child.
- Diagnosis of acute lymphoblastic leukemia and principles of treatment.
- Clinical features and management of hemophilia, ITP.
- Diagnosis and principles of management of lymphomas.

#### Desirable to know:

- Types, clinical features and management of acute hemolytic anemia.
- Non-thrombocytopenic pupura (Henoch-Schonlein purpura).

#### 4) **Respiratory System:**

##### **Must know:**

- Clinical approach to a child with cyanosis, respiratory distress, wheezing. Significance of recession, retraction.
- Etiopathogenesis, clinical features, complications, investigations, differential diagnosis and management of acute upper respiratory infections, pneumonia with emphasis on bronchopneumonia, bronchiolitis, bronchitis. Acute and chronic otitis media.
- Etiopathogenesis, clinical features, diagnosis, classification and management of bronchial asthma. Treatment of acute severe asthma.
- Pulmonary tuberculosis-tuberculous infection versus tuberculous disease, difference between primary and post-primary tuberculosis. Etiopathogenesis, diagnostic criteria in children versus adults. Diagnostic aids-technique and interpretation of mantoux test and BCG test. Radiological patterns, Chemoprophylaxis and treatment.
- Diagnosis and management of foreign body aspiration. Differential diagnosis of stridor.
- Pathogenesis, clinical features and management of pneumothorax, pleural effusion and empyema.

##### **Desirable to know:**

- Multidrug resistant tuberculosis, Bronchiectasis, pulmonary cysts.

#### 5) **Gastro Intestinal Tract :**

##### **Must know:**

- Clinical approach to a child with jaundice, vomiting, abdominal pain, bleeding, hepatosplenomegaly.
- Acute diarrhoeal disease-Etiopathogenesis, clinical differentiation of watery and invasive diarrhoea, complications of diarrheal illness. Assessment of dehydration, treatment at home and in hospital. Fluid and electrolyte management. Oral rehydration, composition of ORS.
- Clinical features and management of acute viral hepatitis, causes & diagnosis of Chronic Liver Disease.
- Common causes of constipation.
- Abdominal tuberculosis.

##### **Desirable to know:**

- Causes, clinical features and management of Portal hypertension, Reye's syndrome, Coeliac disease.
- Drug induced hepatitis.

#### 6) **Central Nervous System:**

##### **Must know:**

- Clinical approach to a child with coma, convulsion, mental retardation.
- Clinical diagnosis, investigations and treatment of acute pyogenic meningitis, encephalitis & Tubercular Meningitis.
- Seizure Disorder-Causes and types of convulsions at different ages. Diagnosis, categorization and management of Epilepsy (Broad outline). Febrile convulsions, definition, types, management.

- Causes, diagnosis and management of cerebral palsy.
- Acute flaccid paralysis – Differentiation between Polio and Gullain-Barre syndrome.
- Microcephaly, Hydrocephalus, chorea.

**Desirable to know**

- Infantile tremor syndrome, infantile hemiplegia.

**7) Cardiovascular System:**

**Must know:**

- Clinical features, diagnosis, investigation, treatment and prevention of acute rheumatic fever. Common forms of rheumatic heart disease in childhood. Differentiation between rheumatic and rheumatoid arthritis.
- Recognition of congenital acyanotic and cyanotic heart disease. Hemodynamics, clinical features and management of VSD, PDA, ASD and Fallot's tetralogy (Cyanotic spells).
- Recognition of congestive cardiac failure in children.
- Hypertension in children –recognition and referral.

**Desirable to know**

- Diagnosis and management of bacterial endocarditis, pericardial effusion, myocarditis.

**8) Genito Urinary System:**

**Must know:**

- Basic etiopathogenesis, clinical features, diagnosis, complications and management of acute post-streptococcal glomerulonephritis and nephrotic syndrome.
- Etiology, clinical features, diagnosis and management of urinary tract infection – acute and recurrent.
- Etiology, diagnosis and principles of management of acute renal failure.
- Causes and diagnosis of obstructive uropathy in children.
- Diagnosis and principles of management of chronic renal failure.
- Causes and diagnosis of hematuria.

**Desirable to know:**

- Renal and bladder stones.
- Hemolytic-uremic syndrome.

**9) Endocrinology :**

**Must know:**

- Etiology clinical features and diagnosis of diabetes and hypothyroidism, hyperthyroidism and goiter in children.

**Desirable to know**

- Delayed and precocious puberty.



**10) Neonatology:**

**Must know:**

- Definition – live birth, neonatal period, classification according to weight and gestation, mortality rates.
- Delivery room management including neonatal resuscitation and temperature control.
- Etiology, clinical features, principles of management and prevention of birth asphyxia.
- Birth injuries-causes and their recognition.
- Care of the normal newborn in the first week of life. Normal variations and clinical signs in the neonate.
- Breast feeding-Physiology and its clinical management.
- Identification of congenital anomalies at birth with special reference to anorectal anomalies, tracheo-esophageal fistula, diaphragmatic hernia, neural tube defects.
- Neonatal Jaundice: causes, diagnosis, principles of management.
- Neonatal infection – etiology, diagnosis, principles of management. Superficial infections, sepsis.
- Low birth weight babies-causes of prematurity and small for date baby, clinical features and differentiation. Principles of feeding and temperature regulation. Problems of low birth weight babies.
- Identification of sick newborn (i.e. detection of abnormal signs – cyanosis, jaundice, respiratory distress, bleeding, seizures, refusal to feed, abdominal distension, failure to pass meconium and urine).

**Desirable to know:**

- Recognition and management of specific neonatal problems – hypoglycemia, hypocalcemia, anemia, seizures, necrotising enterocolitis, haemorrhage.
- Common intra-uterine infections.
- Transportation of sick neonate.

**11) Paediatric Emergencies:**

**Must know:**

- Status epilepticus.
- Status asthmaticus / Acute Severe Asthma.
- Shock and anaphylaxis.
- Burns.
- Hypertensive emergencies.
- Gastrointestinal bleed.
- Comatose child.
- Congestive cardiac failure.
- Acute renal failure

**12) Fluid – Electrolyte:**

**Must know:**

- Principles of fluid and electrolyte therapy in children
- Pathophysiology of acid-base imbalance and principle of management.

**13) Genetics:**

**Must know:**

- Principles of inheritance and diagnosis of genetic disorders.
- Down's syndrome.

**14) Behavioral Problems:**

**Must know:**

- Breath holding spells, nocturnal enuresis, temper tantrums, pica.

**15) Paediatric Surgical Problems :**

**Must know:**

- Diagnosis and timing of surgery of Cleft lip / palate, hypospadias, undescended testis, tracheo-esophageal fistula, hydrocephalus, CTEV, Umbilical and inguinalhernia, anorectal malformations, hypertrophic pyloric stenosis.

**16) Therapeutics:**

**Must know:**

- Paediatric doses, drug combinations, drug interactions, age specific choice of antibiotics etc.,

**Suggested Topics for Integrated Seminars**

1. Convulsions including status epilepticus
2. Coma
3. PUO
4. Jaundice
5. Portal hypertension
6. Respiratory failure
7. Shock and anaphylaxis
8. Rheumatic Heart Disease
9. Hypertension.
10. Diabetes mellitus
11. Hypothyroidism
12. Anemia
13. Bleeding
14. Renal failure
15. Tuberculosis
16. Malaria
17. HIV infection.
18. Poliomyelitis and AFP surveillance.
19. Perinatal asphyxia (with obstetrics)
20. Intrauterine growth retardation (with obstetrics)

### **List of Tutorials**

1. Protein energy malnutrition.
2. Rickets.
3. Acute Diarrhea including fluid therapy.
4. Persistent Diarrhea.
5. Hepatosplenomegaly and splenohepatomegaly.
6. Hemolytic anemia and other anemias.
7. Bleeding child.
8. Leukemia.
9. Generalised lymphadenopathy.
10. Congenital heart disease. (left to right shunt and right to left shunt).
11. Rheumatic Heart disease.
12. Nephrotic syndrome (generalized anasarca).
13. Acute glomerulonephritis.
14. Pleural effusion / consolidation.
15. Bronchial asthma (respiratory distress).
16. Upper respiratory infections.
17. Bronchopneumonia.
18. Rash.
19. Meningitis.
20. Hemiparesis.
21. Monoparesis including acute flaccid paralysis.
22. Mental retardation (Preventable and cerebral palsy).
23. Epilepsy and febrile convulsions.
24. Hydrocephalus.
25. Normal newborn.
26. Low birth weight babies.
27. Preterm babies.
28. Neonatal jaundice.
29. Neonatal septicemia.
30. Newborn resuscitation.
31. Respiratory distress in new born.

### **List of usual Clinical Cases to be Covered**

1. Normal New born
2. Normal development in a child.
3. Low birth weight babies
4. Temperature regulation in new born.
5. Neonatal Infections.
6. Neonatal Respiratory distress
7. Jaundice in New born.
8. Malaria and Typhoid Fever
9. Immunization.
10. Adolescent growth and disorders of puberty
11. Common exanthematous illness
12. Infant Feeding.
13. Xerophthalmia & Rickets.
14. Protein energy malnutrition.

15. Fluid and electrolyte imbalance.
16. Acute diarrhea
17. Persistent diarrhea
18. Chronic liver disease
19. Seizure disorders.
20. Acute flaccid paralysis
21. Cerebral palsy & mental retardation.
22. Leukemias
23. Hemolytic anemias & Thalassemia
24. Bleeding and coagulation disorders
25. Iron deficiency anemia.
26. Ac. Glomerulonephritis & Hematuria.
27. Nephrotic Syndrome.
28. Rheumatic fever and heart disease
29. Acute respiratory infections.
30. Congenital heart disease
31. Congestive heart failure
32. Meningitis
33. Bronchial asthma
34. Behavioural Disorders
35. Childhood tuberculosis.

#### **Suggested List of Instruments And X-Rays**

##### List of Instruments:

- |                          |                    |
|--------------------------|--------------------|
| ➤ Lumber puncture needle | Ambu bag and mask  |
| Liver biopsy needle      | Tongue depressor   |
| Bone marrow aspiration   | Tuberculin syringe |
| Intravenous Cannula      | Endotracheal tube  |
| Ryles tube               | Laryngoscope       |
| Emergency drugs          | Vaccines.          |

##### List of X-rays:

- Pneumonia, primary complex – hilar and parahilar lymphadenopathy, military tuberculosis, obstructive emphysema, Pleural effusion, pneumothorax, normal thymus, primary complex, Congenital heart disease, increased and decreased pulmonary vascularity, cardiomegaly, Rickets, Scurvy, Hemolytic anemia, skull (sutural separation, enlarged sella and raised intracranial tension).

#### **RECOMMENDED BOOKS**

1. IAP Text Book of Pediatrics.
2. Essential Pediatrics by O.P.Ghai.
3. Text Book of Neonatology by Meharban Singh.
4. Text Book of Pediatrics by Suraj Gupte.
5. Clinical methods in Pediatrics by Meharban Singh
6. Principles of Pediatrics, by Tirthankar Dutta.
7. Approach to Pediatric Problems by S.K.Mittal & Vijay Aggarwal.

#### **Reference Books:**

- Text Book of Pediatrics by Nelson.

### III rd PROFESSIONAL - PART – II SYLLABUS

#### (3) GENERAL SURGERY (including Paediatric Surgery)

##### (i) Goal :

The broad goal of the teaching of undergraduate students in Surgery is to produce graduates capable of delivering efficient first contact surgical care.

##### (ii) Objectives :

###### (a) KNOWLEDGE :

At the end of the course, the student shall be able to:

- (1) Describe aetiology, pathophysiology, principles of diagnosis and management of common surgical problems including emergencies, in adults and children;
- (2) define indication and methods for fluid and electrolyte replacement therapy including blood transfusion;
- (3) define asepsis, disinfection and sterilization and recommend judicious use of antibiotics;
- (4) describe common malignancies in the country and their management including prevention;
- (5) enumerate different types of anaesthetic agents. Their indications, mode of administration, contraindications and side effects.

###### (b) SKILLS:

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

- (1) Diagnose common surgical conditions both acute and chronic in adult and children;
- (2) plan various laboratory tests for surgical conditions and interpret the results;
- (3) identify and manage patients of haemorrhagic, septicaemic and other types of shock;
- (4) be able to maintain patent air-way and resuscitate;
  - (i) a critically injured patient;
  - (ii) patient with cardio-respiratory failure;
  - (iii) a drowning case;
- (5) monitor patients of head, chest, spinal and abdominal injuries, both in adults and children.
- (6) Provide primary care for a patient of burns;
- (7) Acquire principles of operative surgery, including preoperative operative and post operative care and monitoring;
- (8) Treat open wounds including preventive measures against tetanus and gas gangrene;
- (9) Diagnose neonatal and paediatric surgical emergencies and provide sound primary care before referring the patient to secondary / tertiary centres;
- (10) Identify congenital anomalies and refer them for appropriate management.

**In addition to the skills referred above in items(1) to (10), he shall have observed /assisted /performed the following:**

1. Incision and drainage of abscess;
2. Debridement and suturing open wound;
3. Venesections;
4. Excision of simple cyst and tumours;
5. Biopsy of surface malignancy;
6. Catheterisation and nasogastric intubation;
7. Circumcision;
8. Meatotomy;
9. Vasectomy;
10. Peritoneal and pleural aspirations;
11. Diagnostic proctoscopy;
12. Hydrocele operation;
13. Endotracheal intubation;
14. Tracheostomy and cricothyroidotomy;
15. Chest tube insertion

**(c) INTEGRATION:**

The undergraduate teaching in surgery shall be integrated at various stages with different pre and para and other clinical departments

**THEORY SYLLABUS IN SURGERY:**

<b>Sl.No.</b>	<b>Name of the unit</b>	<b>No.of Hours</b>
1.	Wounds-closed and open, wound-healing and management.	} 16
2.	Hemorrhage and shock	
3.	Fluid and Electrolyte balance & Acid-Base Balance.	
4.	Blood transfusion	
5.	Pyogenic infections – Local, diffuse and septic	
6.	Common clinical lesions – swelling , ulcer etc.,	
7.	Thermal injuries, burns, electrical injuries;	} 16
8.	Ulceration and Gangrene : Simple non- specific ulceration, acute and chronic ulcers, skin grafting, gangrene, threatened, dry and moist, vascular, infective, traumatic and toxic gangrene	
9.	Chemotherapy: Definition, Sulphanamide group penicillin, Streptomycin and the newer antibiotics, principles of radiation.	

10. Diseases of the skin; Boils , Carbuncles, Impetigo, Tuberculosis, Infections, Growth, Cysts and Sebaceous Glands, Nails;
11. Infections of the Fingers and hand :Anatomy, Prophylaxis The distal Segment of the fingers, Tenosynovitis, Abscess in the palm, Lymphangitis
12. The surgery of the Blood vessels: Arteries: Injury, Diseases, Atheroma, Arteriosclerosis, Aneurysm, Thrombosis and Embolism; Veins: Injury, Phlebitis Varicose Veins, growths of the blood vessels;
13. The diseases of lymphatic system: The diseases and growths of lymphatics, elephantiasis, infections of the lymph glands, lymphoedema, Lympho sarcoma, Lymph nodes – Diseases and surgery, slides of TB. And Hodgkins.
14. Diseases of the Mouth Palate, Lips, Cheek, Tongue, Teeth, Gums jaws – Salivary glands, Maxillofacial injuries, Tumours of jaw and mouth
15. Anatomy of oesophagus, stomach, small and large bowel and anal canal ( including vermiform appendix Peritoneum, congenital anomalies) Diseases affecting them with emphasis on cancer colon and volvulus of sigmoid – Specimens of Cancer colon and Ileocaecal TB. & Colostomy
  - a) Anorectal suppuration
  - b) Haemorrhoids internal and external
  - c) Ulcers and Tumours of Anal Canal
  - d) Rectum – Specimens of cancer Rectum
16. Thyroid – surgical anatomy, Physiology Classification of goitres, thyrotoxicosis, tumours and surgery – specimens and slides of Thyrotoxicosis, Carcinoma and Colloid goitre.
17. Parathyroid & Adrenal glands.  
Breast \_ Surgical Anatomy, Physiology, Diseases and Surgery; specimens and slides of Fibroadenoma and Carcinoma
18. Hernias
19. Penis – Ulcers and tumors of penis
20. Anatomy of abdominal wall – ventral hernia- Abdominal incision and Mc. Burney's point
  - b) Anatomy of inguinal canal and inguinal hernia- Bassinis' operation.
  - c) Other types of Hernia
21. Abdominal injuries-open and closed.

- 22. Anatomy and diseases of liver
    - a. Abscess
    - b. Tumours
    - c. Specimens of Hydatid cyst and liver abscess.
    - d. Cholecystitis and cholelithiasis- Specimens of Cholecystitis and gall stones.
    - e. Surgical Jaundice
    - f. Pancreatitis, Pancreatic Calculi and tumours
    - g. Spleen
    - h. Testis
  - 23. Thorax and chest injuries.
  - 24. Urinary symptoms, investigations of urinary tract
  - 25. Kidney – Ureter, Bladder, Prostate, Seminal Vesicles, Urethra and Genito Urinary Surgery.
  - 26. Cranium, spinal cord, Peripheral nerves and Head injuries.
- } 32

**OPERATIVE SURGERY:**

- 1. Sepsis and Antisepsis
- 2. Sterilization –Methods
- 3. General surgical Techniques: Antiseptic and aseptic surgery, Theatre arrangements and technique, Ligature materials, pre-operative preparation and post-operative treatment.
- 4. Surgical anatomy of neck with block dissection

Demarcation of syllabus for University Exam paperwise:-

**Paper-I** : Units 1 to 14

**Paper-II** : Units 15 to 26.

**Recommended Books:**

- 1. Short Practice of Surgery by Bailey & Love.
- 2. Principles of Surgery by Schwartz
- 3. Text Book of Surgery by Sabiston
- 4. Text Book of Surgery by Das
- 5. Manual of Clinical Surgery by Das K.
- 6. Practical guide to operative Surgery by Das S.
- 7. Current Surgical Diagnosis & Treatment by Lawrence.
- 8. Demonstration of Physical signs in Clinical Surgery by Hamilton Bailey.
- 9. Manual of Surgery by Dr.G.Lakshmana prasad.



### III rd PROFESSIONAL - PART – II SYLLABUS

#### 4) ORTHOPAEDICS & TRAUMATOLOGY

##### i) Theory Syllabus

Sl. No.	CHAPTER	No.of Hours
1.	<b>ORTHOPAEDICS : GENERAL</b> History- Orthopaedics in India- Emblem- Deformities- Acquired deformities- Causes – Principle & management – clinical examination of an orthopaedic patient- investigations, Radiological and imaging Techniques- walk cycle – Abnormal gaits – splinting – traction Procedures – Materials – Preventive Orthopaedics – Geriatric Orthopaedics.	2
2.	<b>CONGENITAL DEFORMITIES:</b> Etiology :- Congenital talipes- equino varus- congenital dislocation hip – congenital genu recurvatum, Sprengel's – Madelung's deformity – congenital torticollis – Spina Bifida.	2
3.	<b>DEVELOPMENTAL DISORDERS OF BONES:-</b> Anatomical and physiological factors-multiple exostosis, Enchondromatosis-Chondro osteodystrophy- Osteogenesis imperfecta – Fibrous dysplasia- Neurofibromatosis – Congenital pseudarthrosis of tibia.	2
4.	<b>INFECTIONS OF BONES AND JOINTS:</b> Osteomyelitis - Acute pyogenic osteomyelitis-chronic osteomyelitis – Primary Subacute osteomyelitis Brodies abscess-Garre's osteomyelitis, Typhoid osteomyelitis – Septic spondylitis – Brucellar osteomyelitis – mycotic infection of bone- Syphilitic infection of bone – Parasitic infection of bone. Arthritis – Acute Pyogenic arthritis – Septic arthritis of infancy – smallpox arthritis – Acute Rheumatic arthritis- Chronic arthritis- Syphilitic infection of joints – Guinea worm arthritis.	3
5.	<b>BONE AND JOINT TUBERCULOSIS:</b> Tuberculosis of the spine – Pott's paraplegia- Tuberculosis of the Hip Joint & Knee joint – tuberculosis of other joints- sacro iliac joint – Ankle – Tarsal joints – Shoulder – Elbow- Wrist; Tuberculosis osteomyelitis – Dactylitis – caries Rib- BCG Osteomyelitis – Poncet's tuberculous rheumatism.	4
6.	<b>GENERALISED DISEASES OF BONES:</b> Rickets-Osteoporosis-Parathyroid Osteodystrophy- Paget's disease- Fluorosis.	1
7.	<b>DISEASES OF JOINTS :</b> Synovial fluid- classification- ankylosing spondylitis- osteoarthritis knee-gout-haemophilic arthritis – Villonodular synovitis.	1

Sl. No.	CHAPTER	No.of Hours
8.	AVASCULAR NECROSIS OF BONE AND EPIPHYSEAL OSTEOCHONDRITIS: Definition- Pathogenesis- Clinical features- Radiological staging, Epiphyseal osteochondritis –Perthes disease- Osgood Sch letter's disease.	1
9.	TUMORS OF BONE Osteoid osteoma-Osteoma- Osteochondroma- Aneurysmal bone cyst-osteosarcoma- Giant cell tumour – Chondroblastoma- Ewing's Sarcoma Plasmacytoma Bone metastasis.	4
10.	NEUROLOGICAL AND MUSCULAR DISORDERS : Cerebral Palsy- Types – Treatment – Anterior poliomyelitis – stages Management – Physiotherapy.	1
11.	REGIONAL CONDITIONS OF NECK AND UPPER LIMB : Spondylosis – Cervical rib – Torticollis – Pariarthrits shoulder Tennis elbow – Cubitus varus – Ganglion – De quervain's disease- Trigger finger – carpal tunnel syndrome – Dupuytren's contracture.	2
12.	REGIONAL CONDITIONS OF THE SPINE AND LOWER LIMB: Spondylolithesis – Fibrositis back – Hip clinical Examination- Coxa vara – Genu valgum – Genu varum- Recurrent dislocation of patella- Plantar Fascitis.	2
13.	PHYSICAL MEDICINE AND REHABILITATION: Definitions – Rehabilitation- Medical Rehabilitation- Physical Medicine- Massage therapy – Exercise therapy- Hydrotherapy – Electrotherapy – Short wave diathermy- Ultrasound therapy- Laser therapy – Lower limb prosthesis – Upper limb prosthesis.	5
14.	INJURIES TO BONES AND JOINTS :- GENERAL Fractures – Types of fractures – Mechanism of fracture – Biology of fracture healing – Factors which influence fracture healing- General Principles of management of fractures- Diagnosis- Conservative management – Functional Cast Bracing – Open reduction and internal fixation. Complications of Fractures.	5
15.	INJURIES OF THE SHOULDER AND ARM: SHOULDER:- Fracture clavicle – Injuries of the Acromio Clavicular joint – Dislocation of the shoulder joint –Recurrent dislocation of shoulder. The arm – fracture of the Proximal end of humerus- Fracture neck of humerus –Fracture of the shaft of the humerus.	2

Sl. No.	CHAPTER	No.of Hours
16.	<p>INJURIES OF ELBOW, FOREARM AND WRIST</p> <p>Elbow – Supra condylar fracture – Intercondylar fracture – Fracture of the medial epicondyle-Fracture of the lateral condyle to the humerus – Dislocation of the elbow – Fractures of the head of the radius – Fractures of the neck of the radius – Fractures of the olecranon. The forearm-Fracture both bone forearm – Monteggia fracture dislocation- Gallezzi fracture dislocation.</p> <p>The Wrist- Colles fracture – Fracture separation of lower epiphysis of radius – Smith’s fracture – Barton’s fracture Fracture of Scaphoid bone – Dislocation of the Lunate bone.</p>	3 2
17.	<p>INJURIES OF THE HAND :</p> <p>Closed injuries – Fractures of Metacarpal bones – Fractures of the phalanges – Dislocation of metacarpo phalangeal joint Bennett’s fracture dislocation – Open injuries- Principles of management – Tidy wounds-Crush injuries – Tendon injuries, Flexor tendon injuries- Extensor tendon injuries – Mallet finger.</p>	1
18.	<p>INJURIES OF THE HIP AND THIGH:</p> <p>The Hip – Dislocation of the hip joint :- Posterior dislocation – Anterior dislocation – Central dislocation – Anatomy and Vascular supply- Fracture of the neck of femur- Intracapsular fracture- Trochanteric fracture of femur. The Thigh :- Fracture shaft of the femur – Proximal third –Middle third – Distal third – Fracture femur in children.</p>	4 1
19.	<p>INJURIES OF THE KNEE, LEG :-</p> <p>The Knee :- Fracture patella</p> <p>The Leg :- Fracture of Tibia and Fibula.</p>	1 1
20.	<p>INJURIES OF THE ANKLE AND FOOT :-</p> <p>The Ankle – Fracture and fracture dislocation of the ankle Epiphyseal injury lower end Tibia.</p> <p>The foot :- Fractures of the talus- Fracture of the calcaneum- fractures of the metatarsals and phalanges.</p>	1
21.	<p>INJURIES OF THE SPINE :</p> <p>Dorso lumbar spine – Classification- Mechanism and Types of injuries – stable fractures with out para plegia- Fracture dislocation with paraplegia – Management of the fracture – management of paraplegia – Bed sore – Bladder care</p> <p>The cervical spine :- Lower Cervial spine injuries – Upper cervical spine injuries.</p>	1

Sl. No.	CHAPTER	No.of Hours
22.	FRACTURES OF THE PELVIS : Fractures of the Pelvis – Mechanism – Classification- Management – Fracture of the acetabulum- Fracture of the Sacrum and Coccyx.	1
23.	POLY TRAUMA Poly Trauma – Incidence – Primary Survey – Glasgow coma Scale – Trauma –Resuscitation – Management.	1
24.	COMPOUND FRACTURES : Classification – Emergency surgical treatment – Management of Wound – management of infected open fracture – Complications of open fracture.	1
25.	SOFT TISSUE INJURIES INCLUDING SPORTS INJURIES : Injuries to ligaments : Cruciate ligament injuries- injuries to Semilunar cartilage.	1
26.	NERVE INJURIES : Pathology of nerve injury –Wallerian degeneration Regeneration – Injuries of the peripheral nerves – Classification – Mechanism of closed nerve injuries – Diagnosis of nerve lesion – clinical examination – management of nerve injuries.	2

**Recommended Books:**

- a. Text Book of Orthopaedics and Traumatology by Natarajan.
- b. Text Book of Orthopaedics by Maheswari
- c. Outlines of Orthopaedics by Adams.
- d. Outlines of Fractures by Adams.
- e. Clinical Orthopaedics Examination by Mc.Rae.
- f. Text book of Orthopaedics by Dr.C.Vyaghreswarudu.
- g. Text book of Orthopaedics by Graham Appley.

### III rd PROFESSIONAL - PART – II SYLLABUS

#### 5. OBSTETRICS AND GYNAECLOGY :

Obstetrics and Gynaecology to include family welfare and family planning.

##### (i) Goal :

The broad goal of under graduate students in obstetrics and Gynecology is that he/she shall acquire understanding of anatomy , physiology and pathophysiology of the reproductive system and gain the ability to optimally manage common conditions affecting it.

##### ii) Objectives :

At the end of the course, the student shall be able to:

- (1) Outline the anatomy, physiology and pathophysiology of the reproductive system and the common conditions affecting it ;
- (2) Detect normal pregnancy labour puerperium and manage the problems he/she is likely to encounter therein;
- (3) List the leading causes of maternal and perinatal morbidity and mortality;
- (4) Understand the principles of contraception and various techniques employed , methods of medical termination of pregnancy, sterilisation and their complications;
- (5) Identify the use, abuse and side effects of drugs in pregnancy, pre-menopausal and post menopausal periods;
- (6) Describe the national programme of material and child health and family welfare and their implementation at various levels;
- (7) Identify common gynecological diseases and describe principles of their management;
- (8) State the indications, techniques and complications of surgeries like Caesarian section, laprotomy, abdominal and vaiginal hysterectomy, Fothergill's operation, and vaccum aspiration for Medical Termination of Pregnancy (MTP).

#### THEORY SYLLBUS: SYLLABUS OF OBSTETRICS:

- 1) Anatomy of the Genital Tract
- 2) Physiology of the Genital Tract
- 3) Anatomy of the Peivis
- 4) Anatomy of the Foetal Skull
- 5) Maturation & Fertilisation of ovum
- 6) Development of Placenta
- 7) Endocrinology of Placenta
- 8) Diagnosis of Pregnancy.
- 9) Signs & Symptoms of Pregnancy.
- 10) Physiological Changes in Pregnancy.

- 11) Fetal Physiology
- 12) Physiology of Labour
- 13) Physiology of Puerperium.
- 14) Breast, Lactation.
- 15) Abortion
- 16) Ectopic Gestation.
- 17) Trophoblastic Tumors
  - a) Mole
  - b) Choriocarcinoma
- 18) Anatomy of Pelvic Floor
- 19) Physiology of Menstruation.
- 20) Development of Genital Organs
- 21) Gynaecological Diagnosis
- 22) Physiology of Menopause
- 23) Abnormalities of Menstruation.
- 24) S.T.D. & HIV
- 25) Leucorrhoea
- 26) Hyperemesis
- 27) PIH
- 28) Eclampsia
- 29) Heart Disease complicating Pregnancy
- 30) Anaemia complicating Pregnancy
- 31) Rh incompatibility
- 32) Face, Brow Presentation
- 33) Occipitoposterior
- 34) Transverse lie
- 35) Breech
- 36) Multiple Pregnancy
- 37) Abnormal Labour
- 38) Bad Obstetric history
- 39) Cephalopelvic disproportion
- 40) IIIrd stage complication
- 41) Induction of Labour

- 42) Rupture Uterus
- 43) Obstructed Labour
- 44) Caesarean Section
- 45) Post Caesarean Pregnancy
- 46) Puerperal Sepsis
- 47) Intra Uterine Growth Retardation
- 48) Ultrasonography & Radiology
- 49) Social obstetrics
- 50) Neonatology

**FAMILY PLANNING:**

- 1. Anatomy of Pelvic Floor
- 2. Contraception
  - A. Temporary Methods
    - a. Barrier
    - b. IUCD
    - c. Hormonal – Oral, Injectable, Implants,
  - B. Permanent
    - a. Tubectomy – Minilap, Puerperal sterilization, Laparoscopic sterilization
    - b. Vasectomy & N.S.V
    - c. Recanalisation – Fallopian tube, Vas
    - d. Counselling
- 3. Antenatal Care
- 4. Anaemia Complicating Pregnancy
- 5. Pregnancy Induced Hypertension(PIH)
- 6. Antepartum Hemorrhage

**GYNAECOLOGY**

- 1. Genital Tract Anomalies
- 2. Infertility
- 3. Anomalies of uterus
- 4. Endometriosis
- 5. Amenorrhoea
- 6. Dysfunctional uterine bleeding
- 7. Post Menopausal Bleeding
- 8. pelvic Inflammatory disease
- 9. genital T.B.
- 10. Genital Fistulae
- 11. Stress incontinence
- 12. Trophoblastic disease
- 13. Prolapse Uterus
- 14. Retroversion & Chronic inversions of Uterus
- 15. Gynaecological Oncology

- Cancer Cervix
  - Cancer Breast
  - Cancer Body of uterus
  - Cancer Vulva
  - Cancer ovary
16. Endoscopy
  17. Chemotherapy & Radiotherapy
  18. Medical Termination of Pregnancy
  19. Hormones in Gynaecology
  20. Inter sex

**TOPICS FOR INTEGRATED TEACHING**

1. Anaemia complicating pregnancy
2. Hypertension complicating Pregnancy
3. diabetes complicating Pregnancy
4. Heart disease complicating pregnancy
5. T.B. Asthma complicating Pregnancy
6. Hepatitis complicating pregnancy
7. STD complicating pregnancy
8. HIV complicating pregnancy
9. Acute Surgical Emergencies
10. Acute Renal failure
11. Acute abdomen in immediate post operative period.

**\* Recommended Text Books:**

1. Shaw's text book of Gynaecology by Dr.Daftari & V.Pdubaidri
2. Text book of Obstetrics – by Dr.DL.Dutta
3. Text Book of Gyanecology – by Dr.D.C.Dutta.
4. Text Book of Obstetrics – Dr.C.S.(Dawn)
5. Text Book of Gynaecology – Dr.C.S.Dawn
6. Text Book of Obstetrics – Dr.G.R.K.Raju
7. Manual of Obstetrics – Dr.Sirish Daftary
8. Text Book of Obstetrics – by Mudaliar
- 9.

**\* Reference Books:**

1. Williams – Obstetrics.
2. Jeffcoetes Gynaecology
3. Practical Obstetrics by landonala
4. Fertility control by Dr.Chand
5. Post graduate obstetrics & Gynaecology ol-I & II by Dr.Ratnam & Dr.Arul Kumaran  
Management of labour – Dr.Arul Kumaran.

Paper – I

- Obstetrics including social obstetrics.

Paper - II

- Gynaecology family welfare and Demography



**SCHEDULE OF CLINICAL POSTINGS FROM 3<sup>RD</sup> TO 9<sup>TH</sup> SEMETERS**

Total Subject	3 <sup>rd</sup> Semester (Weeks)	4 <sup>th</sup> Semester (Weeks)	5 <sup>th</sup> Semester (Weeks)	6 <sup>th</sup> Semester (Weeks)	7 <sup>th</sup> Semester (Weeks)	8 <sup>th</sup> Semester (Weeks)	9 <sup>th</sup> Semester (Weeks)	Total (Weeks)
1	2	3	4	5	6	7	8	9
General Medicine***	6	-	4	-	4	6	6	26
Paediatrics	-	2	-	2	-	4	2	10
Tuberculosis and Chest Diseases	-	2	-	-	-	-	-	02
Skin and STD	-	2	-	2	-	2	-	06
Psychiatry	-	-	2	-	-	-	-	02
Radiology*	-	-	-	-	2	-	-	02
General Surgery****	6	-	4	-	4	6	6	26
Orthopaedic**	-	-	4	4	-	-	2	10
Ophthalmology	-	2	-	4	4	-	-	10
Ear, Nose and Throat	-	2	-	4	4	-	-	08
Obstetrics ***** and Gynaecology including Family welfare	2	4	4	-	4	4	6	24
Planning Community Medicine	4	4	-	4	-	-	-	12
Emergency Medicine	-	-	-	-	-	-	-	-
Casualty	-	-	-	2	-	-	-	02
Dentistry	-	2	-	-	-	-	-	02
Total (in Weeks)	18	20	18	22	22	22	22	142

Clinical methods in Medicine and Surgery for whole class will be for 2 weeks each respectively at the start of 3<sup>rd</sup> semester.

- \* This posting includes training in Radiodiagnosis and Radiotherapy where existent.
- \*\* This posting includes exposure to Rehabilitation and Physiotherapy.
- \*\*\* This posting includes exposure to laboratory medicine and infectious diseases.
- \*\*\*\* This posting includes exposure to dressing and Anaesthesia
- \*\*\*\*\* This posting includes maternity training and Family medicine and the 3<sup>rd</sup> semester posting shall be in Family welfare planning.

### **SUGGESTED MODEL TIME TABLES:**

Following minimum teaching hours are prescribed in various disciplines

#### **A. PRE CLINICAL SUBJECTS :-**

(Phase - I First & Second Semesters)

Foundational Course stage - I

Anatomy	650 Hrs
Physiology	480 Hrs
Biochemistry	240 Hrs
Community	60 Hrs

#### **B. PARA CLINICAL SUBJECTS :-**

(Phase – II Third to Seventh Semesters)

Foundational course stage - II

Pathology	300 Hrs
Pharmacology	300 Hrs
Microbiology	250 Hrs.
Community Medicine	200 Hrs.
(Including 8 weeks posting of 3 hrs. each )	
Forensic Medicine	100 Hrs.

Teaching of paraclinical subjects shall be 4 hours per day. In 3<sup>rd</sup> Semester and 3hrs. per day in 4<sup>th</sup> and 5<sup>th</sup> Semesters (See attached time table).

#### **C. CLINICAL SUBJECTS :-**

(Phase – II and III – 3<sup>rd</sup> to 9<sup>th</sup> Semesters)

1. Clinical postings as per chart attached.

2. Theory lectures, demonstration and Seminars etc., in addition to clinical postings as under the clinical lecturers to be held from 4<sup>th</sup> semester onwards (See attached Time Table)

Gen.Surgery	300 Hrs
Gen.Medicine	300 Hrs
Paediatrics	100 Hrs
Pulmonary Diseases	20 Hrs
Psychiatry	20 Hrs
Skin and STD	30 Hrs
Community Medicine	50 Hrs
Anaesthesia including Emergency medicine	20 Hrs
Orthopaedics	100 Hrs
Ophthalmology	100hrs.
E.N.T.	70 Hrs
Radiology	20 Hrs.
Dentistry	10 Hrs.
Obst & Gynaec.	300 Hrs.

**NOTE :** This period of training is the minimum suggested. Adjustments where required depending on availability of time be made.

This period of training does not include university examination period.  
Extra time available be devoted to other sub – specialties

During semesters 3 to 9 clinical posting of 3 hours duration is suggested for various departments after introductory course in clinical methods in medicine and surgery of two weeks each, for the whole class.

MODEL TIME TABLE

(Subject to modifications as per local situation).

Phase-I

First Semester:

Days Time	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4
Mon	Anat.	Anat.	Anat.	Anat.	L	Phys.	Phys.	Phys.
Tues	Anat.	Anat.	Anat.	Anat.	U	Phys.	Phys.	Phys.
Wed	Anat.	Anat.	Anat.	Bioch.	N	Bioch.	Bioch.	Bioch.
Thurs	Anat.	Anat.	Anat.	Phys.	C	Phys.	Phys.	Phys.
Fri	Anat.	Anat.	Anat.	Anat.	H	Bioch	Bioch	Bioch
Sat	Anat.	Anat.	Anat.	Phys.		Phys.	Phys.	Phys.

Phase-I  
Second Semester:

Days Time	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4
Mon	Phys.	Phys.	Phys.	Anat.	L	Anat.	Anat.	Anat.
Tues	Phys.	Phys.	Phys.	Anat.	U	Anat.	Anat.	Anat.
Wed	Bioch.	Bioch.	Bioch.	Bioch.	N	Anat.	Anat.	Anat.
Thurs	Phys.	Phys.	Phys.	Phys.	C	Anat.	Anat.	Anat.
Fri	Bioch	Bioch	Bioch	Anat.	H	Anat.	Anat.	Anat.
Sat	Phys.	Phys.	Phys.	Phys.		Anat.	Anat.	Anat.

NOTE: Community Medicine lecture be arranged in consultation with other preclinical departments in the above timings.

Phase-II

Third Semester:

Days Time	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4
Mon	Para Clinical lecturers	Clinical Postings			Para clinical lectures	L	Practicals	
Tues	Do.	Do.			Do.	U	Para Clinical	
Wed	Do.	Do.			Do.	N	Do	
Thurs	Do.	Do.			Do.	C	Do	
Fri	Do.	Do.			Do.	H	Do	
Sat	Do.	Do.			Do.		Do	

Phase-II  
Fourth and Fifth Semesters:

Days Time	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4
Mon	Lectures in Clinical Subjects	Clinical Postings			Lectures in Para clinical Subjects	L	Practicals	
Tues	Do.	Do.			Do.	U	Para Clinical	
Wed	Do.	Do.			Do.	N	Do	
Thurs	Do.	Do.			Do.	C	Do	
Fri	Do.	Do.			Do.	H	Do	
Sat	Do.	Do.			Do.		Do	

PHASE-III

Sixth, Seventh, Eight & Ninth Semesters:

Days Time	8-9	9-10	10-11	11-12	12-1	1-2	2-3	3-4
Mon	Lectures in Clinical Subjects.	Clinical Postings			Lectures or Demonst ra-tions in clinical	L	Practicals Demonstra- tions in clinical subjects.	
Tues	Do.	Do.	Do.	Do.	Do.	U	Do	
Wed	Do.	Do.	Do.	Do.	Do.	N	Do	
Thurs	Do.	Do.	Do.	Do.	Do.	C	Do	
Fri	Do.	Do.	Do.	Do.	Do.	H	Do	
Sat	Do.	Do.	Do.	Do.	Do.		Do	

Note: These are suggested time tables, Adjustments where required, depending upon the availability of time and facility be made.



**The Andhra Pradesh Gazette Notification regarding prohibition of Ragging.**

**THE ANDHRA PRADESH GAZETTE  
PART-IV.B. EXTRAORDINARY  
PUBLISHED BY AUTHORITY**

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No.36] HYDERABAD, THURSDAY, AUGUST 21, 1997

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**ANDHRA PRADESH ACTS, ORDINANCES AND REGULATIONS Etc.**

The following Act of the Andhra Pradesh Legislative Assembly received the assent of the Governor on the 19<sup>th</sup> August, 1997 and the said assent is hereby first published on the 21 at August, 1997 in the Andhra Pradesh Gazette for general information.

**ACT No. 26 of 1997**

**AN ACT TO PROHIBIT RAGGING IN EDUCATIONAL INSTITUTIONS IN THE STATE OF ANDHRA PRADESH.**

Be it enacted by the Legislative Assembly of the State of Andhra Pradesh in the Forty-eighth year of the Republic of India, as follows:-

1. (1) This Act may be called the Andhra Pradesh Prohibition of Ragging Act, 1997.
- (2) It extends to the whole of the State of Andhra Pradesh.
- (3) It shall be deemed to have come into force with effect from 4<sup>th</sup> July.

**Short title, extent and commencement**

2. In this act, unless the context otherwise requires:-

- a) 'act' includes words either spoken or written or signs or sounds or gestures of visible representations;
- b) 'Educational Institution' means and includes a college, or other institution by whatever name called, carrying on the activity or imparting education therein (either exclusively or among other activities); and includes an orphanage or boarding home or hostel or tutorial institution or any other premises attached thereto.
- c) 'government' means the State Government of Andhra Pradesh.
- d) 'notification' means the notification published in the Andhra Pradesh Gazette and the word 'notified' shall be construed accordingly;
- e) 'ragging' means doing an act which causes 'or is likely' to cause insult or annoyance of fear or apprehension or threat or intimidation or outrage of modesty' or injury to a student.
- f) 'student' means a person who is admitted to an educational institution. And whose name is lawfully borne on the attendance register thereof;
- g) All words and expressions used but not defined in this Act shall have the meanings assigned to them under the Andhra Pradesh Education Act, 1982 or Indian Penal Code, 1660 respectively.

**Definitions.**

**A.P. Act 1 of 1982 Central Act 45 of 1860.**

3. Ragging within or outside any educational institution is prohibited.

**Prohibition of Ragging.**

4. Whoever, with the intention of causing ragging or with the knowledge that he is likely by such act to cause ragging, commits or abets ragging and thereby.

**Penalty for Ragging.**

- i. teases or embarrasses or humiliates a student shall be punished with imprisonment for a term which may extend to six months or with fine which may extend to one thousand rupees or with both; or
- ii. assaults or uses criminal force to or criminally intimidates, a student shall be punished with imprisonment for a term 'which' may extend to one year or with fine which may extend to two thousand rupees or with both; or
- iii. wrongfully restrains or wrong fully confines or causes hurt to a student shall be punished with imprisonment for a term which may extend to two years or with fine which may extend to five thousand rupees or with both; or
- iv. causes grievous hurt to or kidnaps or abducts of rapes or commits unnatural offence with a student shall be punished with imprisonment for a term 'which 'may extent to five years and with fine which may extend to ten thousand rupees; or
- v. causes death of abets suicide shall be punished with imprisonment forlife or with imprisonment for a term which may extend to ten years and with a fine which may extend to fifty thousand rupees.

5. (1) A student convicted of an offence under section 4 and punished with imprisonment for a term shall be dismissed from the educational institution.

**Dismissal of student.**

(2) A student convicted of an offence under section 4 and punished with imprisonment for a term of more than six months shall not be admitted in any other educational institution.

6. (1) Without prejudice to the foregoing provisions, whenever any student complains of ragging to the head or manager of an educational institution, such head or manager shall inquire into or cause an inquiry to be made into the same forthwith and if the complaint is prima-facie found true, shall Suspend' the student or students complained against for such period as may be deemed necessary.

**Suspension of student.**

(2) The decision of the head or manager of the educational institution under sub section (1) shall be final.

7. (1) If the head or the manager of an educational institution fails or neglects to take action in the manner specified in sub-section (1) of section 6, such person shall be deemed to have abetted the offence and shall be punished with the punishment provided for the offence.  
(2) If a student commits suicide due to or in consequence of ragging, the person who commits such ragging shall be deemed to have abetted such suicide. **Abetment.**
8. The provisions of this Act shall be in addition to and not derogatory of any law for the time being in force. **Other laws not affected.**
9. (1) The Government may by notification, make rules for carrying out all or any of the purposes of this Act. **Power to make rules.**  
(2) Every rule made under this Act shall immediately after it is made, be laid before the Legislative Assembly of the State, if it is in session and if it is not in session, in the session immediately following for a total period of fourteen days which may be comprised in one session or in two successive sessions, and if, before the expiration of the session in which it is so laid or the session immediately following the Legislative Assembly agrees in making any modification in the rule or in the annulment of the rule, the rule shall, from the date on which the modified form or shall stand annulled as the case may be so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.
10. The Andhra Pradesh Prohibition of Ragging Ordinance, 1997 is hereby Repealed. **Repeal of ordinance 12 of 1997.**

**G.BHAVANI PRASAD,**  
Secretary to Government,  
Legislative Affairs & Justice,  
Law Department.

### **STANDING ORDERS ON PUNISHMENT FOR USE OF UNFAIR MEANS.**

1. During the University examination if a candidate is found in malafide possession of papers, books or notes or written notes on his clothes, body or table or chair, which is relevant to the examination(s) he will be disqualified from appearing in any university exam for one year and if found having copied will be disqualified for two years.
2. If a candidate is found talking to another candidate or person inside or outside the examination hall without permission even after a warning before, his answer book for that particular paper shall be cancelled.
3. If a candidate shows his / her answer book to another candidate or if he receives or attempts to receive help from any source, including consulting books, notes or papers or any other matter outside the exam hall or has given help or attempted to give help, he / she shall be disqualified from appearing in any university exam for two years.
4. If a candidate swallows or attempts to swallow a note or paper or runs away with the paper or causes disappearance or destruction of any such material (s), he shall be disqualified for two years.
5. If a candidate writes even a question or anything concerned either on blotting paper, or any other piece of paper including question paper or hall ticket, or attempts to pass on question paper or part there of he / she shall be disqualified for that examination.
6. If a candidate exchanges his / her seat or writes the registered number of another candidate on his / her answer book or creates any disturbance during the examination or refuses to obey the supervisory staff, he / she will be disqualified for three years.
7. If a candidate is found guilty of smuggling in or out or of replacing answer book or additional sheet during or after the exam with or without the connivance of any staff he / she shall be disqualified for three years and shall be liable to any punishment decided by Vice-Chancellor.
8. If a candidate takes away the answer book outside the examination hall or intentionally tears off or otherwise disposes his answer book or any part there of or additional sheet, he / she shall be disqualified for two years.
9. If a candidate is found guilty of serious misconduct in the examination hall or of misbehaviour towards the supervisory staff even outside the examination hall or any other place during the period, the examination is being held he / she be disqualified for a period upto five years.
10. If a person impersonates a candidate, he / she be disqualified from appearing for any university exam for five years and if he is not on university rolls, will not be admitted to any course for five years and the case may be reported to police, the candidate who is impersonated also will be disqualified for 5 years.

11. Chief superintendents and Assistant Superintendents who have reasons to suspect misconduct on the part of any candidate of candidates should forth with make all possible preliminary investigation and communicate with the registrar immediately forwarding all material evidence available together with the answer-book and the written explanation of the candidate. All such communications shall be sent by registered post acknowledgement due on the same day addressed to the registrar by name. In all such chief cases of a suspected nature, the superintendents may use their discretion and decide whether the candidate in question shall be permitted to continue sitting for the rest of the examination or not the decision shall be reported to the registrar.
12. In all cases where the evidence is such as will leave no doubt in regard to the misconduct or when the candidate is caught redhanded, as it were, the candidate or the candidate involved shall be sent out of the hall forthwith and kept out from the rest of the examination, but before the candidate leaves premises, his / her explanation shall be taken in writing and forwarded to the Registrar along with the report setting forth in detail all the material evidence.
13. In the case of the person who commits an offence under any of these rules but is not a candidate for any university examination, the chief superintendent may handover the case to the police.
14. In the case of a teacher or a person connected with an institution, who commits an offence, under any of these rules, his conduct shall be reported to the managing body of the institution, and to the government in the case of Government Institution, and shall be debarred from any remunerative job in the university permanently or for such period as the vice-chancellor may decide and also liable for such disciplinary action as may be decided by the University and the management of the college should abide by the decision of the University.
15. In case the candidate refuses to give a statement he is not to be forced to do so, only the fact of his refusal shall be recorded by the superintendent and attested by two other members of the supervisory staff on duty at the time of occurrence and such candidates are liable for punishment for a period of 3 years.
16. A candidate guilty of communicating or attempting to communicate directly or through a relative, guardian or friend with an examiner or with the Registrar or any functionary involved in the conduct of examination or publication of results with the object of influencing him in the award of marks shall be disqualified from passing that examination and the one following it.
17. A candidate found guilty of approaching or influencing directly or indirectly regarding his unfair means case, a member of the committee or any University Official, shall be disqualified for one year in addition to the punishment awarded to him under the rules for her / his offence and for using unfair means.

18. Where a candidate alleged to have employed unfair means has not been awarded any opportunity to explain the misconduct of which he / she is reported to be guilty, the Registrar, or an officer authorized by him in this behalf, shall call upon the candidate to show cause why action should not be taken against him for his misconduct. If the candidate fails to do so within 15 days of the issue of such notice the university shall proceed with the case.
19. If the Executive Council is satisfied after enquiry that the integrity of a University Examination has been violated at an examination center, as a consequence of wholesale unfair assistance rendered to examinees, the Executive Council may order re-examination besides taking action under rules relating to unfair means and may also abolish the examination center for future or for a specified period.
20. For a case of unfair means not covered by these rules, the Executive Council may on the recommendation of the committee impart any such punishment as they deem fit accordingly to the nature of the offences.

**Addition to the Standing orders of the Executive Council on punishment for use of unfair means:**

1. One invigilator for every 20 candidates shall be appointed. However, there will be at least two invigilators in a room irrespective of number of candidates. Care should be taken not to keep the same invigilator in the same room and for same numbers everyday. The invigilators should report to the Chief Superintendent atleast 20 minutes before the commencement of examination. They are under the control of Chief Superintendents during the period they are on such duty. They should not leave the examination hall without the permission of the chief Superintendent.
2. Examination shall start exactly at 9.00 AM. Candidates should be in their seats 15 minutes before the schedule commencement of the examinations i.e., 8.45 AM. The answer books should be distributed ten minutes prior to the commencement of the examination i.e., 8.50 AM and all entries should be made and checked by 9.00 AM.
3. No candidate should be permitted to enter the examination hall after the commencement of examination i.e, 9.00 AM. No candidate shall be permitted to leave the exam hall earlier than half an hour before the completion of time of the exam.
4. Pagers, Cellular Phones or any other gadgets are strictly prohibited in the college premises during the examination days especially in examination hours by the students, House Surgeons and staff. The Principal should circulate this information widely. Further, the Principal, Chief Superintendents and observers are to be empowered to seize such articles and shall initiate disciplinary action under intended malpractice.

5. There shall not be any overwriting in the registered number and if there is any correction, it should be attested by the Chief Superintendent.
6. To affix Cellophane tape on the Regd.No.after it is entered in the column provided on the answer script (as is done for bank draft etc) by the concerned invigilator before the papers are collected.
7. To fix individual independent accountability on the invigilator, the Attendance sheet system should be introduced. The Attendance sheet contains the name of the invigilator with his / her signature and the list of the Regd.Nos. allotted to the invigilator for supervision. Against the Regd.No. the serial no. of the booklet No. and No. of additional sheets taken should be noted. They should be signed by the candidates. The invigilator also must sign in the last column as acknowledgement of having received the answer script from the candidate. The format of the Attendance sheet is enclosed.
8. When the time is over, all answer books must be collected immediately and the candidates should not be allowed to leave the room without handing over the answer books. The invigilators are responsible for the safe delivery of the answer books of the candidates under their charge to the Chief Superintendent after the examination is over and as such they should taken proper precautions for the same.
9. No staff member except Head of the Department of the concerned subject or officially authorized person in place of HOD should be permitted to the examination hall to verify the question paper.

## MEDICAL ETHICS

### A. CODE OF MEDICAL ETHICS

#### 1) Character of Physician:

(Doctors with qualification of MBBS or MBBS with PG degree / diploma or with equivalent qualification in any medical discipline)

A physician shall uphold the dignity and honour of his profession. The prime object of the medical profession is to render service to humanity; reward or financial gain is a subordinate consideration. A Physician should be an upright man, instructed in the art of healings. He shall keep himself pure in character and be diligent in caring for the sick; he should be modest, sober, patient, and prompt in discharging his duty without anxiety.

No person other than a doctor having qualification recognized by Medical Council of India and registered with Medical Council of India / State Medical Council(s) is allowed to practice Modern system of Medicine or Surgery.

#### 2) Maintaining good medical practice:

The principal objective of the medical profession is to render service to humanity with full respect for the dignity of profession and man. Physicians should merit the confidence of patients, rendering to each a full measure of service and devotion. Physicians should try continuously to improve medical knowledge and skills and should make available to their patients and colleagues the benefits of their professional attainments. The responsibilities of the physician extend not only to individuals but also to society. For advancement of his profession he should associate with associations/societies and participate in meetings /CME etc.

#### 3) Maintenance of Medical records:

Every physician shall maintain the medical records for a period of 3 years from the date of commencement of the treatment as per standard format supplied by M.C.I. If any request is made for medical records either by the patients / authorized attendant or legal authorities involved may be duly acknowledged and shall be issued within 72 hours.

A registered medical practitioner shall maintain a Register of Medical Certificates and enter the identification marks, record the signature / thumb mark of the patient and keep a copy of the certificate prepared as per standard format supplied by M.C.I.

#### 4) Display of Degrees and registration numbers:

Every physician shall display the registration number accorded to him by the State Medical Council / MCI in his clinic and in all his Prescriptions/Certificates/ Receipts given to his patients. Physicians shall display as suffix to their names only recognized medical degrees or such certificates / diplomas and memberships / honors which confer professional

#### 5) Use of Generic names of drugs:

Every physician should, as far as possible; prescribe drugs with generic names



- 6) **Highest Quality Assurance in patient care:**  
Physician should aid in safeguarding the profession. Physician shall employ an attendant who is their registered or enlisted under the Medical Council in force and shall not permit such persons to attend, treat or perform operations.
- 7) **Exposure of Unethical Conduct:**  
A physician should expose, without fear or favour, incompetent or corrupt, dishonest or unethical conduct on the part of members of the profession.
- 8) **Payment of Professional Services:**  
The personal financial interests of a physician should not conflict with the medical interests.  
A physician should announce his fees before rendering service. It is unethical to enter into a contract of "no cure no payment".
- 9) **Evasion of Legal Restrictions:**  
The Physician shall observe the laws of the country. He should be cooperative in observance and enforcement of sanitary laws and regulations in the interest of public

#### **B. DUTIES OF PHYSICIANS TO THEIR PATIENTS:**

- 1) **Obligations to the Sick:**  
Though a physician is not bound to treat each and every person asking his services, he should not only be everready to respond to the sick and the injured, but should be mindful of the high character of his mission and the responsibility he discharges in the course of his professional duties. A physician should visit at the hour indicated to the patients. In case of emergency a physician must treat the patient and shall not refuse treatment to a patient. However for good reason he may refer the patient to another physician. Medical practitioner having any incapacity detrimental to the patient is not permitted to practice his profession.
- 2) **Patience, Delicacy and Secrecy:**  
Patience and delicacy should characterize the physician. Confidences concerning individual or domestic life entrusted by patients to a physician and defects in the disposition or character of patients observed during medical attendance should never be revealed unless the laws of the State require their revelation
- 3) **Prognosis:**  
The Physician should neither exaggerate nor minimize the gravity of a patient's condition.
- 4) **The patient must not be neglected:**  
A physician is free to choose whom he will serve. He should, however, respond to any request for his assistance in an emergency. Once having undertaken a case, the physician should not neglect the patient. Provisionally or fully registered medical practitioner shall not willfully commit an act of negligence .

- 5) **Engagement for an Obstetric Case:**  
When a physician who has been engaged to attend an obstetric case is absent and another is sent for and delivery accomplished, the acting physician is entitled to his professional fees.

**C. DUTIES OF PHYSICIAN IN CONSULTATION:**

- 1) **Unnecessary consultations should be avoided:**  
However in case of serious illness the physician should request consultation, such consultation should be justifiable and in the interest of the patient Consulting pathologists / radiologists or asking for any other diagnostic Lab investigation should be done judiciously
- 2) **Consultation for Patient's Benefit:**  
In every consultation, the benefit to the patient is of foremost importance.
- 3) **Punctuality in Consultation:**  
Utmost punctuality should be observed by a physician
- 4) **Statement to patient after consultation:**  
All statements to the patient or his representatives should take place in the presence of the consulting physicians. The disclosure of the opinion to the patient or his relatives or friends shall rest with the medical attendant .Differences of opinion should be frankly and impartially explained to the patient or his relatives or friends.
- 5) **Treatment after Consultation:**  
No decision should restrain the attending physician from making such subsequent variations in the treatment, the reasons for the variations should be discussed / explained. The same privilege, with its obligations, belongs to the consultant when sent for in an emergency during the absence of attending physician. The attending physician may prescribe medicine, whereas the consultant may prescribes only in case of emergency .
- 6) **Patient Referred to Specialists:**  
When a patient is referred to a specialist by the attending physician, a case summary of the patient should be given to the specialist
- 7) **Fees and other charges:**  
A physician shall clearly display his fees and other charges on the board of his chamber / hospital.  
Prescription should also make clear if the physician himself dispensed any medicine. A physician shall write his name and designation in full along with registration particulars in his prescription letter head .In Government hospital the name of the prescribing doctor can be written below signature.

D. RESPONSIBILITIES OF PHYSICIANS TO EACH OTHER:

- 1) **Dependence of Physicians on each other:**  
A physician should render gratuitous service to all physicians and their immediate family members.
  - 2) **Conduct in Consultation:**  
No insincerity, rivalry or envy should be indulged in Consultation, respect should be observed towards the physician in-charge.& no discussion should be carried on in the presence of the patient.
  - 3) **Consultant not to take charge of the case:**  
When a physician has been called for consultation, the Consultation should normally not take charge of the case, especially on the solicitation of the patient or friends. The consultant shall not criticize the referring physician. He / she shall discuss the diagnosis & treatment
- Appointment of Substitute:**  
Whenever a physician requests another physician to attend his patients during his temporary absence from his practice, professional courtesy requires the acceptance of such appointment as additional responsibility & such patients should be restored to the care of the latter upon his return.
- 4) **Visiting another Physician's Case:**  
When it becomes the duty of a physician occupying an official position to see and report upon an illness or injury, he should communicate to the physician in attendance so as to give him an option of being present & should avoid remarks upon the diagnosis or the treatment that has been adopted.

E. DUTIES OF PHYSICIAN TO THE PUBLIC AND TO THE PARAMEDICAL PROFESSION:

- 1) **Physicians as Citizens:**  
Physicians, as good citizens, possessed of special training should disseminate advice on public health issues. They should play their part in enforcing the laws of the community and in sustaining the institutions that advance the interests of humanity.
- 2) **Public and Community Health:**  
Physicians, especially those engaged in public health work, should enlighten the public concerning quarantine regulations and measures for the prevention of epidemic and communicable diseases. When an epidemic occurs a physician should not abandon his duty for fear of contracting the disease himself.

3) **Pharmacists / Nurses:**

Physicians should recognize and promote the practice of different paramedical services such as, pharmacy and nursing as professions and should seek their cooperation wherever required.

**F.UNETHICAL ACTS:**

A physician shall not aid or abet or commit any of the following acts which shall be construed as unethical

1) **Advertising:**

Soliciting of patients directly or indirectly, by a physician, by a group of physicians or by institutions or organizations is unethical. Advertising or publicity through any mode to invite attention to him or to his professional position, skill, qualification, achievements, associations, affiliations or honors would ordinarily result in his self aggrandizement. A Medical practitioner is however permitted to make a formal announcement in press regarding the following:

- i) On starting practice ii) On change of type of practice iii) On changing address
- iv) On temporary absence from duty v) On resumption of another practice.
- vi) On succeeding to another practice. vii) Public declaration of charges.

Printing of self-photograph, in the letter head or on sign board of the consulting room shall be regarded as acts of, self advertisement and unethical However, Printing of sketches, diagrams, picture of human system shall not be treated as unethical.

2) **Patent and copy rights:**

A physician may patent surgical instruments, appliances and medicine or copyright applications, methods and procedures. However, it shall be unethical if the benefits are not made available to institutions where the interest of large population is involved.

3) **Running an open shop (Dispensing of Drugs and Appliances by Physicians):**

A physician should not run an open shop for sale of medicine for dispensing prescription prescribed by doctors other than himself. It is not unethical for a physician to prescribe or supply drugs, remedies or appliances as long as there is no exploitation of the patient.

4) **Rebates and Commission:**

A physician shall not give, solicit, or receive nor shall he offer to give solicit or receive, any gift, gratuity, commission or bonus in consideration of or return for the referring, recommending or procuring of any patient for medical, surgical or other. Nothing, shall prohibit payment of salaries by a qualified physician to other duly qualified person rendering medical care

5) **Secret Remedies:**

The prescribing or dispensing by a physician of secret remedial agents of which he does not know the composition, or the manufacture or promotion of their use is unethical and as such prohibited.

6) **Human Rights:**

The physician shall not aid or abet torture nor shall he be a party to either infliction of mental or physical trauma or concealment of torture inflicted by some other person or agency in clear violation of human rights.

7) **Euthanasia:**

Practicing euthanasia shall constitute unethical conduct. However on specific occasion, the question of withdrawing supporting devices to sustain cardiopulmonary function even after brain death, shall be decided only by a team of doctors. A team of doctors shall declare withdrawal of support system. Such team shall consist of the doctor in charge of the patient, Medical Officer in charge of the hospital and a doctor nominated by the in-charge of the hospital from the hospital staff or in accordance with the provisions of the Transplantation of Human Organ Act, 1994.

**G. WHAT IS MISCONDUCT:**

The following acts of commission or omission on the part of a physician shall constitute professional misconduct rendering him / her liable for disciplinary action.

1) **Violation of the Regulations:**

If he / she commits any violation of these regulations.

2) If he / she does not maintain the medical records of his / her indoor patients for a period of three years as per regulation 1.3 and refuses to provide the same within 72 hours when the patient or his / her authorized representative makes a request for it as per the regulation 1.3.2. (CHAPTER-1)

3) If he / she does not display the registration number accorded to him/ her by the State Medical Council or the Medical Council of India in his clinic, prescriptions and certificates etc. issued by him or violates the provisions of regulation 1.4.2. (CHAPTER-1)

4) **Adultery or improper conduct:**

Abuse of professional position by committing adultery or improper conduct with a patient or by maintaining an improper association with a patient will render a physician liable for disciplinary action as provided under the Indian Medical Council Act, 1956 or the concerned State Medical Council Act.

5) **Conviction by Court of Law:**

Conviction by a court of law for offences involving moral turpitude / Criminal acts.

- 6) Sex Determination Tests:  
On no account sex determination test shall be undertaken with the intent to terminate the life of a female foetus developing in her mother's womb, unless there are other absolute indications for termination of pregnancy as specified in the Medical Termination of Pregnancy act, 1971.
- 7) Signing Professional Certificates, Reports and Other Documents:  
Registered medical practitioners are in certain cases bound by law to give, or may from time to time be called upon or requested to give certificates, notification, reports and other documents of similar character signed by them in their professional capacity for subsequent use in the courts or for administrative purposes etc.
- 8) A registered medical practitioner shall not contravene the provisions of the Drugs and Cosmetics Act and regulations made there under.
- 9) Performing or enabling unqualified persons to perform an abortion or any illegal operation for which there is no medical, surgical or psychological indication.
- 10) A registered medical practitioner shall not issue certificates of efficiency in modern medicine to unqualified or non-medical person.
- 11) A physician should not contribute to the lay press articles and give interviews regarding diseases and treatments which may have the effect of advertising himself or soliciting practices; but is open to write to the lay press under his own name on matters of public health, hygienic living or to deliver public lectures, give talks on the radio / TV / Internet chat for the same purpose and send announcement of the same to lay press.
- 12) An institution run by a physician for a particular purpose such as a maternity home, nursing home, private hospital, rehabilitation center or any type of training institution etc. may be advertised in the lay press, but such advertisements should not contain anything more than the name of the institution, type of patients admitted, type of training and other facilities offered and the fees.
- 13) It is improper for a physician to use an unusually large sign board and write on it anything other than his name, qualifications obtained from a University or a statutory body, titles and name of his speciality, registration number including the name of the State Medical Council under which registered. The same should be the contents of his prescription papers. It is improper to affix a sign-board on a chemist's shop or in places where he does not reside or work.
- 14) The registered medical practitioner shall not disclose the secrets of a patient that have been learnt in the exercise of his / her profession except-
  - i) In a court of law under orders of the Presiding Judge; ii) In circumstances where there is a serious and identified risk to a specific person and / or community; and iii) Notifiable diseases.
  - ii) In case of communicable diseases public health authorities should be informed immediately.

- 15) The registered Medical practitioner shall not refuse on religious grounds alone to give assistance in or conduct of sterility, birth control, circumcision and medical termination of pregnancy when there is medical indication, unless the medical practitioner feels himself / herself incompetent to do so.
- 16) Before performing an operation the physician should obtain in writing the consent from the husband or wife parent or guardian in the case of minor, or the patient himself as the case may be. In an operation which may result in sterility the consent of both husband and wife is needed.
- 17) A registered medical practitioner shall not public photographs or case reports of his / her patients without their permission, in any medical or other journal in a manner by which their identity could be made out. If the identity is not to be disclosed, the consent is not needed.
- 18) In the case of running of a nursing home by a physician and employing assistants to help him / her, the ultimate responsibility rests on the physician.
- 19) A physician shall not use touts or agents for procuring patients.
- 20) A Physician shall not claim to be specialist unless he has a special qualification in that branch.
- 21) No act of invitro fertilization or artificial insemination shall be undertaken without the informed consent of the female patient and her spouse as well as the donor, such consent shall be obtained in writing only after the patient is provided, at her own level of comprehension, with sufficient information about the purpose, methods, risks, inconveniences, disappointments of the procedure and possible risks and hazards.
- 22) Research:  
Clinical drug trials or other research involving patients or volunteers as per the guidelines of ICMR can be undertaken, provided ethical consideration are borne in mind. Violation of existing MCMR guidelines in this regard shall constitute misconduct. Consent taken from the patient for trial of drug or therapy which is not as per the guidelines shall also be constructed as misconduct.
- 23) If a physician posted in rural area is found absent on more than two occasions during inspection by the Head of the District Health Authority or the Chairman, Zila Parishad, the same shall be constructed as a misconduct if it is recommended to the Medical Council of India / State Medical Council by the State Government for action under these Regulations.
- 24) If a physician posted in a medical college / institution both as teaching faculty or otherwise shall remain in hospital / college during the assigned duty hours. If they are found absent on more than two occasions during this period, the same shall be construed as a misconduct if it is certified by the Principal / Medical superintendent and forwarded through the State Government to Medical Council of India / State Medical Council for action under these Regulations.

#### H. PUNISHMENT AND DISCIPLINARY ACTION:

- 1) It must be clearly understood that the instances of offences and of Professional misconduct which are given above do not constitute and are not intended to constitute a complete list of the infamous acts which calls for disciplinary action, and that by issuing this notice the Medical Council of India and or State Medical Councils are in no way precluded from considering and dealing with any other form of professional misconduct on the part of a registered practitioner. Circumstances may and do arise from time to time in relation to which there may occur questions of professional misconduct which do not come within any of these categories. Every care should be taken that the code is not violated in letter or spirit. In such instances as in all others, the Medical Council of India and / or State Medical Councils have to consider and decide upon the facts brought before the Medical Council of India and / or State Medical Councils.
- 2) It is made clear that any complaint with regard to professional misconduct can be brought before the appropriate Medical Council for Disciplinary action. Upon receipt of any complaint of professional misconduct, the appropriate Medical Council would hold an enquiry and give opportunity to the registered medical practitioner to be heard in person or by pleader. If the medical practitioner is found to be guilty of committing professional misconduct, the appropriate Medical Council may award such punishment as deemed necessary or may direct the removal altogether or for a specified period, from the register of the name of the delinquent registered practitioner. Deletion from the Register shall be widely publicized in local press as well as in the publications of different Medical Associations / Societies / Bodies.
- 3) In case the punishment of removal from the register is for a limited period, the appropriate council may also direct that the name so removed shall be restored in the register after the expiry of the period for which the name was ordered to be removed.
- 4) Decision on complaint against delinquent physician shall be taken within a time limit of 6 months.
- 5) During the pendency of the complaint the appropriate Council may restrain the physician from performing the procedure or practice which is under scrutiny.
- 6) Professional incompetence shall be judged by peer group as per guidelines prescribed by Medical Council of India.

( This is a condensed form of Medical Ethics taken from "Professional conduct, Etiquette and Ethics" as published in, Regulations of Indian medical Council, 2002  
for full details visit <http://www.mciindia.org/know/rules/ethics.htm>)



**MEDICAL COUNCIL OF INDIA**

**No.MCI-34(1)/2009-Med./99639**

**Date: 21/02/2009**

To,

1. The Deans / Principals of all the Medical Colleges/Institutions in India.
2. The Directorate of Medical Education of all the States in India.
3. The Health secretary's of all the States Government in India.
4. The Registrar of all the Universities and Deemed Universities in India.

**Subject:- Implementation of the guidelines framed by the Medical Council of India to curb the menace of ragging in medical colleges.**

Sir/Madam,

This is to inform you that as per the decision taken in the meeting of Dr. R.K. Raghvan Committee appointed by the Hon'ble Supreme Court to supervise the measures being implemented to prevent the ragging, the Medical Council of India has prepared the guidelines to curb the menace of ragging in medical colleges which has been approved by the members of Adhoc Committee appointed by the Hon'ble Supreme Court of India and of the Executive Committee of the Council at its meeting held on 30.12.2008.

The guidelines to curb the menace of ragging in medical colleges are as under:-

- 1) Every students for the purposes of his/her admission to Medical College shall furnish a Character Certificate from the institutions wherefrom he/she has passed his qualifying examination, which would mention the status of his/her behavioral pattern specially in terms as to whether he/she has displayed persistent violent or aggressive behavior or any desire to harm others.
- 2) The admitting medical institution shall keep intense watch upon students who has a negative entry in this regard.
- 3) An annual undertaking signed by each student, whether fresher or senior and his/her parent (s) jointly stating that each of them have read the relevant instructions/regulations against ragging, as well as punishments, and that if the ward has been found guilty he/she shall be proceeded against, shall be procured.
- 4) Such an undertaking shall be furnished in English as well as in vernacular (mother tongue of the parent) at the beginning of each academic year by every student.
- 5) An undertaking to the similar effect should be obtained every year from each student admitted to the hostel.

- 6) The undertaking should be appended to the brochure containing the guidelines and other relevant instructions in regard to ragging and consequences of indulging in ragging.
- 7) The Compliance to the above effect shall be ensured by each of the affiliating university to which the concerned medical institution is affiliated and would be verified by the council annually.
- 8) In order to ensure the 'ragging free environment' in the campus, each institution shall compulsorily in the 'prospectus' and other admission related documents, shall depict the earlier directions of the Apex court and/or of the Central or State Governments as applicable, so that candidates and their parents are sensitized in respect of the prohibition and consequences of ragging.
- 9) Each institution should engage or seek the assistance of 'professional counselor' at the time of admissions to counsel 'freshers' in order to prepare them for the life ahead, specially for adjusting to the life in hostels.
- 10) It should be ensured that there would be a clear gap of one to two weeks between the date of joining of 'freshers' and the 'seniors', ensuring that classes for the seniors shall commence later, so as to enable the 'freshers' to familiarize themselves with the campus environment and adjust to the sudden changeover from schools to higher education.
- 11) It shall be mandatory for the institutions to inform the parents of senior students to send their wards only on the due date of commencement of the academic session and not earlier.
- 12) All the examining Universities with which the institutions are affiliated or the deemed to be Universities shall compulsorily amend their relevant ordinances or byelaws, as the case may be, to incorporate the schedule gap of one or two weeks between the date joining of 'freshers' and 'seniors'.
- 13) Each institutions shall arrange a joint 'sensitization' programme and 'counselling' of both 'freshers' and 'seniors' to be addressed by the Principal/Head of the institution and the Convener of the Anti Ragging Committee. The inmates of the Hostel shall be addressed on this count by the Hostel Warden.
- 14) Each institution shall have an Anti-Ragging Committee and Anti Ragging Squad, which shall comprise of other than senior teachers of the institution, representatives of Civil & Police administration and local media.
- 15) Each institution shall constitute a 'Mentoring Cell' to oversee and involve senior students as 'Mentors' for the 'freshers'.

- 16) Such a Mentoring Cell shall be constituted at the end of every academic year, where application shall be invited from the students to join the Mentoring Cell as Mentors for the succeeding academic year.
- 17) An anonymous random survey shall be conducted by each institution across the entire 1<sup>st</sup> year batch of students every fortnight during the first three months of the academic session in order to verify and cross-check whether the campus is genuinely ragging free or not.
- 18) The methodology of such survey may be designed by the institution appropriately. However, doing so it shall be ensured that the institution does not compromise with the anonymity of the 'whistle blowers'.
- 19) The institution shall ensure that private commercially managed lodges or hostels outside campuses, must be registered with the local Police Authorities and permission to start such hostel or their registration must necessarily be recommended by the Heads of the Medical Institutions.
- 20) In case the victim of ragging his/her parent/guardian is not satisfied with the action taken by the Head of the Institution or by other institutional authorities, or where Head of the institution is of the opinion that the incident ought to be so reported, it shall be mandatory for the institution to file a First Information Report with the local police authorities.
- 21) It must be ensured by each of the institution that the Complaints or information in regard to ragging could be oral or written and even from third parties and the confidentiality thereof must be protected at all costs.
- 22) Each institution shall ensure that remedial action is initiated and completed within a week of the incident itself, so that complaints do not linger and allow either interest in pursuing the matter to wane or enable the culprits to tamper evidence or influence witnesses.

In view of above, you are requested to implement the above guidelines and take immediate action in the matter, accordingly.

The status report on the compliance may be sent within four (4) weeks positively.

**Yours faithfully,**  
**(Lt. Col.(Retd) Dr. A.R.N. Setalvad)**  
**Secretary**

First Publication September, 2000	-	2000 Copies
Revised Edition in December, 2000	-	500 Copies
Second Edition in August, 2001	-	2500 Copies
Third Edition in June, 2002	-	2500 Copies
Fourth Edition in April, 2003	-	3600 Copies
Fifth Edition in August, 2004	-	3800 Copies
Sixth Edition in December 2005	-	8600 Copies
Seventh Edition in June 2007	-	3500 Copies
Eighth Edition in March 2010	-	12, 000 Copies
Price Rs. 100/-		

## INDEX

SNo		PAGE No.
I.	<u>REGULATIONS:</u>	
	I    General	1

II	Eligibility	3
III	Selection of Students	4
IV	Registration	4
V	Duration of the course	4
VI	Promotion	6
VII	Medium of Instruction	6
VIII	Attendance	6
IX	Internal Assessment	6
X	Re-admission after discontinuation, Break of study	8
XI	Migration / Transfer	8
XII	Vacation	9
XIII	Compulsory Internship	9
XIV	Award of Degree	13
XV	Classification of Results	13
XVI	Scheme of University Examinations	14
XVII	Model Question Papers	19

## II **SYLLABUS**

### A **FIRST PROFESSIONAL** :

1.	Community Medicine	46
2.	Human Anatomy	47
3.	Biochemistry	52
4.	Human Physiology including Biophysics	58

Contd...

Sl.  
No.

PAGE No

II	B	<b><u>SECOND PROFESSIONAL</u></b>	
		1. Pathology	64
		2. Microbiology	73
		3. Pharmacology & Therapeutics	85
		4. Forensic Medicine including Toxicology:	90
	C.	<b><u>THIRD PROFESSIONAL PART-I</u></b>	
		1. Otorhinolaryngology (E.N.T)	94
		2. Ophthalmology	99
		3. Community Medicine. (S.P.M.)	101
		<b>THIRD PROFESSIONAL PART-II</b>	
		1. General Medicine :	106
		2. Paediatrics	111
		3. General Surgery including Paediatric Surgery	124
		4. Orthopaedics & Traumatology	128
		5. Obstetrics & Gynaecology	132
III.		<b>Schedule of Clinical Postings from 3<sup>rd</sup> to 9<sup>th</sup> Semester</b>	136
IV.		<b>Suggested Model Time Tables.</b>	139
V.		<b>The A.P Gazette Notification regarding prohibition of Ragging.</b>	144
VI.		<b>Standing Orders on Punishment for use of Unfair means.</b>	147
VII.		<b>Medical Ethics</b>	151

## **MESSAGE FOR THE FRESH BATCH STUDENTS**

On behalf of the University, it gives me immense pleasure in welcoming the fresh batch of students joined in the Professional courses. They deserve congratulations for having succeeded in getting admission to professional courses of this university. This is a very crucial period for all the students because they are entering the portals of the higher education straightway from the school environment. The professional courses like Medical, Dentistry, Physiotherapy, Nursing etc., consists of very difficult subjects, the syllabi are very heavy and the duration of the courses are lengthy. Therefore, the students should learn and adopt to the new methods of teaching and training in professional colleges.

I recommend the students that they should consult library and museums at regular intervals. They should also adopt self-learning techniques. There are number of books available in the market on the subjects like Communication Skills, How to read better? etc. Every medical student must acquire enough knowledge and skills to operate computer programmes.

The students should behave in a dignified manner both inside and outside the college premises because they have entered in to a noble profession and doctors always enjoy higher position in the society.

Regular reading habits, sincere and honest effort for learning will help the students to achieve their objective of becoming a good doctor.

I wish all the best and very bright future to all the students.

Sd/-  
**(Dr. I.V Rao M.D.)**  
VICE-CHANCELLOR,  
Dr. N.T.R. University of Health Sciences, A.P.  
VIJAYAWADA.