

## **Curriculum of Under graduates in Forensic Medicine & Toxicology.**

**OC-16.5** Every student shall undergo a period of training extending over 4 ½ academic years divided into 9 semesters. The period of 4 ½ years shall be divided into three phases as:

- (a) **Phase-I** (2 semesters) - consisting of Pre-clinical 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 Biochemistry combined (physiology 2/3 and Biochemistry 1/3) as in schedule OSC-4.7. . .
- (b) **Phase-II** (3 semesters) - consisting of para-clinical/clinical subjects. During this phase, teaching of para-clinical and clinical subjects shall be done concurrently and collaterally.

### **OC-16.1 (Effective from 11<sup>th</sup> June, 2012) Eligibility for admission to First Year M.B.B.S.**

Candidates for the Degree of MBBS for being eligible for admission to the Medical College affiliated to this University must have:

- (i) Completed the age of 17 years on or before 31<sup>st</sup> December of the academic year of admission to become eligible for admission to First Year.
- (ii) Passed the Higher Secondary Certificate (Std. XII<sup>th</sup>) examination of Goa Board of Secondary and Higher Secondary Education or its equivalent examination with English and secured not less than 50% marks in the aggregate of subjects of Physics, Chemistry and Biology taken together (40% for the applicants belonging to SC, ST and OBC only and 45% for applicants belonging to PH category).
- (iii) **(effective from 17<sup>th</sup> July, 2013)** A candidate seeking admission to the MBBS degree course must have appeared and obtained a valid score /rank at NEET conducted by CBSE for the year of admission. clinical subjects shall consist of Pharmacology, Pathology, Microbiology, Forensic Medicine including Toxicology and part of Community Medicine. The clinical subjects shall consist of all those detailed below in Phase III. Out of the time for para-clinical teaching, approximately equal time shall be allotted to Pharmacology, Pathology, Microbiology, and Forensic Medicine and Community Medicine combined (1/3 Forensic Medicine and 2/3 Community Medicine) as shown in schedule OSC-4.14.

**OC-16.9** Candidates, for being eligible to appear in the University Examination under the Ordinance OSC-4.6 in a particular subject, must have secured at least 50% marks of the total marks fixed for internal assessment in that subject. Weightage of internal assessment shall be 20% of the total marks in each subject\*\*.

**OC-16.10.1** Failure to pass an examination shall not debar candidate from appearing at any, subsequent examination on the submission of a new application, the payment, of fresh fees and the production of the certificates showing that they have, during the interval between the declaration of their failure and subsequent reappearance at the examination, pursued a further course of study in the subject of the examination to the satisfaction of the Head of the Medical College and attained an attendance of 75% in lectures and 80% in non-lecture teachings such as practicals, demonstrations, seminars, group discussions, tutorials, bed-side clinics, etc. For passing the First M.B.B.S. candidates shall be permitted not more than four chances (actual examinations) provided the four chances are taken within a period of three years from the date of their admission to the first M.B.B.S. course. Candidates failing to pass the First M.B.B.S. Examination in four chances shall be debarred from continuing further medical studies under this University.

**OC-16.10.2** Candidates shall be deemed to have failed to pass an examination under the provision of this Ordinance if their names have been submitted by the Dean of the Medical College for inclusion in the list of candidates appearing for the examination and if the candidates have failed to pass the examination either because they have not attained the standard of passing or because they have been absent from the whole examination or from any part of it.

**OC-16.11.1** To pass in each subject of the examination the candidate shall obtain 50% of the full marks in the aggregate with a minimum of 50% in the theory including orals and minimum of 50% in practical examination separately in one and the same sitting.

**OC-16.11.2** A candidate who has passed any of the subject of the examination by obtaining 50% marks as mentioned above shall be exempted from appearing in that subject at the

subsequent examination and shall be declared to have passed the whole examination when he has passed in all the subjects in that examination.

### **Second M.B.B.S. Examination**

**OC-16.21** No candidate shall be admitted to the Second M.B.B.S. Examination unless he has passed the First M.B.B.S. Examination and has been engaged in medical studies at a Medical College affiliated to Goa University for a period of one and one-half years or three academic semesters after passing the First M.B.B.S. Examination.

**OC-16.22** Before admission to the Second M.B.B.S. Examination, under the provisions of OC-16.8, candidates shall present certificates of having attended over a period of three semesters, the following course to the satisfaction of the Head of the College:

1. Pharmacology
2. Pathology
3. Microbiology
4. Forensic Medicine and Toxicology
5. Community Medicine

### **Forensic Medicine and Toxicology**

The course shall consist of:

(a) A course of instructions in Forensic Medicine, Medical Jurisprudence and toxicology and (b) Candidates will be required to attend 10 medico-legal autopsies.

The teaching in the subject of Forensic Medicine & Toxicology shall be in the form of lectures, demonstrations, practicals, tutorials, seminars, group discussions, electives, etc. with special emphasis on the applied aspect of the subject and integrated teaching.

#### **(A) Theory Examination:**

There will be one paper of three hours duration. The paper will be of forty marks with one question of 10 marks on clinical Forensic Medicine and Toxicology. Each paper will be sub-divided into two sections of 20 marks each.

- i) Section I: 20 marks Injuries Regional & thermal injuries, Inquest, courts of law, Medico-legal autopsy, Medical jurisprudence & forensic psychiatry, Toxicology.
- ii) Section II: 20 marks Asphyxial deaths, medico-legal aspects of death and identification, Sexual offences, Abortion, infanticide, Virginity, Pregnancy and delivery, Toxicology, Blood stains, Seminal stains, Hair.
- iii) Oral (Viva) 10 marks
- iv) Internal Assessment 10 marks

#### **(B) Practical Examination:**

i) Practical examination shall consist of: a) Spots of wet/dry specimens, poisons, photographs, X-rays, slides, weapons. 10 marks b) Certification of one of the following: 10 marks i) Death; (ii) Hurt; (iii) Illness; (iv) Potency; (v) Age; (vi) Victim/accused of rape (vii) Alcoholic intoxication c) Examination of anyone: 10 marks ii) Skeletal remains iii) Viscera and other exhibits (collection, preservation, despatch)

ii) Internal Assessment 10 marks Total marks in Forensic Medicine and Toxicology 100 marks  
OSC-4.10 There shall be four examiners in each of the subjects of the Second M.B.B.S. Examination. Fifty percent of the examiners shall be External. The senior-most Internal Examiner shall be the Convenor. The Examiner shall not be below the rank of Associate Professors. In case of appointments of Assistant Professor as Internal Examiner, he shall have not less than 5 years experience as Assistant Professor.

iii.OSC-4.11 Internal Assessment: It shall be based on (i) day to-day assessment (see note), evaluation of student assignment, preparation for seminar, clinical case presentation etc.; (ii) regular periodical examinations; (iii) weightage for the internal assessment shall be 20% of the total marks in each subject; and (iv) student must secure 50% marks of the total marks fixed for internal assessment in a particular subject to be eligible to appear in final university examination of that subject. Note: The different ways in which students participation in learning is to be evaluated (i) Preparation of subject for students seminar or clinical case for discussion; (ii) Clinical case study/problem solving exercise; (ii) Participation in Project for health care in the community (planning stage to evaluation) (iii) Proficiency in carrying out a practical or a skill in small research project; and (iv) Multiple choice Question (MCQ) test after completion of a system/teaching. Each item tested shall be objectively assessed and recorded. Some of the items can be assigned as Home Work/Vacation work. OSC-4.12 Standard of passing the Examination: In each of the subjects, a candidate must obtain 50% in aggregate with a minimum of 50% in Theory including orals and minimum of 50% in Practicals at one and the same sitting.

### **Syllabus**

Forensic Medicine including Toxicology A. Theory i) Forensic Medicine: 1) Introduction: Definition and scope of Forensic Medicine. 2) Legal Procedures: (a) Criminal courts and their powers. (b) Legal procedure at an inquest types of inquest with their merits and demerits. (c) Legal procedure in Courts.

(d) Medical evidence - documentary, Oral and Other types. 3) Identification: (a) Personal Identity: Living, dead, decomposed, mutilated and skeletal remains. (b) Methods of establishing Identity. (c) Age estimation and medico-legal importance. 4) Death: (a) Mode of death. (b) Cause and manner of death. (c) Causes of sudden death. (d) Signs of death. (e) Death in relation to organ/tissues transplantation. (f) Changes occurring after death. (g) Estimation of time of death. (h) Presumption of death and survivorship. 5) Post-mortem examination: (a) Procedure and formalities of medico-legal and pathological autopsies. (b) Objectives, procedure of medico-legal autopsy. (c) Exhumation. (d) Procedure for collection, preservation and despatch of material in cases of poisons. (e) Post-mortem artefacts. (f) Negative or obscure autopsies. 6) Mechanical injuries/wounds and their medico-legal Aspects: (a) Classification of injuries - Abrasion, contusion. Laceration, incised wounds, stab wounds, firearm wounds. (b) Modes of causation, appearance and their recognition. (c) Medico-legal aspects of injuries/wounds. (d) Hurt - simple and grievous hurt, dangerous injury and hurt certificate. (e) Relation of trauma with diseases. (f) Characteristic of injuries in traffic accidents. 7) Cold, heat, electricity, lightning and radiation injuries. 8) Death due to starvation. 9) Mechanical Asphyxia: (a) Hanging, strangulation, suffocation and drowning deaths etc. (b) Traumatic asphyxia. 10) Medico-legal aspects of sex: (a) Virginity and defloration. (b) Impotence and sterility. (c) Natural and unnatural sexual offences and perversions. (d) Pregnancy and delivery. (e) legitimacy. 11) Abortion: (a) Types of abortions, methods, complication and medical examination and duties in cases of abortions. (b) Laws in relation to abortion including M.T.P. Act of 1971. 12) Infant deaths: (a) Signs of live birth, still born and dead born child. (b) Infanticide. (c) Battered baby. (d) Cot deaths. 13) Blood, seminal stains and hair: 14) Law in relation to Medical Practices: (a) Regulations of medical professions - Indian and State Medical Council and their functions. (b) Rights and duties of Medical Practitioner. (c) Doctor-patient relationship. (d) Medical Negligence. (e) Professional secrecy and Privileged communication. (f) Doctors indemnity insurance. (g) Consumers' Protection Act. 15) Insanity: (a) Role of medical practitioner in case of Insane persons. (b) Civil and criminal responsibilities of Insane. ii) Toxicology: 1) General considerations: (a) Law in relation to poisons. (b) Manners of poisoning. (c) 858 Classification of poisons. (d) Route of administration, mode of action and elimination of poisons. (e) Diagnosis and general principles of treatment of poisons. (f) Duties of medical practitioner in cases of poisoning -living and dead. 2) Specific poisons: (a) Corrosive poison: Acids - Sulphuric, Nitric, Hydrochloric, Oxalic and carbolic. Alkalies - Ammonia, potassium and sodium hydroxide. (b) Metallic poisons: (1) Arsenic; (2) Lead; (3) Copper; (c) Inorganic poison - Phosphorous; (d) Vegetable organic poisons - castor, croton, abrus precatorius, calatropis, marking nut, cleander plaths etc. (e) Animal poisons - Scorpion, snakes, cantharides. (f) Mechanical poisons :- Diamond dust and grass powder. (g) Neurotic poisons - (1) Opium and its alkaloids and barbiturate. (2) Alcohol-ethyl and methyl alcohol. (3) Datura. (4) Cannabis. (5) Nux Vomica. (6) Hydrocyanic acid. (7) Aconite. (8) Carbon monoxide. (9) Food poisoning. 3) Insecticidal Poisons: (a) Organo phosphorous. (b) Chlorinated hydrocarbon. 4) Drug Dependence with Alcohol, morphine, barbiturates, L.S.D., Amphetamine and cocaine etc. 5) Occupational and environmental poisoning & Workmen's Compensation Act.

### **Internship in Forensic Medicine and Toxicology:**

The intern is to be posted in the casualty department of the hospital while attached under Forensic Medicine Department with the following objectives.

(1) to identify medico-legal problems in a hospital and general practice; (2) to identify and learn medico-legal responsibilities of a medical man in various hospital situations; (3) to be able to diagnose and learn management of basic poisoning conditions in the community; (4) to learn how to handle cases of sexual assault; (5) to be able to prepare medico-legal postmortem procedures and formalities during its performance by police.

### **List of Books for Second M.B.B.S. subjects**

Standard text books: (1) Dr. K. S. Narayan Reddy: The essentials of Forensic Medicine & Toxicology (2) Dr. C. A. Franklin: Modi's Medical Jurisprudence and Toxicology (3) Dr. C. K. Parikh: Parikh's textbook of Medical Jurisprudence & Toxicology (4) Dr. A. Nandy: Principles of Forensic Medicine (5) Dr. P. V. Guharj: Forensic Medicine

Reference books: (1) Dr. J. B. Mukherjee: Forensic Medicine & Toxicology, Volume I & II (2) Dr. Bernard Knight: Forensic Pathology (3) Dr. Bernard Knight: Medical Jurisprudence & Toxicology (4) Spitz and Fisher: Medico-legal Investigation of Death (5) Dimaio & Dimaio: Forensic Pathology  
1. R.B.H. Gradwohl: Legal Medicine.