

### **Distribution of marks:**

Total marks: 200 (Theory 100marks + Practical 100 marks)

### **Theory:**

Theory exam (70); Internal Assessment (10); Theory viva (20) = 100 marks

### **Practical:**

Final Practical (80) + Record (10) + Internal practical (10) =100 marks

### **Internal assessments:**

3 internal assessments will be conducted every year.

The continuing assessment examinations may be held frequently at least 3 times in a particular year and the average marks of these examinations should be considered. 10% of the total marks in each subject for both theory, practical and clinical examination separately should be set aside for the internal assessment examinations.

**The referred and detained students are also required to appear for a minimum of one internal assessment examination in theory and practical / clinical in the subjects concerned.** New assessment marks are to be taken for the declaration of the results.

If the candidate is absent for any of the examinations, the marks in that shall be treated as zero.

Internal assessment examination should include MCQ's.

**Part completion tests & weekly tests:** Going on regularly

### **Eligibility to write university Exam:**

Attendance percentage in theory and practicals should be more than 75% individually.

# Dr NTR UHS Guidelines & Syllabus for Anatomy

## ANATOMY INCLUDING EMBRYOLOGY AND HISTOLOGY

### AIM:

The students should gain the knowledge and insight into, the functional anatomy of the normal human head and neck, functional histology and an appreciation of the genetic basis of inheritance and disease, and the embryological development of clinically important structures, so that relevant anatomical & scientific foundations are laid down for the clinical years of the BDS courses.

### OBJECTIVES:

#### a) KNOWLEDGE & UNDERSTANDING:

At the end of the 1<sup>st</sup> year BDS course in Anatomical Sciences the undergraduate student is expected to:

1. Know the normal disposition of the structures in the body while clinically examining a patient and while conducting clinical procedures.
2. Know the anatomical basis of disease and injury.
3. Know the microscopic structure of the various tissues, a pre-requisite for understanding of the diseases processes.
4. Know the nervous system to locate the site of lesions according to the sensory and motor deficits encountered.
5. Have an idea about the basis of abnormal development, critical stages of development, effects of teratogens, genetic mutations and environmental hazards.
6. Know the sectional anatomy of head, neck and brain to read the features in radiographs and pictures taken by modern imaging techniques.
7. Know the anatomy of cardio- pulmonary resuscitation.

#### b) SKILLS

1. To locate various structures of the body and to mark the topography of the living anatomy.
2. To identify various tissues under microscope.
3. To identify the features in radiographs and modern imaging techniques.
4. To detect various congenital abnormalities.

### INTEGRATION:

By emphasizing on the relevant information and avoiding unwanted details, the anatomy taught integrally with other basic sciences & clinical subjects not only keeps the curiosity alive in the learner but also lays down the scientific foundation for making a better doctor, a benefit to the society.

This insight is gained in a variety of ways :

- 1) Lectures & small group teaching

- 2) Demonstrations
- 3) Dissection of the human cadaver
- 4) Study of dissected specimens
- 5) Osteology
- 6) Surface anatomy of living individual
- 7) Study of radiographs & other modern imaging techniques.
- 8) Study of Histology slides
- 9) Study of embryology models
- 10) Audio-visual aids

Throughout the course, particular emphasis is placed on the functional correlation, clinical application & integration with teaching in other bio dental disciplines.

### **AN OUTLINE OF THE COURSE CONTENT:**

- (a) General anatomy: Introduction of anatomical terms and brief outline of various systems of the body.
- (b) Regional anatomy of head & neck with osteology of head & neck, with emphasis on topics of dental importance.
- (c) General dispositions of thoracic, abdominal & pelvic organs.
- (d) The regional anatomy of the sites of intramuscular & intra vascular injections, & lumbar puncture.
- (e) General embryology & systemic embryology with respect to development of head & neck.
- (f) Histology of basic tissues and of the organs of gastro-intestinal, respiratory, endocrine, excretory systems & gonads.
- (g) Medical genetics.

### **FURTHER DETAILS OF THE COURSE:**

- I. INTRODUCTION TO: Anatomical terms; Skin, superficial fascia & deep fascia; Cardiovascular system, portal system collateral circulation and arteries; Lymphatic system, regional lymph nodes.; Osteology – Including ossification & growth of bones; Myology – Including types of muscle tissue & innervations; Syndesmology – Including classification of Joints. ; Nervous system
- II. HEAD & NECK :
  - Scalp, face & temple, lacrimal apparatus
  - Neck – Deep fascia of neck, posterior triangle, suboccipital triangle, anterior triangle, anterior median region of the neck, deep structures in the neck.
  - Cranial cavity – Meninges, parts of brain, ventricles of brain, dural venous sinuses, cranial nerves attached to the brain, pituitary gland.
  - Cranial nerves – III, IV, V, VI, VII, IX, XII in detail.
  - Orbital cavity – Muscles of the eye ball, supports of the eye ball, nerves and vessels in the orbit.

- Parotid gland.
- Temporo mandibular joint, muscles of mastication, infratemporal fossa, pterygo – palatine fossa.
- Submandibular region.
- Walls of the nasal cavity, paranasal air sinuses .
- Palate.
- Oral cavity, Tongue.
- Pharynx (palatine tonsil and the auditory tube) Larynx. OSTEOLOGY – Foetal skull, adult skull, individual bones of the skull, hyoid bone and Cervical vertebrae.

### III. THORAX : Demonstration on a dissected specimen of

- Thoracic wall
- Heart chambers
- Coronary arteries
- Pericardium
- Lungs – surfaces ; pleural cavity
- Diaphragm.

### IV. ABDOMEN : Demonstration on a dissected specimen of

- Peritoneal cavity
- Organs in the abdominal and pelvic cavity.

### V. CLINICAL PROCEDURES:

- Intramuscular injections: Demonstration on a dissected specimen and on a living person of the following sites of injection.
  - Deltoid muscle and its relation to the axillary nerve and radial nerve.
  - Gluteal region and the relation of the sciatic nerve.
  - Vastuslateralismusle.
- Intravenous injection & venesection : Demonstration of veins in the dissected specimen and on a living person.
  - a) Median cubital vein b) Cephalic vein c) Basilic vein d) Long saphenous vein
- Arterial pulsation : Demonstration of arteries on a dissected specimen and feeling of pulsation of the following arteries on a living person.
  - a) Superficial temporal b) Facial c) Carotid d) Axillary e) Brachial f) Radial g) Ulnar h) Femoral i) Popliteal j) Dorsalis pedis
- Lumbar puncture: Demonstration on a dissected specimen of the spinal cord, cauda, epidural space and the intervertebral space between L4 & L5.

### VI. EMBRYOLOGY:

Oogenesis, Spermatogenesis, Fertilisation, Placenta, Primitive streak, Neural crest, Bilaminar and trilaminar embryonic disc, Intra embryonic mesoderm – formation and fate, notochord formation & fate, Pharyngeal arches, pouches & clefts, Development of face, tongue, palate, thyroid gland, pituitary gland, salivary glands, and anomalies in their development, Tooth development in brief.

### VII. HISTOLOGY :

The cell :Basic tissues – Epithelium, Connective tissue including cartilage and bone, Muscle tissue, Nervous tissue, Peripheral nerve, optic nerve, sensory ganglion, motor ganglion, Skin.

#### VIII. MEDICAL GENETICS :

Mitosis, meiosis, Chromosomes, gene structure, Mendelism, modes of inheritance.

#### **RECOMMENDED BOOKS :**

1. SNELL (Richards s.)Clinical Anatomy for Medical students, Ed. 5, Little Brown & company, Boston.
2. RJ LAST'S Anatomy – McMINN, 9<sup>th</sup> edition.
3. ROMANES (G.J.) Cunningham Manual of Practical Anatomy :Head& Neck & Brain Ed. 15. Vol. III, Oxford Medical publication.
4. WHEATER, BURKITT & DANIELS, Functional Histology, Ed. 2, Churchill Livingstone.
5. SADLER, LANGMAN'S, Medical Embryology, Ed. 6.
6. JAMES E ANDERSON, Grant's Atlas of Anatomy. Williams & Wilkins.
7. WILLIAMS, Gray's Anatomy, Ed. 38, Churchill Livingstone.