UG Curriculum

1. Vision/Goal

The broad goal of the anatomy curriculum is to provide a comprehensive scientific knowledge of the gross and microscopic structure and development of the human body in order to understand the anatomical basis of disease presentations and patient management.

2. Learning objective (overall)

A. <u>Knowledge:</u>

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

a) Explain the gross structure, normal disposition and integrated functions of organ systems in order to understand the anatomical basis of common disease presentations and clinical procedures.
b) Describe the microscopic structure of various organs and correlate their structure with functions, in order to understand their altered state in various disease processes.
c) Describe the basic principles behind the sequential development of organ systems as prerequisite to explaining the developmental basis of common variations and congenital anomalies.
d) Describe the normal structure and functions of chromosomes and genes so as to understand the genetic basis of common genetic abnormalities.

B. <u>Skills:</u>

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

a) Demonstrate the surface marking of clinically important structures in the cadaver and correlate it with living anatomy.
b) Locate and identify tissues and cells under the light microscope.
c) Identify important structures visualized by imaging techniques, specifically radiographs, computerized tomography (CT) scans, MRI and ultrasonography.
d) Demonstrate various movements at the important joints in the human body.
e) Accurately palpate the pulsations of arteries at the most appropriate sites.

C. <u>Attitude and communication skills:</u>

During the course the student should be able to:

a) Show due respect in handling pro-sections and cadavers during dissection.
b) Communicate effectively with peers and teachers in small group teaching and learning activities.
c) Demonstrate the ability to work effectively with peers in a team.
d) Demonstrate professional attributes of punctuality, accountability and respect for teachers and peers.

e) Appreciate the issues of ethical values and social responsibilities while undergoing early clinical exposure. (ECE).

3. Competencies: Overall competencies to be given first (Detailed competencies with specific learning objectives to be given in Annexure I)

(a) Cognition
(b) Psychomotor skill
(c) Communication affective attitude

Detailed competencies have been given in the course (point no. 4). All the competencies involve Cognition, Psychomotor skill and Communication affective attitude.

4. Course (Topics, theory practical, laboratory clinical)

General Anatomy

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1.	**Anatomical terminology**	**AN1.1** Demonstrate normal anatomical position, various planes, relation, comparison, laterality & movement in our body	Theory / Practical
2.	**General features of Bones & Joints**	**AN 1.2** Describe composition of bone and bone marrow **AN 2.1** Describe parts, blood and nerve supply of a long bone **AN 2.2** Enumerate laws of ossification **AN 2.3** Enumerate special features of a sesamoid bone **AN 2.4** Describe various types of cartilage with its structure & distribution in body **AN2.5** Describe various joints with subtypes and examples **AN2.6** Explain the concept of nerve supply of joints & Hilton's law	Theory / Practical/ Laboratory / Clinical
3.	**General features of Muscle**	**AN3.1** Classify muscle tissue according to structure & action **AN3.2** Enumerate parts of skeletal muscle and differentiate between tendon & aponeurosis with example **AN3.3** Explain Shunt and spurt muscles	Theory / Practical/ Laboratory / Clinical
4.	**General features of**	**AN4.1**	Theory / Practical/

	skin and fascia	Describe different types of skin & dermatomes in body **AN4.2** Describe structure & function of skin with its appendages **AN4.3** Describe superficial fascia along with fat distribution in body **AN 4.4** Describe modifications of deep fascia with its functions **AN4.5** Explain principles of skin incisions	Laboratory / Clinical

S.no	**Topic**	**Competency**	**Theory / Practical/Laboratory/ Clinical**
5.	**General features of the cardiovascular system**	**AN5.1** Differentiate between blood vascular and lymphatic system **AN5.2** Differentiate between pulmonary and systemic circulation **AN5.3** List general differences between arteries & veins **AN5.4** Explain functional difference between elastic, muscular arteries and arterioles **AN5.5** Describe portal system giving examples **AN5.6** Describe the concept of anastomoses and collateral circulation with significance of end-arteries **AN5.7** Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses **AN5.8** Define thrombosis, infarction and aneurysm	Theory / Practical/ Laboratory / Clinical
6.	**General Features of lymphatic system**	**AN6.1** List the components and functions of the lymphatic system **AN6.2** Describe structure of lymph capillaries & mechanism of lymph circulation **AN6.3** Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	Theory / Practical/ Laboratory / Clinical
7.	**Introduction to the nervous system**	**AN7.1** Describe general plan of nervous system with components of central peripheral & autonomic nervous systems **AN7.2** List components of nervous tissue and their functions **AN7.3** Describe parts of a neuron and classify them based on number of neurites, size & function **AN 7.4** Describe structure of a typical spinal	Theory / Practical/ Laboratory / Clinical

		nerve **AN7.5** Describe principles of sensory and motor innervation of muscles **AN7.6** Describe concept of loss of innervation of a muscle with its applied anatomy **AN7.7** Describe various type of synapse **AN7.8** Describe differences between sympathetic and spinal ganglia	

General Histology

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1.	**Epithelium histology**	**AN65.1** Identify epithelium under the microscope & describe the various types that correlate to its function **AN65.2** Describe the ultrastructure of epithelium	Theory / Practical/Laboratory/ Clinical
2.	**Glands**	**AN 70.1** Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	Theory / Practical/Laboratory/ Clinical
3.	**Connective tissue**	**AN66.1** Describe & identify various types of connective tissue with functional Correlation **AN66.2** Describe the ultrastructure of connective tissue	Theory / Practical/Laboratory/ Clinical
4.	**Cartilage**	**AN71.2** Identify cartilage under the microscope & describe various types and structure-function correlation of the same	Theory / Practical/Laboratory/ Clinical
5.	**Bone**	**AN71.1** Identify bone under the microscope; classify various types and describe the structure-function correlation of the same	Theory / Practical/Laboratory/ Clinical
6.	**Muscle**	**AN 67.1** Describe & identify various types of muscle under the microscope **AN 67.2** Classify muscle and describe the structure-function correlation of the Same **AN 67.3** Describe the ultrastructure of muscular tissue	Theory / Practical/Laboratory/ Clinical
7.	**Cardiovascular system**	**AN 69.1** Identify elastic & muscular blood vessels, capillaries under the Microscope **AN 69.2** Describe the various types and structure-function correlation of blood Vessel **AN 69.3** Describe the ultrastructure of blood vessels	Theory / Practical/Laboratory/ Clinical
8.	**Lymphoid tissue**	**AN 70.2** Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil and correlate the structure with function	Theory / Practical/Laboratory/ Clinical
9.	**Nervous tissue**	**AN68.1** Describe & Identify multipolar & unipolar neuron, ganglia, peripheral nerve **AN68.2** Describe the structure-function correlation of neuron **AN68.3** Describe the ultrastructure of	Theory / Practical/Laboratory/ Clinical

		nervous tissue	

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
10.	**Integumentary System**	**AN 72.1** Identify the skin and its appendages under the microscope and correlate the structure with function	Theory / Practical/Laboratory/ Clinical

General Embryology & Ethics

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1.	**Introduction to embryology**	**AN76.1** Describe the stages of human life AN76.2 Explain the terms- phylogeny, ontogeny, trimester, viability	Theory / Practical/Laboratory/ Clinical
2.	**Gametogenesis and fertilization**	**AN77.1** Describe the uterine changes occurring during the menstrual cycle **AN77.2** Describe the synchrony between the ovarian and menstrual cycles **AN77.3** Describe spermatogenesis and oogenesis along with diagrams **AN77.4** Describe the stages and consequences of fertilisation **AN77.5** Enumerate and describe the anatomical principles underlying Contraception AN77.6 Describe teratogenic influences; fertility and sterility, surrogate motherhood, social significance of "sex-ratio".	Theory / Practical/Laboratory/ Clinical
3.	**Second week of development**	**AN78.1** Describe cleavage and formation of blastocyst **AN78.2** Describe the development of trophoblast **AN78.3** Describe the process of implantation & common abnormal sites of implantation **AN78.4** Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate **AN78.5** Describe in brief abortion; decidual reaction, pregnancy test	Theory / Practical/Laboratory/ Clinical
4.	**3rd to 8th week of development**	**AN79.1** Describe the formation & fate of the primitive streak	Theory / Practical/Laboratory/

		AN79.2 Describe formation & fate of notochord **AN79.3** Describe the process of neurulation **AN79.4** Describe the development of somites and intra-embryonic coelom **AN79.5** Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects **AN79.6** Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	Clinical
5.	**Fetal membranes**	**AN80.1** Describe formation, functions & fate of-chorion: amnion; yolk sac; allantois & decidua **AN80.2** Describe formation & structure of umbilical cord **AN80.3** Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier **AN80.4** Describe embryological basis of twinning in monozygotic & dizygotic twins **AN80.5** Describe role of placental hormones in uterine growth & parturition **AN80.6** Explain embryological basis of estimation of fetal age. **AN80.7** Describe various types of umbilical cord attachments	Theory / Practical/Laboratory/ Clinical
6.	**Prenatal Diagnosis**	**AN81.1** Describe various methods of prenatal diagnosis **AN81.2** Describe indications, process and disadvantages of amniocentesis **AN81.3** Describe indications, process and disadvantages of chorion villus biopsy	Theory / Practical/Laboratory/ Clinical
7.	**Ethics in laboratory**	**AN 82.1** Demonstrate respect and follow the correct procedure when handling cadavers and other biologic tissue	

Genetics

S.no	**Topic**	**Competency**	**Theory / Practical/Laboratory/ Clinical**
1.	**Chromosomes**	AN73.1 Describe the structure of chromosomes with classification AN73.2 Describe technique of karyotyping with its applications	Theory / Practical/Laboratory/ Clinical

		AN73.3 Describe the Lyon's hypothesis	
2.	**Patterns of Inheritance**	AN74.1 Describe the various modes of inheritance with examples AN74.2 Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance AN74.3 Describe multifactorial inheritance with examples AN74.4 Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant rickets, Haemophilia, Duchene's muscular dystrophy & Sickle cell anaemia	Theory / Practical/Laboratory/ Clinical
3.	**Principle of Genetics, Chromosomal Aberrations & Clinical Genetics**	AN75.1 Describe the structural and numerical chromosomal aberrations AN75.2 Explain the terms mosaics and chimeras with example AN75.3 Describe the genetic basis & clinical features of Prader Willi syndrome, Edward syndrome & Patau syndrome AN75.4 Describe genetic basis of variation: polymorphism and mutation AN75.5 Describe the principles of genetic counselling	Theory / Practical/Laboratory/ Clinical

Systemic Anatomy, Histology & Embryology

Upper Limb

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1.	**Individual bone**	**AN8.1** Identify the given bone, its side, important features & keep it in anatomical Position **AN 8. 2.** Identify & describe joints formed by the given bone **AN8.3** Enumerate peculiarities of clavicle **AN8.4** Demonstrate important muscle attachment on the given bone **AN8.5** Identify and name various bones in articulated hand, Specify the parts of metacarpals and phalanges and enumerate the peculiarities of pisiform **AN8.6** Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	**Practical/Laboratory/ Clinical**

2.	**Pectoral region**	**AN9.1** Describe attachment, nerve supply & action of pectoralis major & Pectoralis minor **AN9.2** Breast: Describe the location, extent, deep relations, structure, age changes, blood supply, lymphatic drainage, microanatomy and applied **AN9.3** Describe development of breast	**Theory / Practical/Laboratory/ Clinical**

S.no	**Topic**	**Competency**	**Theory / Practical/Laboratory/ Clinical**
3.	**Axilla, Shoulder and Scapular region**	**AN10.1** Identify & describe boundaries and contents of axilla **AN 10.2** Identify, describe, and demonstrate the origin, extent, course, and parts relations branches of axillary artery and tributaries of vein **AN10.3** Describe, identify demonstrate formation, branches, relations area of supply of branches course and relations of terminal branches of brachial plexuses **AN10.4** Describe the anatomical groups of axillary lymph nodes and specify their area of drainage. **AN10.5** Explain variations in formation of brachial plexus **AN10.6** Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis **AN 10.7** Explain anatomical basis of enlarged axillary lymph nodes **AN10.8** Describe, identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi **AN10.9** Describe the arterial anastomosis around the scapula and mention the Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation **AN10.10** Describe and identify the deltoid and rotator cuff muscles **AN10.11** Describe & demonstrate attachment of serratus anterior with its action **AN10.12** Describe and demonstrate shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy AN10.13 Explain anatomical basis of Injury to axillary nerve during intramuscular injections.	Theory / Practical/Laboratory/ Clinical

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
4	**Arm & Cubital fossa**	**AN 11.1** Describe and demonstrate muscle groups of upper arm with emphasis on biceps and triceps brachii. **AN11.2** Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels in arm **AN11.3** Describe the anatomical basis of Venepuncture of cubital veins **AN11.4**Describe the anatomical basis of Saturday night paralysis **AN11.5** Identify & describe boundaries and contents of cubital fossa **AN11.6** Describe the anastomosis around the elbow joint	Theory / Practical/Laboratory/ Clinical
5	**Forearm & hand**	**AN12.1** Describe and demonstrate important muscle groups of ventral forearm with attachments, nerve supply and actions **AN12.2** Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of forearm **AN12.3** Identify & describe flexor retinaculum with its attachments **AN12.4** Explain anatomical basis of carpal tunnel syndrome **AN12.5** Identify & describe small muscles of hand. Also describe movements of thumb and muscles involved **AN12.6** Describe & demonstrate movements of thumb and muscles involved **AN12.7** Describe & demonstrate movements of thumb and muscles involved nerves in hand. **AN12.8** Describe anatomical basis of Claw hand **AN12.9** dentify & describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths **AN12.10** Explain infection of fascial spaces of palm **AN12.11** Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions **AN12.12** Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm **AN12.13** Describe the anatomical basis of Wrist drop **AN12.14** Identify & describe compartments deep to extensor retinaculum **AN12.15** Identify & describe extensor expansion formation	Theory / Practical/Laboratory/ Clinical

6.	**General Features, Joints, radiographs & surface marking**	**AN13.1** Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage **AN13.2** Describe dermatomes of upper limb **AN13.3** Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint **AN13.4** Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangeal joint **AN13.5** Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand **AN13.6** Identify & demonstrate important bony landmarks of upper limb Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end, Inferior angle of the scapula **AN13.7** Identify & demonstrate surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis AN13.8 Describe development of upper limb	Theory / Practical/Laboratory/ Clinical

Thorax

S.no	**Topic**	**Competency**	**Theory / Practical/Laboratory/ Clinical**
1.	**Introduction & Thoracic wall**	**AN21.1** Identify and describe the salient features of sternum, typical rib, Ist rib and typical thoracic vertebra. **AN 21.2** Identify & describe the features of 2nd, 11th and 12th ribs, 1st, 11th and 12^{th} thoracic vertebrae **AN21.3** Describe & demonstrate the boundaries of thoracic inlet, cavity and outlet **AN21.4** Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles **AN21.5** Describe & demonstrate origin, course, relations and branches of a typical intercostal	Practical / Laboratory/ Clinical Theory / Practical/Laboratory/ Clinical

		Nerve **AN21.6** Mention origin, course and branches/ tributaries of: 1)anterior & posterior intercostal vessels 2)internal thoracic vessels **AN21.7** Mention the origin, course, 1) atypical intercostal nerve 2)superior intercostal artery, subcostal artery elations and branches **AN21.8** Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints **AN21.9** Describe & demonstrate mechanics and types of respiration **AN21.10** Describe costochondral and interchondral joints	
2.	**Mediastinum**	**AN21.11** Mention boundaries and contents of the superior, anterior, middle and posterior mediastinum **AN23.1** Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus **AN23.2** Describe & demonstrate the extent, relations tributaries of thoracic duct and enumerate its applied anatomy **AN 23.3** Describe & demonstrate origin, course, relations, tributaries and termination of superior vena cava, azygos, hemiazygos and accessory hemiazygos veins **AN23.4** Mention the extent, branches and relations of arch of aorta & descending thoracic aorta **AN24.4** Identify phrenic nerve & describe its formation & distribution **AN23.5** Identify & Mention the location and extent of thoracic sympathetic chain **AN23.6** Describe the splanchnic nerves **AN23.7** Mention the extent, relations and applied anatomy of lymphatic duct	Theory / Practical/Laboratory/ Clinical
3.	**Pleura, Lungs & Trachea**	**AN24.1** Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy **AN24.2** Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate **AN 24.3** Describe a bronchopulmonary segment **AN24.5** Mention the blood supply, lymphatic drainage and nerve supply of lungs **AN24.6** Describe the extent, length,	Theory / Practical/Laboratory/ Clinical

		relations, blood supply, lymphatic drainage and nerve supply of trachea	
4.	**Heart & Pericardium**	**AN22.1** Describe & demonstrate subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium **AN22.2** Describe & demonstrate external and internal features of each chamber of heart **AN22.3** Describe & demonstrate origin, course and branches of coronary arteries **AN22.4** Describe anatomical basis of ischaemic heart disease **AN22.5** Describe & demonstrate the formation, course, tributaries and termination of coronary sinus **AN22.6** Describe the fibrous skeleton of heart **AN22.7** Mention the parts, position and arterial supply of the conducting system of heart	Theory / Practical/Laboratory/ Clinical

S.no	**Topic**	**Competency**	**Theory / Practical/Laboratory/ Clinical**
5.	**Radiology & Surface Marking**	**AN25.7** Identify structures seen on a plain x-ray chest (PA view) **AN25.8** Identify and describe in brief a barium swallow **AN25.9** Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat & surface projection of valves of heart	Theory / Practical/Laboratory/ Clinical
6.	**Embryology**	**AN25.2** Describe development of pleura, lung & heart **AN25.3** Describe fetal circulation and changes occurring at birth AN25.4 Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheo-oesophageal fistula **AN25.5** Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta **AN25.6** Mention development of aortic arch arteries, SVC, IVC and coronary sinus	Theory / Practical/Laboratory/ Clinical
7.	**Histology**	**AN25.1** Identify, draw and label a slide of trachea and lung	Theory / Practical/Laboratory/ Clinical

Head & Neck

S No	Topic	Competencies	Theory/ Practical/ Laboratory/ Clinical
1.	**Skull osteology**	**AN26.1** Demonstrate anatomical position of skull, Identify and locate individual skull bones in skull **AN26.2** Describe the features of norma frontalis, verticalis, occipitalis, lateralis and Basalis **AN26.3** Describe cranial cavity, its subdivisions, foramina and structures passing through them **AN26.4** Describe morphological features of mandible **AN26.5** Describe features of typical and atypical cervical vertebrae (atlas and axis) **AN26.6** Explain the concept of bones that ossify in membrane **AN26.7** Describe the features of the 7th cervical vertebra	**Practical/ Laboratory/ Clinical**
2.	**Scalp**	**AN27.1** Describe the layers of scalp, its blood supply, its nerve supply and surgical Importance **AN27.2** Describe emissary veins with its role in spread of infection from extracranial route to intracranial venous sinuses	Theory/ Practical/ Laboratory/ Clinical
3.	**Face & parotid region**	**AN28.1** Describe & demonstrate muscles of facial expression and their nerve supply **AN28.2** Describe sensory innervation of face **AN28.3** Describe & demonstrate origin /formation, course, branches /tributaries of facial vessels **AN28.4** Describe & demonstrate branches of facial nerve with distribution **AN28.5** Describe cervical lymph nodes and lymphatic drainage of head, face and neck **AN28.6** Identify superficial muscles of face, their nerve supply and actions **AN28.7** Explain the anatomical basis of facial nerve palsy **AN28.8** Explain surgical importance of deep facial vein **AN28.9** Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance **AN28.10** Explain the anatomical basis of Frey's syndrome	Theory/ Practical/ Laboratory/ Clinical
4.	**Posterior triangle of neck**	**AN29.1** Describe & demonstrate attachments, nerve supply, relations and actions of sternocleidomastoid **AN29.2** Explain anatomical basis of Erb's & Klumpke's palsy **AN29.3** Explain anatomical basis of wry neck **AN29.4** Describe & demonstrate attachments of 1) inferior belly of omohyoid, 2)scalenus anterior, 3) scalenus medius & 4) levator scapulae	Theory/ Practical/ Laboratory/ Clinical
5.	**Cranial cavity**	**AN30.1** Describe the cranial fossae & identify related structures	Theory/ Practical/ Laboratory/ Clinical

		AN30.2 Describe & identify major foramina with structures passing through them **AN30.3** Describe & identify dural folds & dural venous sinuses **AN30.4** Describe clinical importance of dural venous sinuses **AN30.5** Explain effect of pituitary tumours on visual pathway	
6.	**Orbit**	**AN31.1** Describe & identify extra ocular muscles of eyeball **AN31.2** Describe & demonstrate nerves and vessels in the orbit **AN31.3** Describe anatomical basis of Horner's syndrome **AN31.4** Enumerate components of lacrimal apparatus **AN31.5** Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	Theory/ Practical/ Laboratory/ Clinical
7.	**Anterior Triangle**	**AN32.1** Describe boundaries and subdivisions of anterior triangle **AN32.2** Describe & demonstrate boundaries and contents of muscular, carotid, digastric and submental triangles	Theory/ Practical/ Laboratory/ Clinical
8	**Temporal and Infratemporal regions**	**AN33.1** Describe & demonstrate extent, boundaries and contents of temporal and infratemporal fossae **AN33.2** Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication **AN33.3** Describe & demonstrate articulating surface, type & movements of temporomandibular joint **AN33.4** Explain the clinical significance of pterygoid venous plexus **AN33.5** Describe the features of dislocation of temporomandibular joint	Theory/ Practical/ Laboratory/ Clinical
9	**Submandibular region**	**AN34.1** Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibular ganglion **AN34.2** Describe the basis of formation of submandibular stones	Theory/ Practical/ Laboratory/ Clinical
10	**Deep structures in the neck**	**AN35.1** Describe the parts, extent, attachments, modifications of deep cervical Fascia **AN35.2** Describe & demonstrate location, parts, borders, surfaces, relations & blood supply of thyroid gland **AN35.3** Demonstrate & describe the origin, parts, course & branches subclavian Artery **AN35.4** Describe & demonstrate origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins **AN35.5** Describe and demonstrate extent, drainage & applied anatomy of cervical lymph nodes **AN35.6** Describe and demonstrate the extent, formation, relation & branches of cervical sympathetic chain	Theory/ Practical/ Laboratory/ Clinical

		AN35.7 Describe the course and branches of IX, X, XI & XII nerve in the neck **AN35.8** Describe the anatomically relevant clinical features of Thyroid swellings **AN35.9** Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib **AN35.10** Describe the fascial spaces of neck	
11	**Mouth, Pharynx & Palate**	**AN36.1** Describe the 1) morphology, relations, blood supply and applied anatomy of palatine tonsil 2) composition of soft palate **AN36.2** Describe the components and functions of Waldeyer's lymphatic ring **AN36.3** Describe the boundaries and clinical significance of pyriform fossa **AN36.4** Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess **AN36.5** Describe the clinical significance of Killian's dehiscence	Theory/ Practical/ Laboratory/ Clinical
12	**Cavity of Nose**	**AN37.1** Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply **AN37.2** Describe location and functional anatomy of paranasal sinuses **AN37.3** Describe anatomical basis of sinusitis & maxillary sinus tumours	Theory/ Practical/ Laboratory/ Clinical
13	**Larynx**	**AN38.1** Describe the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx **AN38.2** Describe the anatomical aspects of laryngitis **AN38.3** Describe anatomical basis of recurrent laryngeal nerve injury	Theory/ Practical/ Laboratory/ Clinical
14	**Tongue**	**AN39.1** Describe & demonstrate the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue **AN39.2** Explain the anatomical basis of hypoglossal nerve palsy	Theory/ Practical/ Laboratory/ Clinical
15	**Organs of hearing and equilibrium**	**AN40.1** Describe & identify the parts, blood supply and nerve supply of external Ear **AN40.2** Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube **AN40.3** Describe the features of internal ear **AN40.4** Explain anatomical basis of otitis externa and otitis media **AN40.5** Explain anatomical basis of myringotomy	Theory/ Practical/ Laboratory/ Clinical
16	**Eyeball**	**AN41.1** Describe & demonstrate parts and layers of eyeball **AN41.2** Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion **AN41.3** Describe the position, nerve supply and actions of intraocular muscles	Theory/ Practical/ Laboratory/ Clinical
17	**Back Region**	**AN42.1** Describe the contents of the vertebral canal **AN42.2** Describe & demonstrate the boundaries and	Theory/ Practical/ Laboratory/ Clinical

		contents of Suboccipital triangle **AN42.3** Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis	
18	**Head & neck Joints**	**AN43.1** Describe & demonstrate the movements with muscles producing the movements of atlantooccipital joint & atlantoaxial joint	Theory/ Practical/ Laboratory/ Clinical
19	**Histology**	**AN43.2** Identify, describe and draw the microanatomy of pituitary gland, thyroid, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea, retina **AN43.3** Identify, describe and draw microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea- organ of corti, pineal gland	Theory/ Practical/ Laboratory/ Clinical
20	**Development**	**AN43.4** Describe the development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland & eye	Theory/ Practical/ Laboratory/ Clinical
21	**Radiology & Surface marking**	**AN43.5** Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels **AN43.6** Demonstrate surface projection of- Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & accessory nerve **AN43.7** Identify the anatomical structures in 1) Plain x-ray skull, 2) AP view and lateral view 3) Plain x-ray cervical spine-AP and lateral view 4) Plain X-ray of paranasal sinuses AN43.8 Describe the anatomical route used for carotid angiogram and vertebral Angiogram AN43.9 Identify anatomical structures in carotid angiogram and vertebral angiogram	Theory/ Practical/ Laboratory/ Clinical

Neuroanatomy

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1.	**Meninges & CSF**	**AN56.1** Describe & identify various layers of meninges with its extent & modifications **AN56.2** Describe circulation of CSF with its applied anatomy	**Theory/Practical/Laboratory/ Clinical**
2	**Spinal cord**	**AN57.1** Identify external features of spinal cord **AN57.2** Describe extent of spinal cord in child & adult with its clinical implication **AN57.3** Draw & label transverse section of spinal cord at mid-cervical & midthoracic level **AN57.4** Enumerate ascending & descending tracts at mid thoracic level of spinal cord **AN57.5** Describe anatomical basis of syringomyelia	**Theory / Practical/Laboratory/ Clinical**
3	**Medulla Oblongata**	**AN58.1** Identify external features of medulla oblongata **AN58.2** Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) ION **AN58.3** Enumerate cranial nerve nuclei in medulla oblongata with their functional group **AN58.4** Describe anatomical basis & effects of medial & lateral medullary syndrome	**Theory / Practical/Laboratory/ Clinical**

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
4	**Pons**	**AN59.1** Identify external features of pons **AN59.2** Draw & label transverse section of pons at the upper and lower level **AN59.3** Enumerate cranial nerve nuclei in pons with their functional group	**Theory / Practical/Laboratory/ Clinical**
5	**Cerebellum**	**AN60.1** Describe & demonstrate external & internal features of cerebellum **AN60.2** Describe connections of cerebellar cortex and intracerebellar nuclei **AN60.3** Describe anatomical basis of cerebellar dysfunction	**Theory / Practical/Laboratory/ Clinical**
6	**Midbrain**	**AN61.1** Identify external & internal features of midbrain **AN61.2** Describe internal features of midbrain at the level of superior & inferior colliculus **AN61.3** Describe anatomical basis & effects of Benedikt's and Weber's syndrome	**Theory / Practical/Laboratory/ Clinical**

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
7	**Cranial nerve nuclei & Cerebral hemispheres**	**AN62.1** Enumerate cranial nerve nuclei with its functional component **AN62.2** Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere **AN62.3** Describe the white matter of cerebrum **AN62.4** Enumerate parts & major connections of basal ganglia & limbic lobe **AN62.5** Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus **AN62.6** Describe & identify formation, branches & major areas of distribution of circle of Willis	**Theory / Practical/Laboratory/ Clinical**
8	**Ventricular system**	**AN63.1** Describe & demonstrate parts, boundaries & features of IIIrd, IVth & lateral ventricle **AN63.2** Describe anatomical basis of congenital hydrocephalus	**Theory / Practical/Laboratory/ Clinical**
9	**Histology & Embryology**	**AN64.1** Describe & identify the microanatomical features of Spinal cord, Cerebellum & Cerebrum **AN64.2** Describe the development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemisphere & cerebellum **AN64.3** Describe various types of open neural tube defects with its embryological basis	**Theory / Practical/Laboratory/ Clinical**

LOWER LIMB

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1.	**Features of individual bones**	**AN14.1** Identify the given bone, its side, important features & keep it in anatomical position **AN14.2** Identify & describe joints formed by the given bone **AN14.3** Describe the importance of ossification of lower end of femur & upper end of tibia. **AN14.4** Identify and name various bones in the articulated foot with individual muscle attachment.	**Practical/Laboratory/ Clinical**
2.	**Front & Medial side of thigh**	**AN15.1** Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh **AN15.2** Describe and demonstrate major muscles with their attachment, nerve supply and actions **AN15.3** Describe and demonstrate boundaries, floor, roof and contents of femoral triangle **AN15.4** Explain anatomical basis of Psoas abscess & Femoral hernia **AN15.5** Describe and demonstrate adductor canal with its content	**Theory / Practical/Laboratory/ Clinical**
3	**Gluteal region & back of thigh**	**AN16.1** Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of gluteal region **AN16.2** Describe anatomical basis of sciatic nerve injury during gluteal intramuscular injections **N16.3** Explain the anatomical basis of Trendelenburg sign **AN16.4** Describe and demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions **AN16.5** Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh **AN16.6** Describe and demonstrate the boundaries, roof, floor, contents and relations of popliteal fossa	**Theory / Practical/Laboratory/ Clinical**

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
4	**Hip joint**	**AN17.1** Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint **AN17.2** Describe anatomical basis of complications of fracture neck of femur AN17.3 Describe dislocation of hip joint and surgical hip replacement	**Theory / Practical/Laboratory/ Clinical**
5	**Knee joint, Anterolateral compartment of leg & dorsum of foot**	**AN18.1** Describe and demonstrate major muscles of anterolateral compartment of leg with their attachment, nerve supply and actions **AN18.2** Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg **AN18.3** Explain the anatomical basis of foot drop **AN18.4** Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the knee joint **AN18.5** Explain the anatomical basis of locking and unlocking of the knee joint AN18.6 Describe knee joint injuries with its applied anatomy **AN18.7** Explain anatomical basis of Osteoarthritis	**Theory / Practical/Laboratory/ Clinical**

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
6	**Back of Leg & Sole**	**AN19.1** Describe and demonstrate the major muscles of back of leg with their attachment, nerve supply and actions **AN19.2** Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg **AN19.3** Explain the concept of "Peripheral heart" **AN19.4** Explain the anatomical basis of rupture of calcaneal tendon **AN19.5** Describe factors maintaining importance arches of the foot with its attachment **AN19.6** Explain the anatomical basis of Flat foot & Club foot **AN19.7** Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	**Theory / Practical/Laboratory/ Clinical**
7	**General Features, Joints, radiographs & surface marking**	**AN20.1** Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint **AN20.2** Describe the subtalar and transverse tarsal joints **AN20.3** Describe and demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb **AN20.4** Explain anatomical basis of enlarged inguinal lymph nodes **AN20.5** Explain anatomical basis of varicose veins and deep vein thrombosis **AN20.6** Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb **AN20.7** Identify & demonstrate important bony landmarks of lower limb: -Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliactubercle, pubic tubercle, ischial tuberosity, adductor tubercle, -Tibial tuberosity, head of fibula, -	**Theory/Practical/Laboratory/ Clinical**

		Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal,tuberosity of the navicular **AN20.8** Identify & demonstrate palpation of femoral, popliteal, post tibial, anti tibial & dorsalis pedis blood vessels in a simulated environment **AN20.9** Identify & demonstrate Palpation of vessels (femoral, popliteal,dorsalis pedis,post tibial), Mid inguinal point, Surface projection of: femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins AN20.10 Describe basic concept of development of lower limb	

ABDOMEN

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1	**Anterior abdominal wall**	**AN44.1** Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & quadrants of abdomen **AN44.2** Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall **AN44.3** Describe the formation of rectus sheath and its contents **AN44.4** Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle. **AN44.5** Explain the anatomical basis of inguinal hernia. **AN44.6** Describe & demonstrate attachments of muscles of anterior abdominal wall **AN44.7** Enumerate common Abdominal incisions	**Theory / Practical/Laboratory/ Clinical**
2	**Posterior abdominal wall**	**AN45.1** Describe Thoracolumbar fascia **AN45.2** Describe & demonstrate Lumbar plexus for its root value, formation & branches **AN45.3** Mention the major subgroups of back muscles, nerve supply and action	**Theory / Practical/Laboratory/ Clinical**
3	**Male external genitalia**	**AN46.1** Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage &	**Theory / Practical/Laboratory/ Clinical**

		descent of testis with its applied anatomy **AN46.2** Describe parts of Epididymis **AN46.3** Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage) **AN46.4** Explain the anatomical basis of Varicocoele **AN46.5** Explain the anatomical basis of Phimosis & Circumcision	

S.no	**Topic**	**Competency**	**Theory / Practical/Laboratory/ Clinical**
4	**Abdominal cavity**	**AN47.1** Describe & identify boundaries and recesses of Lesser & Greater sac **AN47.2** Name & identify various peritoneal folds & pouches with its explanation **AN47.3** Explain anatomical basis of Ascites & Peritonitis **AN47.4** Explain anatomical basis of Subphrenic abscess **AN47.5** Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects) **AN47.6** Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach **AN47.7** Mention the clinical importance of Calot's triangle **AN47.8** Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein **AN47.9** Describe & identify the origin, course, important relations and branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery **AN47.10** Enumerate the sites of portosystemic anastomosis **AN47.11** Explain the anatomic basis of hematemesis& caput medusae in portal	Theory / Practical/Laboratory/ Clinical

		hypertension **AN47.12** Describe important nerve plexuses of posterior abdominal wall **AN47.13** Describe & demonstrate the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm **AN47.14** Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	
5	**Osteology**	**AN53.1** Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups **AN53.2** Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet **AN53.3** Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	
6	**Vertebral column**	**AN50.1** Describe the curvatures of the vertebral column **AN50.2** Describe & demonstrate the type, articular ends, ligaments and movements of Intervertebral joints, Sacroiliac joints & Pubic symphysis **AN50.3** Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture) **AN50.4** Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	Theory / Practical/Laboratory/ Clinical
7	**Sectional Anatomy**	**AN51.1** Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	Theory / Practical/Laboratory/ Clinical

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
8	Histology & Embryology	AN52.1 Describe & identify the microanatomical features of Gastro-intestinal system: Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gall bladder, Pancreas & Suprarenal gland AN52.2 Describe & identify the microanatomical features of: Urinary system: Kidney, Ureter & Urinary bladder AN52.3 Describe & identify the microanatomical features of Cardiooesophageal junction, Corpus luteum AN52.4 Describe the development of anterior abdominal wall AN52.5 Describe the development and congenital anomalies of Diaphragm AN52.6 Describe the development and congenital anomalies of: Foregut, Midgut & Hindgut AN52.7 Describe the development of Urinary system	Theory / Practical/Laboratory/ Clinical
9	Osteology	AN53.1 Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups AN53.4 Explain and demonstrate clinical importance of bones of abdominopelvic region (sacralization of lumbar vertebra, Lumbarization of 1st sacral vertebra, types of bony pelvis & Coccyx)	Practical/Laboratory/ Clinical
10	Radiodiagnosis	AN54.1 Describe & identify features of plain X ray abdomen AN54.2 Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography & Hysterosalpingography) AN54.3 Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	Theory / Practical/Laboratory/ Clinical
11	Surface marking	AN55.1 Demonstrate the surface marking of; Regions and planes of abdomen, Superficial inguinal ring, Deep inguinal ring , McBurney's point, Renal Angle & Murphy's point AN55.2 Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder, Spleen, Duodenum, Pancreas, Ileocaecal junction, Kidneys & Root of mesenter	Theory / Practical/Laboratory/ Clinical

Pelvis & Perineum

S.no	Topic	Competency	Theory / Practical/Laboratory/ Clinical
1	**Pelvic wall and viscera**	**AN53.2** Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet **AN53.3** Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis **AN48.1** Describe & identify the muscles of Pelvic diaphragm **AN48.2** Describe & demonstrate the (position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of) important male & female pelvic viscera **AN48.3** Describe & demonstrate the origin, course, important relations and branches of internal iliac artery **AN48.4** Describe the branches of sacral plexus **AN48.5** Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation **AN48.6** Describe the neurological basis of Automatic bladder **AN48.7** Mention the lobes involved in benign prostatic hypertrophy & prostatic Cancer **AN48.8** Mention the structures palpable during vaginal & rectal examination **AN51.2** Describe & identify the midsagittal section of male and female pelvis	Theory / Practical/Laboratory/ Clinical
2.	**Perineum**	**AN49.1** Describe & demonstrate the superficial & deep perineal pouch (boundaries and contents) **AN49.2** Describe & identify Perineal body **AN49.3** Describe & demonstrate Perineal membrane in male & female	

		AN49.4 Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa **AN49.5** Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	
3.	**Histology**	**AN52.8** Describe & identify the microanatomical features of: Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate & Penis Female reproductive system: Ovary, Uterus, Uterine tube, Cervix, Placenta & Umbilical cord **AN52.7** Urinary system: Kidney, Ureter & Urinary bladder	
4.	**Embryology**	**AN52.7** Describe the development of Urinary system **AN52.8** Describe the development of male & female reproductive system	
5.	**Radiology**	**AN 54.2** Describe & identify the special radiographs of abdominopelvic region: Hysterosalpingography	

5. Teaching learning methods

a) Didactic lectures

b) Cadaveric dissection

c) Study of prosected specimens

d) Study of histology slides

e) Study of Embryology models

f) Learning surface anatomy

g) Learning radiological Anatomy

h) Small group teaching for demonstration of bones

i) AETCOM

j) Early Clinical exposure by showing videos and hospital visits

k) Self directed learning by arranging seminars

l) Problem based learning

6. Assessment

(a) Formative

Gross Anatomy will be taught under the following headings:

- General Anatomy

- Neuroanatomy
- Head and Neck
- Upper limb
- Thorax
- Abdomen
- Pelvis
- Lower limb

Stages during the part and Grand stages at the completion of the part of the human body being taught will be taken.

(b) Internal Assessment

I term exam:
Theory 100 marks
Practical 100 marks
II term exam:
Theory 100 marks
Practical 100 marks
Sent up
Theory
Paper 1: 100 marks
Paper 2: 100 marks
Practical 100 marks

Assessment theory: Percentage of I term + II term + Sent up theory marks

Assessment Practical: Percentage of I term + II term + Sent up Practical marks

Minimum of 50% combined in theory and Practical (not less than 40% in each) in internal exams for eligibility for appearing for University examinations.

(c) Summative theory practical & Viva Voce pattern with distribution of marks

First Professional

THEORY PAPER- ANATOMY

PAPER- I **100 marks**

Topics: General Histology, General Anatomy, Neuroanatomy, Head and Neck and Upper limb and related histology and embryology

PAPER- II **100 marks**

Topics: General embryology, Principles of Genetics, Thorax, Abdomen, Pelvis and Perineum, Lower Limb and related Histology and Embryology

THEORY QUESTION PAPER FORMAT

(Applicable for Paper – I and Paper -II)

Part I

1. Objective type questions including MCQs 20 marks

2) Draw labelled diagram to show 5x4=20 marks

i) ii) iii) iv)

Part II

3) Structured long question/Problem based question 10 marks

4) Write short notes on 5X4=20 marks

i) ii) iii) iv)

(One of the short notes will be of 5 marks on AETCOM.)

Part III

5 a) Structured long question/Problem based question 10 marks

5 b) Write briefly on:

i) ii) 5x2=10 marks

6) Write anatomical basis embryological basis of 3+3+4=10 marks

i) ii) iii)

Practical	**100 marks**
Section	**Marks**
Spotting	20
Hard Parts	20
Soft parts	20
Histology (2slides + Viva)	10
Embryology (Models + Viva)	10

Radiology viva	8
Living anatomy	6
Problem solving	6

Criteria for passing Professional examination

- 50% marks are mandatory in Theory (Theory papers only) and Practical (Practical + Viva) separately

- Internal assessment marks will not be added to the University examination and will be shown separately in the grade card.

7. Recommended Reading

GROSS ANATOMY:

Suggested books:

1) Romanes, C.J.: Cunningham's Manual of practical Anatomy, vol. 1, II, and III, latest Edition, 2017, Oxford University Press.
2) Handbook of B D Chaurasia, General Anatomy, latest Edition, 2019, CBS Publishers, Delhi.
3) Vishram Singh's textbook of Anatomy Vol. I,II,III , latest Edition. 2018, Elsevier publisher.
   OR
4) Chaurasia, B.D Human Anatomy- Regional & Applied. Vol. I, II & III, latest Edition, 2019, CBS Publishers.
   OR
5) Gray's anatomy for students by Richard Drake, A. Wayne Vogl and Adam W. M. Mitchell;

latest edition, February 2019, Elsevier publisher.

Reference books:

1) Snell's clinical Anatomy by regions by Richard Snell, Vanadana Mehta (Editor), V.K Suri (Editor); latest Edition, 2018, Wolters Kluver
2) Gray's anatomy - The anatomical basis of clinical practice By Susan Standring; 42nd edition, October 2020, Elsevier publisher.
3) Atlas of Human anatomy, Netter by Frank H. Netter; latest Edition, 2019, Elsevier publisher.
4) McMinn and Abrahams' Clinical Atlas of Human Anatomy by Peter Abrahams, Jonathan Spratt, Marios Loukas, Albert- Neels van Schoor; latest Edition, 2013, Elsevier publisher.

HISTOLOGY:

Suggested book:

1) Inderbir singh's textbook of human histology, latest edition, 2019, Jaypee publisher.

Reference books:

1) Ross Histology by Michael H. Ross and Wojciech Pawlina, latest Edition, 2020, Wolters Kluwer publisher.

2) Di Fiore atlas of human histology by Victor P. Eroschenko; latest edition, 2017, Wolters Kluwer publisher.

EMBRYOLOGY:

Suggested book:

1) Langman's Medical Embryology by Thomas W. Sadler; edited by Sabita Misra, 2019, latest Edition Wolters Kluwer publisher.
   OR
2) Text book of clinical embryology by VISHRAM SINGH; latest Edition, 2017, Elsevier publisher.
   OR

3) Text book of Clinical embryology by INDERBIR SINGH by Subhdra Devi; latest Edition , 2017, Jaypee publishers.

NEUROANATOMY:

Suggested book:

1) Textbook of clinical Neuroanatomy by VISHRAM SINGH; latest edition, 2020, Elsevier publisher.

   OR

2) Inderbir Singh's Textbook of Human Neuroanatomy; latest edition, 2017, Jaypee Brothers Medical Publishers.

Reference books:

1) Human nervous system by Murray L Barr; latest edition, 2014, Lippincott Williams and Wilkins Publisher.
2) Snell's clinical neuroanatomy, latest edition, 2018, Walters Kluwer publisher.

GENETICS:

Suggested book:

1) Principles of clinical genetics by Yogesh Ashok Sontakke, 1 edition, 2017, Jaypee Brothers Medical Publishers.
   OR
2) Human genetics by S D Gangane, latest edition, 2017, Elsevier publication.

SURFACE ANATOMY AND RADIOLOGY

Suggested book:

1) Surface and Radiological Anatomy by Halim, latest Edn. 2020, CBS publication.