

Proposed Study & Evaluation Scheme

M.Sc. (Medical Anatomy)

**SGT University
Budhera, Gurgaon.**

M.Sc. (Medical Anatomy)

Programme : M.Sc. (Med-Anatomy)
Duration : 3 Year full time (annual system)
Medium : English

Eligibility:

1. MBBS from a recognized medical college
2. B. Sc Medical Anatomy from any UGC approved university.
3. BDS recognized by D.C.I.
4. BPT recognized by regulatory body
5. Graduation in any medical/science/life sciences field from any UGC approved University.

Goal:

The postgraduates in MSc (Medical Anatomy) passing out of Faculty of Medicine and Health Sciences SGT University should be

- i. Competent medical facilitators with basic competence in teaching the undergraduate medical and paramedical professional courses' students.
- ii. Well versed with principles of research methodology
- iii. Able to apply the acquired knowledge and skill to advance medical education

Objectives :

At the end of the course in Master of Science in Medical Anatomy the student should be able to.

1. demonstrate comprehensive knowledge of structure & function of human body, anatomy of human development, basic principles of genetics, knowledge of light microscopic structure of human body.
2. communicate the acquired knowledge clearly & with precision to undergraduate medical and paramedical professional courses' students
3. apply knowledge of various laboratory techniques involved in preparation of museum specimens, preparation of histology slides and embalming of human cadaver .
4. demonstrate understanding of Radiological anatomy including newer Imaging techniques

Learning activities & training:

1. **Interactive lectures:** gross anatomy, micro anatomy, embryology, neuro anatomy and genetics
2. **Practical sessions:** gross anatomy, micro anatomy, embryology and neuro anatomy
Practical sessions will include SGD (small group discussions), PBL (problem based learning), SDL (self directed learning)
3. **Attitude, Ethics and Communication (AETCOM) Skills:-** journal club, seminars, modules
4. **Hand on experience:-** Techniques in micro anatomy, museum specimens, anthropology and embalming,
5. **Teaching assignments:-** Taking U.G classes, demonstrations & practicals for two semester.
6. **Hands on experience:** in using various of A .V aids for teaching. Preparation of powerpoint presentation according to standard norms.
7. **Participation** in conferences, symposia, seminars & workshops.
8. **Statistics :** Elementary knowledge of medical statistics.
9. **Research :-** Thesis - Project should be submitted 6 month before the final examination.

Evaluation

Written and Practical assessment (minimum 3 in each year).

Internal assessment will be calculated -- 20 marks each for theory & practical in the 1st year.

Internal assessment will be calculated -- 60 marks for theory & 50 marks for practical in the 3rd year.

University Examination shall be held according to the schedule given below:-

Study & Evaluation Scheme

Programme: M.Sc. (Medical Anatomy)

1st Year PRELIMINARY EXAMINATIONS:-

Course Code	Subject	Theory				Practical			Grand Total
		Theory	Int. Assess	Viva	Total	Marks	Int.Asses.	Total	
1	Basics of Anatomy	100	20	20	140	40	20	60	200
2	Basics of Physiology	100	20	20	140	40	20	60	200
3	Basics of Biochemistry	100	20	20	140	40	20	60	200

Grand Total-600

3rd Year FINAL EXAMINATIONS:-

Theory							Practical		
Paper-I	Paper-II	Paper-III	Paper-IV	Int. Asses.	Viva	Total	Practical	Int. Asses.	Total
75	75	75	75	60	40	400	150	50	200

Grand Total-600

Panel of Examiners: 1st Year

There shall be panel of 2 Examiners; one internal & one external examiner recommended by the Principal & approved by the university,-

Panel of Examiners: Final Year

There shall be panel of 4 Examiners; two internal & two external examiners recommended by the Principal & approved by the university,-

Result:

Shall be prepared and declared as below: -

1. 50% & above separately in theory & practical -- pass
2. 75% & above separately in theory & practical -- pass with distinction.
3. Below 50 % marks in theory and practical separately -- fail

Eligibility for appearing in University Examination:-

1. 80% Attendance in theory and 85 % Attendance in Practical
2. The candidate should attain 40% marks in the internal assessment failing which he or she will not be allowed to appear in the University examination.

Question Paper Structure:-

1. 1st Year Preliminary Examinations question paper:-

The question paper will consist of two sections A & B each of 50 marks. Total 100marks

Section A

Q1. Structured long questions **10 marks**

Q2. Short questions total number 3 of 5 marks each **15 marks**

Q3. Short questions total number 5 of 3 marks each **15marks**

Section B

Q4. Structured long questions **10 marks**

Q5. Short questions total number 3 of 5 marks each **15 marks**

Q6. Short questions total number 5 of 3 marks each **15marks**

Section C

20 MCQs of 1mark each **20marks**

1. 3rd Year University Examinations question paper:-

Four question papers of 75marks each. Each paper will consist of 5 questions of 15marks each. All the questions are to be attempted. Questions can be Structured long questions, short answer question, diagrams & enumeration type. The questions should give coverage to the whole syllabus.

Reappear or Supplementary Exam:-

Candidate who has been placed under reappear category shall be allowed to continue studies in the next year but he / she will have to pass the Supplementary Examination within 3 months after the regular examination. Failure in supplementary examination will cause reversion to the corresponding

junior batch.

BASICS OF ANATOMY COURSE CONTENTS

YEAR –I

General Anatomy

1. Anatomical nomenclature and terminology, normal anatomical position, Anatomical plane, Anatomical positions, Clinical positions, Terms related to movements
2. Basics of cytology: Structure of cell wall, Cell organelles
3. Musculoskeletal system:
 - (a) Bones - classification, features of a long bone, ossification, blood supply of bones
 - (b) Muscles- classification of muscle tissue according to structure & action
4. Integumentary system: Thick Skin & Thin, Skin appendages, functions
5. Cardiovascular system: Morphology & classification of blood vessels, blood capillaries
6. Nervous system: Central Nervous system & Peripheral Nervous system, Gross basic Anatomy, Cranial nerves, Spinal nerves, Functions of nerves, Autonomic nervous system
7. Endocrine system: Classification & basic functions
8. Lymphatic system: Formation of lymph, Lymphatic ducts, Thoracic duct, Functions

Regional Anatomy:-

1. Digestive system: Parts of digestive system, gross anatomy and functions
2. Excretory system: Parts of excretory system, gross anatomy & functions of kidney, ureter & urinary bladder
3. Reproductive system: Male reproductive system - gross anatomy of testis, epididymis, vas-deferens, seminal vesicles and prostate. Female reproductive system- gross anatomy of ovaries, uterine tube, uterus, vagina, menstruation cycle
4. Respiratory system:- Parts, Pleura & Lungs
5. Cardiovascular System:- Pericardium & Heart.
6. Nervous System:- Knowledge of cranial Nerves. Gross anatomy of brain including ventricular system
7. Head & Neck:- Organs, Glands, Nerves & vessels.
8. Basics of genetics: Cell division mitosis, meiosis, Cell cycle, Chromosomes

Note :

a. **Gross anatomy (Elementary Anatomy):-**

Gross anatomy of each part including functional, sectional and radiological anatomy

b. **General Histology:-**

Includes cell structure, cell division & basic tissues of the body. e.g. epithelium, connective tissue, glands, bone and cartilage muscle- tissue, nervous tissue, vessels & lymphoid tissue .integumentary system **and basic concept of H & E staining.**

**BASICS OF ANATOMY (PRACTICAL)
YEAR –I**

Course Contents

Practical : Demonstration of the following

1. Anatomical terminology (anatomical plane, anatomical positions, clinical practice, terms related to movements)
2. Gross features of bones of all regions of Anatomy

Gross Anatomy on the dissected parts:-

1. Upperlimb
2. Lower limb
3. Thorax
4. Abdomen
5. Pelvis
6. Head, Neck and face

Histology:

1. Microscopes – parts & functions of various components
2. Light microscopic structure of basic tissues of the body

Surface anatomy:-

1. Includes body land marks, pressure points, palpation of various superficial arteries and Lymph node palpation
2. Demonstration of various movement of joints

Radiological anatomy:-

Normal study of plane x-rays in different views like AP, PA and Lateral etc of all the regions

ANATOMY
YEAR –II

Course Contents (Theory)

Gross Anatomy

Structure of superior & inferior extremities, Thorax, abdomen and pelvis in detail, including sectional and radiological anatomy.

Systemic Histology

All systems/organs of body - Cellular organization, light microscopic Features, structure, function correlation.

General Embryology

Gametogenesis, General Embryology up to full term birth

Includes:-

- (a) Gametogenesis
- (b) Uterine and ovarian cycles
- (c) Fertilization, cleavage, blastocyst, implantation of ovum
- (d) Formation of germ layers, primitive streak, notochord, neural tube.
- (e) Differentiation in germ layers & their derivatives
- (f) Folding of embryo, foetal membranes & placenta
- (g) Twinning and amniotic fluid

DEVELOPMENTAL ANATOMY

Systemic embryology

Development of various system & embryological basis of congenital anomalies

PRACTICALS YEAR –II

Practical based on the following topics and dissection & demonstration of gross anatomy as per the curriculum of the theory papers

Gross Anatomy

1. Structure of superior & inferior extremities, Thorax, abdomen and pelvis
2. Dissection & demonstration of these parts of body
3. Museum Techniques: Preparation of museum specimens, fixation and preservation of human body

Embryology:-

Models & specimens of early human development & specimens of congenital malformations

Histology:-

1. Study of systemic histology in detail under light microscopes
2. Preparation of tissue blocks, section cutting and routine H & E staining of the tissues
4. Identification of organs in light and electronic microscopy

Radiological Anatomy:-

1. Contrast X-Rays barium swallow, barium meal, Barium meal follow through, barium enema
2. I V P , Hysterosalpingography.
3. Basics CT & MRI scans
4. Angiography

ANATOMY
YEAR – III

Course Content (THEORY)

Gross Anatomy, Histology including Osteology

Neuro Anatomy

1. Gross Anatomy of all parts of Nervous system
2. Spinal cord including all tracts & their applied aspect
3. Medulla oblongata, midbrain, cerebellum, thalamus, hypothalamus, limbic lobe and their functions
4. Cerebral hemisphere, gyri, sulci, motor and sensory area, white matter, basal ganglia
5. Cranial nerves
6. Ventricular system of brain & Circulation of C.S.F.
7. Blood supply of brain
8. Cross sectional anatomy of brain

Genetics

1. Normal and abnormal chromosomes
Human Chromosomes - Structure, number and classification
Chromosome abnormalities including syndromes
Prenatal diagnosis, Genetic Counselling
2. Recent advances in human anatomy and clinical anatomy.

**PRACTICAL
YEAR - III**

1. Dissection & demonstration of head- neck- face region.
2. Embryology of head & neck
3. Histology pertaining to the area
4. Dissection & demonstration of brain & its parts, spinal cord
5. Study of brain sections
6. Comparative Anatomy
7. Revision of osteology
8. Related surface marking & radiology
9. Histology techniques & embalming methods
10. Preparation of audiovisual aids for teaching, presentations of seminars & journal club.
11. Basic knowledge of computer
12. Submission of research project / thesis to the university six month before the final examination.

THESIS
YEAR - III

Guidelines

1. Each M.Sc. Medical student will carry out research work under the supervision of a faculty member (Guide) with post-M.D./ Ph.D. teaching experience of three years or more in the subject. However, a teacher with M.D/Ph.D. degree in the subject or related subjects shall be qualified for being taken in as Co-guide.
2. The Guide, will be allotted to each student at the commencement of second year. The student will prepare a Plan of Thesis under the supervision of the Guide, and submit it to the ethical committee within two months of commencement of second year the committee will convey approval/disapproval of the plan within one month.
3. In case the Plan is disapproved, a fresh Plan must be submitted within one month. After approval of the Plan, the student will begin work on the thesis.
4. The progress of work will be monitored regularly by the Guide. The thesis not exceeding 100 pages typed on A4 paper on one side only in double spacing is to be submitted to the university through the Guide six months before the date of III year University examination.
5. It will be evaluated by a panel of examiners (1 external & 1 internal at least) approved by the Vice Chancellor. The approval of the thesis by the panel will be a pre-requisite for the candidate to appear in the written/practical examination of III year. If the thesis is returned for revision, the suggested revision must be done and the revised thesis submitted for evaluation to the examiner (s) who has/have suggested for the revision.
6. After approval of revised thesis, the candidate can appear in the next 3rd year examination provided the approval is received one month before the examination. If the thesis is disapproved, the entire process from submission of a new Plan to submission of Thesis is to be repeated. On approval of new thesis, the candidate can appear in the next 3rd year examination provided there is a one month gap between the receipt of approval and commencement of examination.

Note: A student is required to submit four hard copies of the thesis along with the soft copy in the prescribed format given by the college.

Books recommended:-

List of books recommended

1. Gray's Anatomy for students by Drake etc
2. Cunningham's manual of Practical Anatomy vol-I, II & III by C.j. Romones, 15th Ed. 2003
3. Text book of human anatomy by B.D. Chourasia vol- I, II & III
4. Embryology for students by Inderbir Singh & G. Pal
5. Langman's clinical embryology by Sadler
6. Surface & radiological anatomy by A. Halim
7. Human histology by Inderbir Singh
8. Difiore's atlas of human histology, 11th Ed 2008

Reference books

1. Grays Anatomy 40th Ed. By Standring et al
2. Text book of neuro anatomy by Vishram Singh Grants method of anatomy, 11th Ed. 2004
3. Mc Gregor's synopsis of surgical anatomy by D 1 Du Plessis, 12th Ed. 1999
4. Clinical anatomy by Snell
5. Text book of histology by Ham
6. Regional anatomy by R.J. Last
7. Genetics in medicine 6th Edn, 2001 W.B. Saunder's & co Philadelphia, London.