

SUMANDEEP VIDYAPEETH

(Declared as Deemed to be University under Section 3 of the UGC Act 1956)

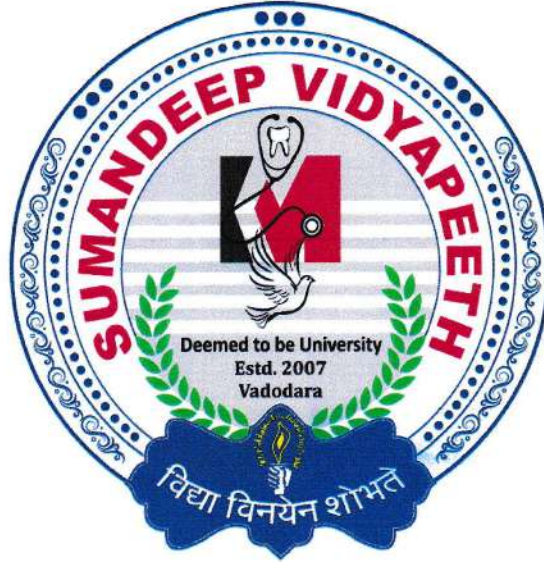
Accredited by NAAC with a CGPA of 3.53 out of four-point scale at 'A' Grade

Category – I deemed to be university under UGC Act - 2018

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CURRICULUM Master of Science (M.Sc) MEDICAL ANATOMY

Attested CTC

Sharaney
15/2/2021

Vice-Chancellor
Sumandeep Vidyapeeth
An Institution Deemed to be University
Vill. Piparia, Taluka: Waghodia.
Dist. Vadodara-391 760. (Gujarat)

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AMENDED UP TO DECEMBER -2020

M.Sc. Medical Anatomy

PROGRAMME OUTCOME : M.SC. MEDICAL

The Master of Science in Medical field provides the candidate with knowledge, general competence, and analytical skills on an advanced level, needed in consultancy, education, research.

Programme specific outcome : M.SC. MEDICAL

POS 1. A post graduate student after undergoing the required training should be able to deal with the allied departments and render services in advanced laboratory investigations.

POS 2. The PG student should acquire basic skills in teaching medical/para-medical students

POS 3. The student should have knowledge about the principles of research methodology and self-directed learning for continuous professional development.

POS 4. The student should be able to carry out a research project from planning to publication and be able to pursue academic interests.

COURSE OUTCOME (CO) :After completing the three year course in M.Sc. Anatomy the student shall have achieved competence in the following:

1. Acquire competencies in gross and surface anatomy, neuroanatomy, embryology, genetics, histology, radiological anatomy, applied aspects and recent advances of the above mentioned branches of anatomy to clinical practice. These are given in detail in subsequent sections.
2. Acquire mastery in dissection skills, embalming, tissue preparation, staining and museum preparation.
3. Acquire skills in teaching, research methodology, epidemiology & basic information technology.
4. Acquire knowledge in the basic aspects of Biostatistics and research methodology. Has knowledge to plan the protocol of a thesis, carry out review of literature, execution of research project and preparation of report.
5. Has ability to use computer applications Microsoft office (Microsoft word, excel, power point), Internet, Searching scientific databases (e.g. PubMed, Medline, Cochrane reviews). Acquire skills in paper & poster preparation, writing research papers and Thesis.
6. Develop honest work ethics and empathetic behavior with students and colleagues.
7. Acquire capacity of not letting his/her personal beliefs, prejudices, and limitations come in the way of duty. Acquire attitude and communication skills to interact with colleagues, teachers and students.
8. Practicing different methods of teaching-learning. Making presentations of the subject topics and research outputs.

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9. Demonstrate the ability to identify applied implications of the knowledge of anatomy and discuss information relevant to the problem, using
10. consultation, texts, archival literature and electronic media. Demonstrate the ability to correlate the clinical conditions to the anatomical /embryological /hereditary factors. Demonstrate the ability to evaluate scientific/clinical information and critically analyze conflicting data and hypothesis.

PART-1 SYLLABUS

HUMAN ANATOMY

Objectives:

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

- 1) Acquire the knowledge of structure of human body in general.
- 2) Understand the regional anatomy in detail.
- 3) Understand its application in medical science

S. No		
	UNIT – I (Organization) 5	
1	Terms, terminology, planes	
2	Human cell	
3	Cell division – mitosis, meiosis	
4	Tissues of the body (General) Epithelial tissue	
5	Glands, mucous membrane. Applied	
	UNIT – II (Skeletal system) 6	
6	Bones – I - classification	
7	Bones – II - classification	
8	Bone formation & growth	
9	Classification joints	
10	Demo bone	
11	Synovial joint & applied	
	UNIT – III (Muscular tissue) 4	
12	Muscle classification – I	
13	Muscle classification – II	
14	Muscle groups, action & nerve supply	
15	Muscle – applied	
	UNIT – IV (Nervous system) 6	
16	Neuron & Neuroglia	
17	Spinal cord & its structure	
18	Spinal nerves & Cranial nerves	
19	Parts of brain & major functions	
20	Autonomic nervous system, Anatomical aspect	
21	Applied of nervous system	
	UNIT – V (Sensory organs) 7	
22	Skin	
23	Eye	
24	Ear	
25	Nose	
26	Tongue	
27	Auditory & Olfactory apparatus	
28	Applied	

Attested ETC

Signature
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	UNIT – VI (Circulation & Lymphatic) 8	
29	Systemic, Pulmonary, Portal	
30	Heart, chambers, valves	
31	Coronary circulation, Venous drainage, applied	
32	Major branches of aorta, major veins, pulse	
33	Lymphoid tissue classification, structure I	
34	Lymphoid tissue classification, structure II	
35	Lymphatic drainage, lymphatic trunks	
36	Applied	
	UNIT – VII (Respiratory system) 4	
37	Upper respiratory tract	
38	Pleura & lung & structure	
39	Bronchopulmonary segments, Para nasal sinuses	
40	Applied	
	UNIT – VIII (Digestive system) 6	
41	Tongue, Pharynx, oesophagus	
42	Stomach, Duodenum	
43	Liver, Gall bladder, Pancreas	
44	Jejunum, Ileum, Appendix	
45	Colon, Rectum, Anal canal	
46	Applied	
	UNIT – IX (Urinary system) 6	
47	Kidney gross	
48	Kidney structure	
49	Ureter, Urinary bladder gross	
50	Ureter, Urinary bladder structure	
51	Urethra – male & female	
52	Applied	
	UNIT – X (Endocrine system) 5	
53	Thyroid gross, structure	
54	Suprarenal gross, structure	
55	Pituitary gross, structure	
56	Pancreas, Parathyroid	
57	Applied	
	UNIT – XI (Reproductive system)	
58	Structure female reproductive system	
59	Structure male reproductive system	
60	Structure of mammary gland	

M.Sc. Part I: Scheme of Examination

N.B. theory only no Practical Examination

Two internal assessments tests, one each at the end First and Second term respectively.

One preliminary examination at the end the third Term, consisting of full course.

Internal credit marks: 30 credit marks.

(Best of two internal test and preliminary examination)

Final university Examination
One paper : 70 marks

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Credit marks : 30 marks
Total marks : 100 marks

Passing standard : 50%

*To introduce 3 years duration of M.Sc Medical from academic year 2020-21 onwards.
(Board of Studies letter no.: SBKSMIRC/Dean/2234, dated 23/12/2019 and Vide Notification
of Board of Management Resolution Ref: No. SVDU/NOTYN/061/2019-20 dated 02/03/2020*

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**SUMANDEEP UNIVERSITY
SBKS MEDICAL INSTITUTE & RESEARCH CENTER
MSc (Medical) PART-1 UNI EXAM PAPER PATEERN
ANATOMY**

DATE

TIME: 3HRS

NOTES:

1. ANSWER SHOULD BE BREIF AND TO THE POINT
2. DRAW DIAGRAM WHERE EVER REQUIRED
3. EACH SECTION SHOULD BE WRITTEN SEPARATE ANSWER BOOK
4. FIGURE ON THE RIGHT INDICATE FULL MARKS

MAX. MARKS: 70

SECTION-1

1. Describe brief any two (15)
 - a)
 - b)
 - c)
2. Describe brief any two (10)
 - a)
 - b)
 - c)
3. write short notes on any two (10)
 - a)
 - b)
 - c)

SECTION-II

4. Describe brief any two (15)
 - a)
 - b)
 - c)
5. Describe brief any two (10)
 - a)
 - b)
 - c)
6. write short notes on any two (10)
 - a)
 - b)
 - c)

**M.Sc. Medical Anatomy
PART-2 SYLLABUS**

SUBJECT SPECIFIC LEARNING OBJECTIVES

The **Goal** of MSc part II Anatomy is to train a person to become a competent teacher and researcher in Anatomy who:

1. Is aware of *contemporary advances and developments* in the field of Anatomy.
2. Has *acquired the competencies* pertaining to the subject of Anatomy that are required to be practiced at all levels of health system.
3. Has *acquired the principles of research methodology*
4. Has *acquired skills in educating* medical and paramedical professionals
5. Has *acquired skills in effectively communicating* with the students and colleagues from various medical and paramedical fields
6. Has *acquired skills of integrating* anatomy with other disciplines as and when needed.

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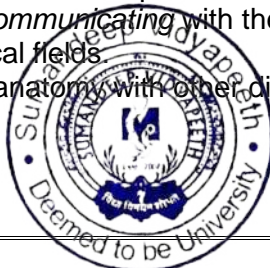
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7. Has acquired qualities of a good teacher capable of innovations in teaching methodology.
8. Has been able to demonstrate adequate management skills to function as an effective leader of the team engaged in teaching and research.

Syllabus

A MSc part II student (Anatomy) should have acquired knowledge in the following aspects of anatomy:

Gross anatomy

Section – I

Gross Anatomy of entire body including upper limb, lower limb, thorax, abdomen, pelvis, perineum, head and neck, brain and spinal cord

Section - 2

Developmental anatomy/embryology

- General embryology: gametogenesis, fertilization, implantation and placenta, early human embryonic development.
- Systemic embryology: development of organ systems and associated common congenital abnormalities with teratogenesis.
- Physiological correlations of congenital anomalies.

Section - 3

Histology and histochemistry

Cell Biology:

- Cytoplasm - cytoplasmic matrix, cell membrane, cell organelles, cytoskeleton, cell inclusions, cilia and flagella.
- Nucleus - nuclear envelope, nuclear matrix, DNA and other components of chromatin, protein synthesis, nucleolus, nuclear changes indicating cell death.
- Cell cycle - mitosis, meiosis, cell renewal.
- Cellular differentiation and proliferation.
- **Microscopic structure of the body:**
- Principles of light, transmission and scanning, electron, fluorescent, confocal and virtual microscopy.
- The systems/organs of body - Cellular organization, light and electron microscopic features, structure - function correlations, and cellular organization.

Section - 4

Neuroanatomy:

- Brain and its environment, Development of the nervous system, Neuron and Neuroglia, Somatic sensory system, Olfactory and optic pathways, Cochleo vestibular and gustatory pathways, Motor pathways, Central autonomic pathways, Hypothalamo-hypophyseal system, Limbic system, Basal ganglia, Reticular system, Cross Sectional anatomy of brain and spinal cord.
- Detailed structure of the central nervous system and its applied aspect.

Section - 5

Genetics

- Human Chromosomes - Structure, number and classification, methods of chromosome preparation banding patterns. Chromosome abnormalities, Autosomal and Sex chromosomal abnormalities syndromes, Molecular and Cytogenetics.
- Single gene pattern inheritance: Autosomal and Sex chromosomal pattern of inheritance, Intermediate pattern and multiple alleles, Mutations, Non-Mendelian inheritance, Mitochondrial inheritance, Genome imprinting, parental disomy.
- Multifactorial pattern of inheritance: Criteria for multifactorial inheritance, Teratology, Structure gene, Molecular Screening, Cancer Genetics - Haematological malignancies, Pharmacogenetics.
- Reproduction Genetics - Male and Female infertility, Abortions, Assisted reproduction, Preimplantation genetics, Prenatal diagnosis, Genetic Counselling and Ethics of Genetics.

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- Principles of Gene therapy and its applied knowledge.

Section - 6

Applied anatomy and recent advances

- Clinical correlations of structure and functions of human body. Anatomical basis and explanations for clinical problems.
- Applications of knowledge of development, structural (microscopy), neuroanatomy to comprehend deviations from normal.
- Recent advances in medical sciences which facilitate comprehension of structure function correlations and applications in clinical problem solving.
- Collection, maintenance and application of stem cells, cryobanking and principles of organ donation from recently dead bodies.

Section - 7

• Surface Marking and Radiology

Surface marking of all regions of the body. Interpretation of normal radiographs of the body including special contrast procedures including barium studies, cholecystography, pyelography, salpingography. Normal CT Scan, MRI and Ultrasound.

Section - 8

• Anthropology

Different anthropological traits, Identification and use of Anthropological instruments.

• Forensic Medicine:

Identification of human bones from their remains and determination of sex, age, and height. for medico legal application of Anatomy.

- **Outline of comparative anatomy of the whole body and basic human evolution**

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