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
At & Post Piparia, Tal: Waghodia 391760 (Gujarat) India.
Ph: 02668-245262/64/66, Telefax: 02668-245126,
Website: www.sumandeepvidyapeethdu.edu.in

Attested CTC

15/2/2021

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

CURRICULUM

Master of Science
(M.Sc)
MEDICAL ANATOMY

2015

Dean

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.

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 – I I - 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**	

	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

Credit marks : 30 marks
Total marks : 100 marks

Passing standard : 50%

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. Is oriented to 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.

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 commoncongenital 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 ofchromatin, 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, confocaland virtual microscopy.
- The systems/organs of body - Cellular organization, light and electronmicroscopic features, structure - function correlations, and cellularorganization.

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 ofchromosome 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, Assistedre production, Preimplantation genetics, Prenatal diagnosis, Genetic Counselling and Ethics of Genetics.

- Principles of Gene therapy and its applied knowledge.

Section - 6

Applied anatomy and recent advances

- Clinical correlations of structure and functions of human body. Anatomicalbasis and explanations for clinical problems.
- Applications of knowledge of development, structural (microscopy), neuroanatomy tocomprehend deviations from normal.
- Recent advances in medical sciences which facilitate comprehension ofstructure function correlations and applications in clinical problem solving.
- Collection, maintenance and application of stem cells, cryobanking andprinciples 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 includingbarium studies, cholecystography, pyelography, salpingography. Normal CTScan, MRI and Ultrasound.

Section - 8

- **Anthropology**

Different anthropological traits, Identification and use of Anthropologicalinstruments.

- **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 humanevolution**

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