

Teerthanker Mahaveer University
Teerthanker Mahaveer Medical College & Research Centre

M.Sc. Medical Anatomy

Programme Outcome

PO-1	:	Dissect and identify the organs and know the anatomical relations.
PO-2	:	Identify normal histology slides.
PO-3	:	Know development of organs.
PO-4	:	Study of functional, sectional and radiological anatomy and structure of whole human body.
PO-5	:	To identify the organs and tissues by processing and studying under microscope.
PO-6	:	Understand the principals of karyotyping and identify the gross congenital anomalies.
PO-7	:	Explain principles of gene therapy and its applied knowledge.
PO-8	:	Describe immune system and cell types involved in defense mechanisms of the body. Also explain gross features, cytoarchitecture, functions, development and histogenesis of various primary and secondary lymphoid organs in the body.

Course Outcomes

M.Sc. Medical 1st Year

Course code	Course Title	Credit
MSC101	Basics of Anatomy	7

1. Understanding the basics of gross anatomy.
2. Understanding the biology of cells and tissues.
3. Analysing different types of Genetics and their applications
4. Able to show anatomical relation of various organs.
5. Able to answer genetic basis of various developmental anomalies.

Course code	Course Title	Credit
MSC102	Basics of Physiology	6

1. Understanding the working of internal organ and system.
2. Understanding the anatomy of different organs
3. Understanding the physiological functions of the biological systems
4. Application of functioning aspects of the human body at molecular level.

Course code	Course Title	Credit
MSC103	Basics of Biochemistry	5

1. Analysing the concepts of electrolytes and electrolytic dissociation, pH and its biological significance, buffers, Henderson-Hasselbalch equation, biological buffer systems and their importance.

2. Understanding the laws of thermodynamics, concepts of entropy, enthalpy and free energy changes and their application to biological systems and various biochemical studies and reactions.
3. Understanding the aerobic and anaerobic respiration and various intermediary mechanisms involved, oxidative phosphorylation

Course code	Course Title	Credit
MSC104	Research Methodology	1

1. Understanding the use and application of the methods of data collection and analysis.
2. Critically evaluating research methodology and findings.
3. Applying their role and others' roles as researchers.

Course code	Course Title	Credit
MSC151	Basics of Anatomy (Lab)	3

1. Understanding gross anatomy of entire body including upper limb, lower limb, thorax, abdomen, pelvis, perineum, head and neck, brain and spinal cord.
2. Understanding the normal disposition of gross structure and their interrelationship in the human body.
3. Analysing the integrated functions of organs systems and locate the site of gross lesions according to deficits encountered.
4. Analysing the process of gametogenesis, fertilization, implantation and placenta formation in early human embryonic development along with its variation and applied anatomy.

Course code	Course Title	Credit
MSC152	Basics of Physiology	3

1. Understanding all aspect of general and applied physiology and general principles of medical education.
2. Applying the basic physiological mechanisms of human body with reference to their implications in the pathophysiology of diseases, their diagnosis, treatment and management.
3. Conducting clinical and experimental research and interpret relevant findings.

Course code	Course Title	Credit
MSC153	Basics of Biochemistry	2

1. Understanding the concepts of electrolytes and electrolytic dissociation, pH and its biological significance, buffers, Henderson-Hasselbalch equation, biological buffer systems and their importance.
2. Understanding the laws of thermodynamics, concepts of entropy, enthalpy and free energy changes and their application to biological systems and various biochemical studies and reactions.
3. Understanding aerobic and anaerobic respiration and various intermediary mechanisms involved oxidative phosphorylation.

Course code	Course Title	Credit
MSA 201	Anatomy I	5

1. Identify, locate and demonstrate surface marking of clinically important structures in the cadaver and correlate it with living anatomy.
2. Acquire mastery in dissection skills, embalming, tissue preparation, and staining and museum preparation.
3. Locate and identify clinically relevant structures in dissected cadavers.
4. Locate and identify cells & tissues under the microscope.

Course code	Course Title	Credit
MSA 202	Anatomy II	5

1. Identify important structures visualized by imaging techniques, specifically radiographs, computerized tomography (CT) scans, MRI and ultrasonography.
2. Identify various movements at the important joints and actions of various groups of muscles in the human body
3. Identify different methods of teaching-learning and make presentations of the subject topics and research outputs

Course code	Course Title	Credit
MSA 251	Anatomy practical I	12

1. Demonstrate knowledge about recent advances in medical sciences which facilitate comprehension of structure function correlations and applications in clinical problem solving.
2. Demonstrate knowledge about surface marking of all regions of the body.
3. Demonstrate knowledge about outline of comparative anatomy of whole body and basic human evolution

Course code	Course Title	Credit
MSA 301	Anatomy III	5

1. Identify, locate and demonstrate surface marking of clinically important structures in the cadaver and correlate it with living anatomy.
2. Acquire mastery in dissection skills, embalming, tissue preparation, and staining and museum preparation.
3. Locate and identify clinically relevant structures in dissected cadavers.
4. Locate and identify cells & tissues under the microscope.

Course code	Course Title	Credit
MSA 302	Anatomy IV	5

1. Identify important structures visualized by imaging techniques, specifically radiographs, computerized tomography (CT) scans, MRI and ultrasonography.
2. Identify various movements at the important joints and actions of various groups of muscles in the human body
3. Identify different methods of teaching-learning and make presentations of the subject topics and research outputs

Course code	Course Title	Credit
MSA 351	Anatomy practical II	12

1. Demonstrate knowledge about outline of comparative anatomy of whole body and basic human evolution
2. Demonstrate knowledge about identification of human bones, determination of sex, age, and height for medico legal application of anatomy

Teaching Methodology

Course code	Course Title	Credit
MSC 201	Teaching Methodology	3

1. Understand various teaching modalities.
2. Apply experiments related to the subject.
3. Apply skills required for teaching to undergraduate students.

Fundamental of Computer

Course code	Course Title	Credit
MSC 251	Fundamental of Computer	1

1. Apply computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing and data analytics of varying complexity.
2. Apply the contemporary trends in industrial/research settings and there by innovate novel solutions to existing problems.
3. Identify, analyze, and synthesize scholarly literature relating to the field of computer science.
4. Apply software development tools, software systems, and modern computing platforms.

Teaching practice

Course code	Course Title	Credit
MSC 351	Teaching practice	3

1. Understand teaching methods required for explaining the subject.
2. Build ability to communicate well to students
3. Apply practical skills required for demonstration/teaching.

Thesis

Course code	Course Title	Credit
MSA, MSF, MSB, MSM, MSP 352	Thesis	12

1. Develop deeper knowledge, understanding, capabilities and attitudes in the context of the programme of study.
2. Delve more deeply into and synthesise knowledge acquired in previous studies. A thesis for a Master of Science programmes should place emphasis on the technical/scientific/artistic aspects of the subject matter.
3. Display the knowledge and capability required for independent work as a Master of Science.
4. Plan and use adequate methods to conduct qualified tasks in given frameworks and to evaluate this work.
5. Contribute to research and development work