

**Medical College & Research Centre
Teerthanker Mahaveer University**

M.Sc. Medical Physiology

Programme Outcome

PO-1	:	Describe the various interactions between biomolecules, bonds, biophysics, and catalysis.
PO-2	:	Gain sufficient knowledge in molecular interactions for the better understanding of structural biology.
PO-3	:	Carry out all human and animal experiments by computer assisted simulation models / facilities as permissible by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines.
PO-4	:	Function as a member of a teaching, administrative or research team.

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
MSF 201	Physiology I	5

1. This course teaches the basic anatomy and physiology of human body.

2. The students are taught the functioning aspects of the human body at molecular level.
3. At the end of this course the students will be able to appreciate the anatomical and physiological aspects of the human body.

Course code	Course Title	Credit
MSF 202	Physiology II	5

1. This course describes the various interactions between biomolecules, bonds, biophysics, and catalysis.
2. Student would have gained sufficient knowledge in molecular interactions for the better understanding of structural biology.

Course code	Course Title	Credit
MSF 251	Physiology practical I	12

1. Acquire administrative skills to set up departmental laboratories and initiate purchase procedure.
2. Carry out all human and animal experiments by computer assisted simulation models / facilities as permissible by Committee for the Purpose of Control and Supervision of Experiments on Animals (CPCSEA) guidelines.
3. Function as a member of a teaching, administrative or research team.

Course code	Course Title	Credit
MSF 301	Physiology III	5

1. Appreciate rationale for different therapeutic modalities and be familiar with the administration of essential drugs and their common side effects.
2. Be able to appreciate the socio-psychological, cultural, economic and environmental factors affecting health and develop humane attitudes towards patients in discharging their professional responsibilities.

Course code	Course Title	Credit
MSF 302	Physiology IV	5

1. Be competent in the diagnosis and management of common health problems of the individual and the community, commensurate with his/her position as a member of the health team at the primary, secondary or tertiary levels, using his/her clinical skills based on history, physical examination and relevant investigations.
2. Be competent to practice preventive, promotive, curative and rehabilitative medicine in respect to the commonly encountered health problems.

Course code	Course Title	Credit
MSF 201	Physiology practical II	12

1. The paper covers the working of internal organ and system.
2. The students will be exposed to anatomy of different organs
3. Paper helps the students to understand the physiological functions of the biological systems

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