



**T.C.**

**LOKMAN HEKİM UNIVERSITY**

**FACULTY OF MEDICINE**

**PHASE – I**

**2023-2024 EDUCATION TEACHING GUIDE**



**T.R.**  
**LOKMAN HEKIM UNIVERSITY MEDICAL FACULTY**

**PHASE I COURSES and ECTS**

| CODE                                           | COMPULSORY COURSES                                         | T          | P          | TC         | ECTS      |
|------------------------------------------------|------------------------------------------------------------|------------|------------|------------|-----------|
| <b>MED-100</b>                                 | <b>BASIC MEDICAL SCIENCE – I (Phase I)</b>                 | <b>431</b> | <b>107</b> | <b>536</b> | <b>33</b> |
| <i>RAPPORT101</i>                              | <i>Adaptation to University Life</i>                       | <i>1</i>   | <i>0</i>   | <i>1</i>   | <i>0</i>  |
| <i>21010001</i>                                | <i>Introduction to Medicine</i>                            | <i>75</i>  | <i>12</i>  | <i>87</i>  | <i>6</i>  |
| <i>21010002</i>                                | <i>Cell Organization and Metabolism</i>                    | <i>102</i> | <i>14</i>  | <i>116</i> | <i>7</i>  |
| <i>21010003</i>                                | <i>Introduction to Tissue Biology and Locomotor System</i> | <i>75</i>  | <i>28</i>  | <i>103</i> | <i>6</i>  |
| <i>21010004</i>                                | <i>Locomotor System I</i>                                  | <i>51</i>  | <i>22</i>  | <i>73</i>  | <i>5</i>  |
| <i>21010005</i>                                | <i>Locomotor System-II and Skin</i>                        | <i>59</i>  | <i>11</i>  | <i>70</i>  | <i>5</i>  |
| <i>21010006</i>                                | <i>Scientific and Clinical Approaches</i>                  | <i>35</i>  | <i>17</i>  | <i>52</i>  | <i>4</i>  |
| 100103                                         | Information Technologies                                   | 2          | 0          | 2          | 2         |
| 100102                                         | Turkish Language and Literature I                          | 2          | 0          | 2          | 2         |
| 100202                                         | Turkish Language and Literature II                         | 2          | 0          | 2          | 2         |
| 100101                                         | Ataturk's Principles and History of Revolution I           | 2          | 0          | 2          | 2         |
| 100201                                         | Ataturk's Principles and History of Revolution II          | 2          | 0          | 2          | 2         |
| <b>TOTAL ECTS COMPULSORY</b>                   |                                                            |            |            |            | <b>43</b> |
|                                                |                                                            |            |            |            |           |
|                                                | ELECTIVE COURSES                                           | T          | P          | C          | ECTS      |
|                                                | University Elective 1                                      | 2          | 2          | 3          | 3         |
|                                                | University Elective 2                                      | 2          | 2          | 3          | 3         |
|                                                | University Elective 3                                      | 2          | 2          | 3          | 3         |
|                                                | University Elective 4                                      | 2          | 2          | 3          | 3         |
|                                                | Faculty Elective 1                                         | 2          | 0          | 2          | 4         |
|                                                | Faculty Elective 2                                         | 3          | 0          | 3          | 4         |
|                                                | Faculty Elective 3                                         | 1          | 1          | 2          | 4         |
|                                                | Faculty Elective 4                                         | 2          | 0          | 2          | 4         |
| <b>TOTAL ECTS TO BE COLLECTED AS ELECTIVES</b> |                                                            |            |            |            | <b>22</b> |
| <b>TOTAL ECTS TO BE COLLECTED IN PHASE I</b>   |                                                            |            |            |            | <b>65</b> |



## PHASE I OBJECTIVES AND LEARNING OUTCOMES

### **Aim:**

During this period, the cell, which is the most essential unit in medical education, will be covered in detail. It is aimed at upskilling our students by the fundamentals of basic chemical and biological structures forming the organism, the concept of cell, which is the smallest structural and functional unit of living organisms, the basic structure of the tissue and skeletal system, the dynamics and general working principles of the system, basic communication skills, the importance of scientific research and methods of accessing scientific information and the approach and basic professional skills in social medicine.

### **Learning Objectives:**

1. Defines the basic structure and functions of the cell.
2. Explains the interaction between cells, receptors, messenger systems and their functions.
3. Explains the role of the cell cycle in the growth and development stages of the organism and its importance in terms of the homeostasis of the organism.
4. Defines the structure, function and metabolism of biomolecules.
5. Explains the structure, synthesis and function of hereditary material.
6. Explains the basic processes, molecular mechanisms and regulation required for homeostasis.
7. Learns the basic histological examination methods and the use of microscope.
8. Distinguishes different cells and tissues with their structural and histochemical properties at the light microscope level.
9. Classifies microorganisms as disease agents, defines their general characteristics, has information about contamination and protection.
10. Discusses the importance of embryology and its place among other disciplines.
11. Explains the concept of basic health.
12. Recognizes the structures related to the movement system, explains the peripheral nervous system and the relationships between them and the peripheral vascular system.
13. Interprets the basic information about the movement system clinically.
14. Applies the necessary basic professional skill techniques in clinical practice.
15. Defines the sources for accessing information.
16. Explains the importance of being scientific in medicine.



## INTRODUCTION TO MEDICINE COURSE COMMITTEE

| COURSES                               | THEORETICAL<br>COURSE<br>DURATION (h) | PRACTICAL<br>COURSE<br>DURATION(h) | TOTAL<br>COURSE<br>DURATION<br>(h) |
|---------------------------------------|---------------------------------------|------------------------------------|------------------------------------|
| 21010001-01 Introduction to Committee | 2                                     | 0                                  | 2                                  |
| 21010001-02 Anatomy                   | 5                                     | 0                                  | 5                                  |
| 21010001-03 Biophysics                | 10                                    | 0                                  | 10                                 |
| 21010001-04 Physiology                | 2                                     | 0                                  | 2                                  |
| 21010001-05 Public Health             | 8                                     | 0                                  | 8                                  |
| 21010001-06 Medical Biochemistry      | 27                                    | 6                                  | 33                                 |
| 21010001-07 Medical Biology           | 21                                    | 6                                  | 27                                 |
| <b>TOTAL</b>                          | <b>75</b>                             | <b>12</b>                          | <b>87</b>                          |

### AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE

#### Aim:

By the end of this phase, where the information on compliance with the medical education process and introduction to basic sciences is explained, our students; will learn basic anatomical terminology, learn about medical history and basic health concepts and physician-patient communication, and comprehend the basic chemical and biological structure of the organism.

#### Learning Objectives:

1. Gains knowledge of the structure, functions and metabolism of biomolecules by acquiring knowledge of organic chemistry.
2. Defines the structural features in organic molecules.
3. Can name organic compounds based on their functional groups.
4. Classifies organic compounds according to their structural properties.
5. Learns the basic concepts of molecular biology and genetics.
6. Understands the structure, synthesis and function of hereditary material.
7. Gains knowledge about the damages in genetic material, its causes and its place in medicine.
8. Explains the basic principles of biophysics.
9. Explains the functions of living systems with a mathematical approach, explains the resting state of the mammalian cell membrane.
10. Learns the basic anatomical terminology.
11. Defines the basic grammatical features of the words in medical terminology.
12. Understands the basic processes, molecular mechanisms and regulation required for homeostasis.



13. Explains the concept of basic health.
14. Makes a general explanation about the history of medicine from past to present.
15. Explains patient-doctor communication.
16. Defines important problems in terms of public health.
17. Interprets the important elements of communication in health.

## TOPICS

| ANATOMY                                                                                                                              |             |      |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------|------|
| Topic                                                                                                                                | Type        | Time |
| Introduction to medical terminology                                                                                                  | Theoretical | 1    |
| Latin grammar: Basic knowledge structure, pronunciation and spelling                                                                 | Theoretical | 1    |
| Latin grammar: Noun, adjective, noun phrase, adjective phrase, comparison in adjectives (ranking), reduction in meaning              | Theoretical | 1    |
| Latin grammar: Nouns derived from verbs, adjectives derived from nouns, adjectives derived from verbs, compound nouns and adjectives | Theoretical | 1    |
| Abbreviations, singular and plural, prepositions, prefixes and suffixes                                                              | Theoretical | 1    |
| BIOPHYSICS                                                                                                                           |             |      |
| Topic                                                                                                                                | Type        | Time |
| Introduction to biophysics and general concepts                                                                                      | Theoretical | 1    |
| Living things as an open system approach                                                                                             | Theoretical | 1    |
| Principles of matter and energy transport in biological systems                                                                      | Theoretical | 1    |
| Its role in water and biological systems                                                                                             | Theoretical | 1    |
| Energy conversions in biological systems and biomolecules                                                                            | Theoretical | 1    |
| Basic principles of thermodynamics and biological systems                                                                            | Theoretical | 1    |
| Biophysical foundations of diffusion and osmosis processes in biological systems                                                     | Theoretical | 2    |
| The bioelectrical processes in living systems                                                                                        | Theoretical | 2    |
| PHYSIOLOGY                                                                                                                           |             |      |
| Topic                                                                                                                                | Type        | Time |
| Introduction to physiology and the concept of homeostasis                                                                            | Theoretical | 2    |
| PUBLIC HEALTH                                                                                                                        |             |      |
| Topic                                                                                                                                | Type        | Time |
| Individual and social communication in health                                                                                        | Theoretical | 2    |
| Physician rights                                                                                                                     | Theoretical | 1    |
| The concepts of health and disease                                                                                                   | Theoretical | 1    |
| Success stories in public health                                                                                                     | Theoretical | 1    |
| Critical thinking in healthcare                                                                                                      | Theoretical | 1    |



|                                                                                   |             |             |
|-----------------------------------------------------------------------------------|-------------|-------------|
| Evidence-based medicine                                                           | Theoretical | 1           |
| Tobacco control                                                                   | Theoretical | 1           |
| <b>MEDICAL BIOCHEMISTRY</b>                                                       |             |             |
| <b>Topic</b>                                                                      | <b>Type</b> | <b>Time</b> |
| Carbon atom bonds, molecular geometry and their charges                           | Theoretical | 1           |
| The structural formulas of organic compounds and the concept of functional groups | Theoretical | 2           |
| Isomerization of organic compounds                                                | Theoretical | 1           |
| Reactive species and basic reaction mechanisms in organic chemistry               | Theoretical | 1           |
| The concept of acidity and basicity in organic chemistry                          | Theoretical | 2           |
| Amino acids                                                                       | Theoretical | 4           |
| Solution preparation                                                              | Practical   | 2           |
| Protein structure                                                                 | Theoretical | 2           |
| Globular proteins                                                                 | Theoretical | 2           |
| Fibrous proteins                                                                  | Theoretical | 2           |
| Enzymes I                                                                         | Theoretical | 2           |
| Enzymes II                                                                        | Theoretical | 2           |
| Amino acid separation by paper chromatography                                     | Practical   | 2           |
| Bioenergetics and Oxidative Phosphorylation                                       | Theoretical | 4           |
| Spectrophotometer and spectrophotometric measurements                             | Practical   | 2           |
| Nucleotide Metabolism                                                             | Theoretical | 2           |
| <b>MEDICAL BIOLOGY</b>                                                            |             |             |
| <b>Topic</b>                                                                      | <b>Type</b> | <b>Time</b> |
| Introduction to medical biology                                                   | Theoretical | 1           |
| Nucleic acids: Nucleotides, DNA and RNA                                           | Theoretical | 2           |
| Structure and function of DNA                                                     | Theoretical | 1           |
| DNA synthesis and its control                                                     | Theoretical | 1           |
| DNA packaging and the chromatin structure                                         | Theoretical | 1           |
| Isolation of DNA                                                                  | Practical   | 2           |
| Mutations and their mechanisms                                                    | Theoretical | 2           |
| DNA repair                                                                        | Theoretical | 2           |
| Transcription                                                                     | Theoretical | 2           |
| RNA structure and types                                                           | Theoretical | 2           |
| Genetic control mechanisms                                                        | Theoretical | 2           |
| Epigenetic mechanisms and cellular control mechanisms                             | Theoretical | 2           |
| DNA analysis by electrophoresis                                                   | Practical   | 2           |
| Amplification of DNA by Polymerase Chain Reaction                                 | Practical   | 2           |
| Genetic code and protein synthesis                                                | Theoretical | 3           |



## CELL ORGANIZATION AND METABOLISM COMMITTEE

| COURSES                               | THEORETICAL<br>COURSE<br>DURATION (h) | PRACTICAL<br>COURSE<br>DURATION (h) | TOTAL<br>COURSE<br>DURATION (h) |
|---------------------------------------|---------------------------------------|-------------------------------------|---------------------------------|
| 21010002-01 Introduction to Committee | 1                                     | 0                                   | 1                               |
| 21010002-02 Biophysics                | 16                                    | 0                                   | 16                              |
| 21010002-03 Physiology                | 10                                    | 0                                   | 10                              |
| 21010002-04 Histology and Embryology  | 10                                    | 6                                   | 16                              |
| 21010002-05 Medical Biochemistry      | 35                                    | 4                                   | 39                              |
| 21010002-06 Medical Biology           | 30                                    | 4                                   | 34                              |
| <b>TOTAL</b>                          | <b>102</b>                            | <b>14</b>                           | <b>116</b>                      |

### AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE

#### Aim:

At the end of this committee, they will learn about the smallest structural and functional unit of living organism, cell and genetic material, genetic mechanisms that control the formation and survival of normal structure, nucleic acid metabolism and cellular concepts related with basic sciences.

#### Learning Objectives:

1. Learns the basic histological examination methods and the use of microscope.
2. Distinguish different cells with their structural and histochemical features at the light microscope level.
3. Knows the principles of processing, protection and transmission of genetic information through generations.
4. Establishes the connection between the causes and consequences of errors and anomalies in genetic information.
5. Defines the basic structure and functions of the cell.
6. Explains the structure and functions of organelles and membranes in the cell.
7. Explains the cell membrane with electrical elements.
8. Explains cell physiology, interaction between cells, receptors, messenger systems and functions.
9. Explains the carbohydrate mechanism.
10. Classifies carbohydrates.
11. Defines lipid structure and metabolism.



12. Explains the role of the cell cycle in the growth and development stages of the organism and its importance in terms of homeostasis of the organism.
13. Explains the importance of apoptosis for the homeostasis of the organism.
14. Applies the basic professional skill techniques required in clinical practice.
15. Defines the sources of access to information.
16. Explains the importance of being scientific in medicine.

## TOPICS

| BIOPHYSICS                                                                                 |             |      |
|--------------------------------------------------------------------------------------------|-------------|------|
| Topic                                                                                      | Type        | Time |
| The electrical potential/potential difference in cells responses to electrical stimulation | Theoretical | 2    |
| The electric field across membranes                                                        | Theoretical | 2    |
| Discussion on thermodynamic processes on the transport of ions across cells                | Theoretical | 2    |
| The biophysical interpretation of Goldman-Hodgkin-Katz (GHK) equation                      | Theoretical | 2    |
| Excitability of the membrane: the concept of threshold potential                           | Theoretical | 1    |
| Action potential of cell membranes, excitability and refractory periods of cells           | Theoretical | 2    |
| Active conduction of membrane potential and action potential process in cells              | Theoretical | 1    |
| Factors affecting the action potential pattern                                             | Theoretical | 2    |
| The working principles and kinetic properties of ionic channels                            | Theoretical | 2    |
| PHYSIOLOGY                                                                                 |             |      |
| Topic                                                                                      | Type        | Time |
| Characteristics of the cell membrane                                                       | Theoretical | 2    |
| Substance transport across the cell membrane                                               | Theoretical | 2    |
| Interaction between cells                                                                  | Theoretical | 2    |
| Cell receptors and signal transduction                                                     | Theoretical | 2    |
| Cellular communications and secondary messengers                                           | Theoretical | 2    |
| HISTOLOGY AND EMBRIOLOGY                                                                   |             |      |
| Topic                                                                                      | Type        | Time |
| Introduction to histology, the types, working and handling principles of microscopes       | Theoretical | 2    |
| Routine histological laboratory techniques                                                 | Theoretical | 2    |
| Advanced histological laboratory techniques                                                | Theoretical | 1    |
| Digital Microscopy                                                                         | Practical   | 2    |



|                                                                           |             |             |
|---------------------------------------------------------------------------|-------------|-------------|
| Histochemical methods                                                     | Practical   | 2           |
| Histology of the human cell - I                                           | Theoretical | 2           |
| Histology of the human cell - II                                          | Theoretical | 2           |
| Histology: Cell types                                                     | Theoretical | 1           |
| Practice: Cell types                                                      | Practical   | 2           |
| <b>MEDICAL BIOCHEMISTRY</b>                                               |             |             |
| <b>Topic</b>                                                              | <b>Type</b> | <b>Time</b> |
| Introduction to Carbohydrates                                             | Theoretical | 2           |
| Carbohydrates Metabolism and Glycolysis                                   | Theoretical | 2           |
| Tricarboxylic Acid Cycle and Pyruvate Dehydrogenase Complex               | Theoretical | 2           |
| Gluconeogenesis                                                           | Theoretical | 2           |
| Glycogen Metabolism                                                       | Theoretical | 2           |
| Monosaccharide and Disaccharide Metabolism                                | Theoretical | 2           |
| Pentose Phosphate Pathway and Nicotinamide Adenine Dinucleotide Phosphate | Theoretical | 1           |
| Glycosaminoglycans, Proteoglycans, and Glycoproteins                      | Theoretical | 2           |
| Qualitative carbohydrate analysis                                         | Practical   | 2           |
| Structure of lipids                                                       | Theoretical | 2           |
| Dietary Lipid Metabolism                                                  | Theoretical | 1           |
| Fatty Acid, Triacylglycerol, and Ketone Body Metabolism                   | Theoretical | 4           |
| Phospholipid, Glycosphingolipid, and Eicosanoid Metabolism                | Theoretical | 2           |
| Cholesterol, Lipoprotein, and Steroid Metabolism                          | Theoretical | 4           |
| Amino Acids: Nitrogen Disposal                                            | Theoretical | 3           |
| Amino Acids: Degradation and Synthesis                                    | Theoretical | 2           |
| Amino Acids: Conversion to Specialized Products                           | Theoretical | 2           |
| Urine bilirubin and urobilinogen measurement                              | Practical   | 2           |
| <b>MEDICAL BIOLOGY</b>                                                    |             |             |
| <b>Topic</b>                                                              | <b>Type</b> | <b>Time</b> |
| Basic cell structure and multicellularity                                 | Theoretical | 2           |
| Membrane structure                                                        | Theoretical | 2           |
| Membrane transport mechanisms                                             | Theoretical | 2           |
| Cell skeleton                                                             | Theoretical | 2           |
| Structure of nucleus                                                      | Theoretical | 2           |
| Endoplasmic reticulum and Golgi apparatus                                 | Theoretical | 2           |
| Protein modification and targeting                                        | Theoretical | 2           |
| Vesicular traffic, secretion and endocytosis                              | Theoretical | 2           |
| Lysosomes and peroxisomes                                                 | Theoretical | 2           |
| Mitochondria and energy production                                        | Theoretical | 2           |



|                                             |             |   |
|---------------------------------------------|-------------|---|
| Intracellular signal transduction I         | Theoretical | 2 |
| Intracellular signal transduction II        | Theoretical | 2 |
| Cell division: Mitosis and meiosis          | Theoretical | 2 |
| Control of cell proliferation and neoplasia | Theoretical | 2 |
| Cell death: Apoptosis and other mechanisms  | Theoretical | 2 |
| Cell culture I                              | Practical   | 2 |
| Cell culture I                              | Practical   | 2 |



## INTRODUCTION TO TISSUE BIOLOGY AND LOCOMOTOR SYSTEM COMMITTEE

| COURSES                               | THEORETICAL COURSE DURATION (h) | PRACTICAL COURSE DURATION (h) | TOTAL COURSE DURATION (h) |
|---------------------------------------|---------------------------------|-------------------------------|---------------------------|
| 21010003-01 Introduction to Committee | 1                               | 0                             | 1                         |
| 21010003-02 Anatomy                   | 16                              | 12                            | 28                        |
| 21010003-03 Physiology                | 11                              | 2                             | 13                        |
| 21010003-04 Histology and Embryology  | 14                              | 8                             | 22                        |
| 21010003-05 Medical Biology           | 8                               | 0                             | 8                         |
| 21010003-06 Medical Biochemistry      | 4                               | 0                             | 4                         |
| 21010003-07 Medical Microbiology      | 21                              | 6                             | 27                        |
| <b>TOTAL</b>                          | <b>75</b>                       | <b>28</b>                     | <b>103</b>                |

### AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE

#### Aim:

At the end of this course board, Phase I students; they will learn basic information about the basic structure of the tissue and skeletal system, the concept of microbiology, microorganisms such as bacteria and viruses.

#### Learning Objectives:

1. Classifies microorganisms as disease agents, defines their general characteristics, has information about contamination and protection.
2. Explains the importance of the structural properties of fungi in the diagnosis and treatment of diseases.
3. Lists the structural features and replications of viruses.
4. Explains the importance of the structural features of parasites in the diagnosis and treatment of diseases they cause.
5. Defines tissues by classifying them.
6. Recognizes epithelium, connective, blood and lymph, cartilage and bone tissues at microscopic level, describes their structural features and the development of the skeletal system.
7. Defines the general composition and functions of blood.
8. Defines anatomy, anatomical terms and anatomical posture.
9. Have the ability to use tools and materials such as atlas, models, bones and cadavers to be used in theoretical and practical lessons.
10. Gains knowledge about the naming and structure of the bones that make up the human body, describe joint types and joint movements.



11. Defines cell connections, cell adhesion and intercellular matrix.
12. Explains the importance of the connections that cells establish with other cells and extracellular matrix in terms of tissue formation.
13. Explains the role of the extracellular matrix in terms of cell survival, differentiation, tissue formation and functions.
14. Explains the function of stem cells in the normal functioning of tissues by specifying their properties.

## TOPICS

| <b>ANATOMY</b>                                                                                                                                                    |             |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|
| <b>Topic</b>                                                                                                                                                      | <b>Type</b> | <b>Time</b> |
| Introduction to anatomy, the place of anatomy in medical education, its aims and objectives, terms of body regions, body lines, planes, movements, and directions | Theoretical | 2           |
| Osteology (osteology; bone science) and chondrologia (chondrology; cartilage science): general information                                                        | Theoretical | 2           |
| Pectoral arch bones and upper extremity bones and clinic anatomy                                                                                                  | Theoretical | 2           |
| Pectoral arch bones and upper extremity bones                                                                                                                     | Practical   | 2           |
| Bones of lower extremity and the pelvis                                                                                                                           | Theoretical | 2           |
| Vertebral column, costae and sternum                                                                                                                              | Theoretical | 2           |
| Bones of lower extremity and the pelvis                                                                                                                           | Practical   | 2           |
| Vertebral column, costae and sternum                                                                                                                              | Practical   | 2           |
| Cranium: Neurocranium                                                                                                                                             | Theoretical | 2           |
| Cranium: Viscerocranium                                                                                                                                           | Theoretical | 2           |
| Cranium: Neurocranium                                                                                                                                             | Practical   | 2           |
| Cranium: Viscerocranium                                                                                                                                           | Practical   | 2           |
| The skull                                                                                                                                                         | Theoretical | 2           |
| The skull                                                                                                                                                         | Practical   | 2           |
| <b>PHYSIOLOGY</b>                                                                                                                                                 |             |             |
| <b>Topic</b>                                                                                                                                                      | <b>Type</b> | <b>Time</b> |
| Hematopoiesis                                                                                                                                                     | Theoretical | 1           |
| Chemical characteristics of blood                                                                                                                                 | Theoretical | 2           |
| Erythrocyte physiology                                                                                                                                            | Theoretical | 2           |
| Platelet physiology and coagulation                                                                                                                               | Theoretical | 2           |
| Leukocyte physiology and immune system                                                                                                                            | Theoretical | 2           |
| Blood groups                                                                                                                                                      | Theoretical | 2           |
| Blood experiments                                                                                                                                                 | Practical   | 2           |
| <b>HISTOLOGY AND EMBRIOLOGY</b>                                                                                                                                   |             |             |
| <b>Topic</b>                                                                                                                                                      | <b>Type</b> | <b>Time</b> |
| Introduction to tissues                                                                                                                                           | Theoretical | 2           |



|                                                                                              |             |             |
|----------------------------------------------------------------------------------------------|-------------|-------------|
| Epithelial tissue - lining epithelium                                                        | Theoretical | 2           |
| Practice: Histology of epithelial tissue - lining epithelium                                 | Practical   | 2           |
| Histology of epithelial tissue - glandular epithelium                                        | Theoretical | 2           |
| Practice: Histology of epithelial tissue - glandular epithelium                              | Practical   | 2           |
| Histology of connective tissue                                                               | Theoretical | 2           |
| Connective tissue types and adipose tissue histology                                         | Theoretical | 2           |
| Histology of connective tissue                                                               | Practical   | 2           |
| Blood production and stem cells                                                              | Theoretical | 2           |
| Peripheral blood cells                                                                       | Theoretical | 2           |
| Peripheral blood histology                                                                   | Practical   | 2           |
| <b>MEDICAL BIOCHEMISTRY</b>                                                                  |             |             |
| <b>Topic</b>                                                                                 | <b>Type</b> | <b>Time</b> |
| Erythrocyte biochemistry                                                                     | Theoretical | 2           |
| Coagulation biochemistry                                                                     | Theoretical | 2           |
| <b>MEDICAL BIOLOGY</b>                                                                       |             |             |
| <b>Topic</b>                                                                                 | <b>Type</b> | <b>Time</b> |
| Growth factors and their functions                                                           | Theoretical | 2           |
| Stem cells and their differentiation                                                         | Theoretical | 2           |
| Structure of extracellular matrix                                                            | Theoretical | 2           |
| Cell adhesion                                                                                | Theoretical | 2           |
| <b>MEDICAL MICROBIOLOGY</b>                                                                  |             |             |
| <b>Topic</b>                                                                                 | <b>Type</b> | <b>Time</b> |
| Introduction to microbiology and classification of infectious agents                         | Theoretical | 2           |
| Structure and general characteristics of bacteria                                            | Theoretical | 2           |
| Structure of Rickettsia, Mycoplasma, Chlamydia and spiral bacteria                           | Theoretical | 1           |
| Microbiology practice: working principles and basic microbiology knowledge in the laboratory | Practical   | 2           |
| Bacterial metabolism and proliferation of bacteria                                           | Theoretical | 2           |
| Microbiology practice: bacteriological staining techniques                                   | Practical   | 2           |
| Bacterial genetics                                                                           | Theoretical | 2           |
| Microbiology practice: bacterial metabolism and proliferation of bacteria                    | Practical   | 2           |
| Introduction to mycology: classification and general characteristics of fungi                | Theoretical | 2           |
| Introduction to virology: classification and general characteristics of viruses              | Theoretical | 2           |
| Introduction to parasitology: classification and general characteristics of parasites        | Theoretical | 2           |
| Introduction to antibiotics: mechanisms of action and resistance                             | Theoretical | 2           |
| Sterilization and Disinfection                                                               | Theoretical | 2           |
| Laboratory Diagnosis of Infectious Diseases                                                  | Theoretical | 2           |



## LOCOMOTOR SYSTEM – 1 COMMITTEE

| COURSES                                | THEORETICAL COURSE DURATION (h) | PRACTICAL COURSE DURATION (h) | TOTAL COURSE DURATION (h) |
|----------------------------------------|---------------------------------|-------------------------------|---------------------------|
| 21010004-01 Introduction to Committee  | 1                               | 0                             | 1                         |
| 21010004-02 Anatomy                    | 18                              | 12                            | 30                        |
| 21010004-03 Physiology                 | 8                               | 0                             | 8                         |
| 21010004-04 Histology and Embryology   | 14                              | 10                            | 24                        |
| 21010004-05 Medical History and Ethics | 10                              | 0                             | 10                        |
| <b>TOTAL</b>                           | <b>51</b>                       | <b>22</b>                     | <b>73</b>                 |

### AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE

#### Aim:

The aim of this course board is to ensure that Phase I students have anatomical, histological, physiological and biophysical knowledge about the dynamics of the locomotor system and the principles of general study.

#### Learning Objectives:

1. Recognizes muscle and nerve tissues at microscopic level, describes their structural features and development of muscle tissue.
2. Comprehends the types of muscles in the body, explains the parts of the skeletal muscle and the nerves that stimulate the muscles with their relationship with the bone.
3. Explains the anatomical nomenclature and functions of skeletal muscles.
4. Describes the histological structure and development of the skin.
5. Describes events that may occur as a result of nerve damage.
6. Explains neuromuscular junction, muscle types and contraction mechanisms.
7. Describes excitable tissues and arousal steps.
8. Discusses the importance of embryology and its place among other disciplines.
9. Describes the events that take place from the formation of the zygote to the end of embryogenesis of the germ cells.
10. Knows fetal period features, placenta; describes multiple pregnancies, developmental anomalies and teratogens.



## TOPICS

| <b>ANATOMY</b>                                                                                                                  |             |             |
|---------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|
| <b>Topic</b>                                                                                                                    | <b>Type</b> | <b>Time</b> |
| Arthrologia (joint science): general information                                                                                | Theoretical | 2           |
| Upper extremity joints                                                                                                          | Theoretical | 2           |
| Lower extremity joints and arches of the feet                                                                                   | Theoretical | 2           |
| Vertebral, craniovertebral, costal, sternal joints and temporomandibular joint                                                  | Theoretical | 2           |
| Upper and lower extremity joints, arches of the feet                                                                            | Practical   | 2           |
| Vertebral, craniovertebral, costal, sternal joints and temporomandibular joint                                                  | Practical   | 2           |
| Myologia (muscle science): general information                                                                                  | Theoretical | 1           |
| Back and neck muscles, trigonum suboccipitale, shoulder and posterior arm region, humerotricipital and scapulotricipital spaces | Theoretical | 2           |
| Back and neck muscles, trigonum suboccipitale, shoulder and posterior arm region, humerotricipital and scapulotricipital spaces | Practical   | 2           |
| Pectoral region, anterior arm muscles, trigonum deltopectorale (clavipectorale)                                                 | Theoretical | 1           |
| Axilla, plexus brachialis, arteria-vena axillaris and axillary lymph nodes                                                      | Theoretical | 2           |
| Forearm muscles and neurovascular structures, fossa cubitalis, fovea radialis and carpal tunnel                                 | Theoretical | 2           |
| Hand muscles and neurovascular structures                                                                                       | Theoretical | 2           |
| Pectoral region and breast, anterior arm muscles, trigonum deltopectorale, axilla, plexus brachialis and arteria-vena axillaris | Practical   | 2           |
| Forearm muscles and hand muscles, fossa cubitalis, fovea radialis, carpal tunnel and neurovascular structures                   | Practical   | 2           |
| <b>PHYSIOLOGY</b>                                                                                                               |             |             |
| <b>Topic</b>                                                                                                                    | <b>Type</b> | <b>Time</b> |
| Organization of the nervous system                                                                                              | Theoretical | 1           |
| Synaptic transmission and action potential development                                                                          | Theoretical | 2           |
| neurotransmitter substances                                                                                                     | Theoretical | 2           |
| Physiological features of the autonomic nervous system                                                                          | Theoretical | 3           |
| <b>HISTOLOGY AND EMBRIOLOGY</b>                                                                                                 |             |             |
| <b>Topic</b>                                                                                                                    | <b>Type</b> | <b>Time</b> |
| Histology of cartilage tissue                                                                                                   | Theoretical | 2           |
| Histology of cartilage tissue                                                                                                   | Practical   | 2           |
| Histology of bone tissue and osteogenesis                                                                                       | Theoretical | 3           |
| Histology of bone tissue                                                                                                        | Practical   | 2           |
| Histology of muscle tissue                                                                                                      | Theoretical | 2           |
| Histology of muscle tissue                                                                                                      | Practical   | 2           |



|                                                      |             |             |
|------------------------------------------------------|-------------|-------------|
| Histology of nerve tissue                            | Theoretical | 3           |
| Histology of nerve tissue                            | Practical   | 2           |
| Skin, appendages and nerve endings                   | Theoretical | 4           |
| Histology of skin                                    | Practical   | 2           |
| <b>MEDICAL HISTORY</b>                               |             |             |
| <b>Topic</b>                                         | <b>Type</b> | <b>Time</b> |
| Introduction to the History of Medicine              | Theoretical | 1           |
| Medicine in Antiquity                                | Theoretical | 2           |
| Medicine in Mesopotamia                              | Theoretical | 1           |
| Medical Practices in Ancient Anatolian Civilizations | Theoretical | 1           |
| Medical Practices in Ancient Rome                    | Theoretical | 1           |
| Medicine in the Seljuk and Ottoman Empires           | Theoretical | 2           |
| Medicine in Islam                                    | Theoretical | 2           |



## LOCOMOTOR SYSTEM – 2 AND SKIN COMMITTEE

| COURSES                                | THEORETICAL<br>COURSE<br>DURATION (h) | PRACTICAL<br>COURSE<br>DURATION (h) | TOTAL<br>COURSE<br>DURATION (h) |
|----------------------------------------|---------------------------------------|-------------------------------------|---------------------------------|
| 21010005-01 Introduction to Committee  | 1                                     | 0                                   | 1                               |
| 21010005-02 Anatomy                    | 15                                    | 9                                   | 24                              |
| 21010005-03 Biophysics                 | 4                                     | 0                                   | 4                               |
| 21010005-04 Physiology                 | 6                                     | 2                                   | 8                               |
| 21010005-05 Histology and Embryology   | 24                                    | 0                                   | 24                              |
| 21010005-06 Medical History and Ethics | 9                                     | 0                                   | 9                               |
| <b>TOTAL</b>                           | <b>59</b>                             | <b>11</b>                           | <b>70</b>                       |

### AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE

#### Aim:

The aim of this course board is to ensure that Phase I students have anatomical, histological, physiological and biophysical knowledge about the dynamics of the locomotor system and the principles of general study.

#### Learning Objectives:

1. Recognizes muscle and nerve tissues at microscopic level, describes their structural features and development of muscle tissue.
2. Comprehends the types of muscles in the body, explains the parts of the skeletal muscle and the nerves that stimulate the muscles with their relationship with the bone.
3. Explains the anatomical nomenclature and functions of skeletal muscles.
4. Describes the histological structure and development of the skin.
5. Describes events that may occur because of nerve damage.
6. Explains neuromuscular junction, muscle types and contraction mechanisms.
7. Describes excitable tissues and arousal steps.
8. Discusses the importance of embryology and its place among other disciplines.
9. Describes the events that take place from the formation of the zygote to the end of embryogenesis of the germ cells.
10. Knows fetal period features, placenta; describes multiple pregnancies, developmental anomalies and teratogens.



## TOPICS

| ANATOMY                                                                                                                                           |             |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------|
| Topic                                                                                                                                             | Type        | Time |
| Gluteal region and ischial openings, intramuscular injection sites                                                                                | Theoretical | 2    |
| Back and outer thigh muscles and neurovascular structures, fossa poplitea and plexus sacralis                                                     | Theoretical | 2    |
| Gluteal region and intramuscular injection sites, posterior and outer thigh muscles, neurovascular structures, fossa poplitea and plexus sacralis | Practical   | 2    |
| Anterior and inner thigh muscles and neurovascular structures, trigonum femorale, canalis adductorius, plexus lumbalis                            | Theoretical | 2    |
| Anterior and inner thigh muscles and neurovascular structures, trigonum femorale, canalis adductorius, plexus lumbalis                            | Practical   | 2    |
| Anterior and external leg muscles and neurovascular structures                                                                                    | Theoretical | 1    |
| Posterior leg muscles, neurovascular structures and tarsal tunnel                                                                                 | Theoretical | 1    |
| Leg muscles and neurovascular structures, tarsal tunnel                                                                                           | Practical   | 2    |
| Foot muscles and neurovascular structures                                                                                                         | Theoretical | 2    |
| Facial anatomy: muscles and neurovascular structures                                                                                              | Theoretical | 2    |
| Foot muscles and neurovascular structures                                                                                                         | Practical   | 1    |
| Anterior and lateral neck regions, neck fascia, neck triangles, plexus cervicalis                                                                 | Theoretical | 3    |
| Facial anatomy: muscles and neurovascular structures, anterior and lateral neck regions, neck triangles, plexus cervicalis                        | Practical   | 2    |
| BIOPHYSICS                                                                                                                                        |             |      |
| Topic                                                                                                                                             | Type        | Time |
| The general properties of biological materials, solids and fluids                                                                                 | Theoretical | 2    |
| The concepts of biomechanics                                                                                                                      | Theoretical | 2    |
| PHYSIOLOGY                                                                                                                                        |             |      |
| Topic                                                                                                                                             | Type        | Time |
| Physical characteristics of muscle cells                                                                                                          | Theoretical | 2    |
| Skeletal muscle physiology                                                                                                                        | Theoretical | 2    |
| Smooth muscle physiology                                                                                                                          | Theoretical | 2    |
| EMG (Electromyography) measurement                                                                                                                | Practical   | 2    |
| HISTOLOGY and EMBRYOLOGY                                                                                                                          |             |      |
| Topic                                                                                                                                             | Type        | Time |
| Introduction to embryology                                                                                                                        | Theoretical | 1    |
| Cell cycle, gametogenesis and apoptosis                                                                                                           | Theoretical | 3    |
| Menstrual cycle and ovulation                                                                                                                     | Theoretical | 2    |



|                                                                   |             |             |
|-------------------------------------------------------------------|-------------|-------------|
| Beginning of human development: week 1                            | Theoretical | 2           |
| Formation of bilaminar embryonic disc and chorionic sac: 2nd week | Theoretical | 2           |
| Formation of germ layers: 3rd week                                | Theoretical | 2           |
| Organogenesis period: 4-8. week                                   | Theoretical | 2           |
| Fetal period                                                      | Theoretical | 2           |
| Placenta and fetal membranes, multiple pregnancies                | Theoretical | 3           |
| Human birth defects – teratogens                                  | Theoretical | 2           |
| The development of the skeletal system and muscle tissue          | Theoretical | 3           |
| <b>MEDICAL HISTORY and ETHICS</b>                                 |             |             |
| <b>Topic</b>                                                      | <b>Type</b> | <b>Time</b> |
| Hippocratic Oath                                                  | Theoretical | 1           |
| Medicine in The Renaissance                                       | Theoretical | 2           |
| History and Basic Features of Medical Education in Turkey         | Theoretical | 2           |
| The Relationship Between Science and Philosophy                   | Theoretical | 2           |
| Empirical Method and Methodology of Science                       | Theoretical | 2           |



## SCIENTIFIC AND CLINICAL APPROACHES COMMITTEE

| COURSES                                          | THEORETICAL<br>COURSE<br>DURATION (h) | PRACTICAL<br>COURSE<br>DURATION (h) | TOTAL<br>COURSE<br>DURATION (h) |
|--------------------------------------------------|---------------------------------------|-------------------------------------|---------------------------------|
| 21010006-01 Preparation for Scientific Knowledge | 9                                     | 5                                   | 14                              |
| 21010006-02 Clinical Overview I                  | 26                                    | 4                                   | 29                              |
| 21010006-03 Clinical Skill I                     | 0                                     | 8                                   | 8                               |
| <b>TOTAL</b>                                     | <b>35</b>                             | <b>17</b>                           | <b>51</b>                       |

### AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE

#### **Aim:**

At the end of this committee, the students will learn basic professional skills on models in accordance with ethical principles; they will learn about the reflection of the basic information they have learned in the clinic and the ways in which they can access scientific information.

#### **Learning Objectives:**

1. Applies the basic professional skill techniques required in clinical practice.
2. Gains the hand washing skill.
3. Gains the ability to put on and take off protective equipment.
4. Counts respiration and pulse rate.
5. Gains the skill of intramuscular and subcutaneous injection.
6. Performs basic life support and Heimlich maneuver.
7. Understands and interprets techniques using molecular biology and genetic mechanisms.
8. Interprets basic knowledge of locomotor system clinically.
9. Defines the sources of accessing information.
10. Explains plagiarism and programs used to prevent plagiarism.
11. Counts article scanning methods.
12. Explains the importance of being scientific in medicine.



## TOPICS

| PREPARING FOR SCIENTIFIC INFORMATION                                                             |             |      |
|--------------------------------------------------------------------------------------------------|-------------|------|
| Topic                                                                                            | Type        | Time |
| Information technologies                                                                         | Practical   | 5    |
| What is Knowledge?                                                                               | Theoretical | 1    |
| Classification of Science                                                                        | Theoretical | 1    |
| Classification of Medical Research                                                               | Theoretical | 1    |
| What is Plagiarism? Methods Used to Prevent Plagiarism                                           | Theoretical | 1    |
| Programs Used to Prevent Plagiarism                                                              | Theoretical | 1    |
| Medical Article Searching at TR index                                                            | Theoretical | 1    |
| Article Searching Methods                                                                        | Theoretical | 1    |
| Types of Information Resources                                                                   | Theoretical | 1    |
| Academic Journals and International Indexes                                                      | Theoretical | 1    |
| CLINICAL OVERVIEW                                                                                |             |      |
| Topic                                                                                            | Type        | Time |
| Molecular diagnostic technics                                                                    | Theoretical | 1    |
| Biotechnologie                                                                                   | Theoretical | 1    |
| Structure of chromosome                                                                          | Theoretical | 2    |
| Chromosome types and karyotype analysis                                                          | Theoretical | 1    |
| Human chromosomes and karyotype analysis                                                         | Practical   | 2    |
| Sex chromosomes and examples of chromosomal aberrations                                          | Theoretical | 1    |
| Organization of human genome and genomic variations                                              | Theoretical | 1    |
| Progress in genome science                                                                       | Theoretical | 1    |
| Novel approaches in personal medicine and the use of genomic technics in medicine                | Theoretical | 1    |
| Biotechnological applications in medicine                                                        | Theoretical | 1    |
| Blood transfusion and tissue transplantation                                                     | Theoretical | 1    |
| Clinical anatomy of upper extremity bones and pectoral girdle bones                              | Theoretical | 1    |
| Clinical anatomy of the bones of lower extremity and the pelvis                                  | Theoretical | 1    |
| Clinical anatomy of the vertebral column, ribs and sternum                                       | Theoretical | 1    |
| Clinical anatomy of the cranium                                                                  | Theoretical | 1    |
| Clinical anatomy of the joints of upper extremity                                                | Theoretical | 1    |
| Clinical anatomy of the joints of lower extremity                                                | Theoretical | 1    |
| Clinical anatomy of the vertebral, craniovertebral, costal, sternal and temporomandibular joints | Theoretical | 1    |
| Clinical anatomy of the back muscles and muscles of the upper extremity                          | Theoretical | 1    |
| Clinical anatomy of brachial plexus                                                              | Theoretical | 2    |
| Lesions of the lumbar plexus and sacral plexus                                                   | Theoretical | 2    |



|                                                                                 |             |             |
|---------------------------------------------------------------------------------|-------------|-------------|
| Clinical anatomy of the muscles of lower extremity                              | Theoretical | 1           |
| Clinical anatomy of the head and neck regions                                   | Theoretical | 1           |
| <b>CLINICAL SKILL</b>                                                           |             |             |
| <b>Topic</b>                                                                    | <b>Type</b> | <b>Time</b> |
| Hand washing skill                                                              | Practical   | 2           |
| Ability to wear protective equipment (apron, mask, goggles/face shield, gloves) | Practical   | 2           |
| Ability to count breathing and pulse rate                                       | Practical   | 2           |
| Basic life support and ability to perform the Heimlich maneuver                 | Practical   | 2           |