

**T.C.**

**LOKMAN HEKIM UNIVERSITY**

**FACULTY OF DENTISTRY**

**PHASE – I**

**2023-2024 EDUCATION TEACHING GUIDE**

**T.R.**

**LOKMAN HEKIM UNIVERSITY FACULTY OF DENTISTRY**

**PHASE I COURSES and ECTS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CODE** | **MUST COURSES** | **T** | **P** | **TC** | **ECTS** |
| **MED-100** | **BASIC MEDICAL SCIENCE – I (Phase I)** | **196** | **28** | **224** | **23** |
| ***130100*** | ***Adapting to University Life*** | ***1*** | ***0*** | ***1*** | ***1*** |
| ***130111*** | ***The Basıs of Lıfe: Cell And Tıssue Systems*** | ***58*** | ***0*** | ***58*** | ***7*** |
| ***130112*** | ***Growth And Development In Dentıstry*** | ***52*** | ***0*** | ***52*** | ***6*** |
| ***130113*** | ***Motıon System*** | ***35*** | ***13*** | ***48*** | ***3*** |
| ***130114*** | ***Head And Neck System*** | ***50*** | ***15*** | ***65*** | ***6*** |
| 100103 | Informatıon Technologıes | 2 | 0 | 2 | 2 |
| 100102 | Turkish Language I | 2 | 0 | 2 | 2 |
| 100202 | Turkish Language II | 2 | 0 | 2 | 2 |
| 100101 | Ataturk's Principles And History Of Turkish Revolutıon I | 2 | 0 | 2 | 2 |
| 100201 | Ataturk's Principles And History Of Turkish Revolutıon II | 2 | 0 | 2 | 2 |
| 101101 | English I | 2 | 4 | 4 | 4 |
| 101201 | English II | 2 | 4 | 4 | 4 |
| 101102 | English A21 | 2 | 2 | 4 | 3 |
| 101103 | English B11 | 2 | 2 | 4 | 3 |
| 101202 | English A22 | 2 | 2 | 4 | 3 |
| 101203 | English B12 | 2 | 2 | 4 | 3 |
| 130115 | Prosthetic Dentistry | 1 | 6 | 7 | 6 |
| 130116 | Dental Materials  | 1 | 0 | 1 | 2 |
| 130117 | Hıstory of Dentıstry | 1 | 0 | 1 | 3 |
| **TOTAL ECTS TO BE COLLECTED AS ELECTIVES** | **64** |
|  |
| **CODE** | ELECTIVE COURSE | **T** | **P** | **TC** | **ECTS** |
|  | Unıversıty Electıve Course 1 | 2 | 2 | 3 | 3 |
|  | Unıversıty Electıve Courses 2 | 2 | 2 | 3 | 3 |
|  | Unıversıty Electıve Courses 3 | 2 | 2 | 3 | 3 |
|  | Unıversıty Electıve Courses 4 | 2 | 2 | 3 | 3 |
|  | Faculty Electıve Course 1 | 2 | 0 | 2 | 4 |
|  | Faculty Electıve Course 2 | 2 | 0 | 2 | 4 |
|  | Faculty Electıve Course 3 | 2 | 0 | 2 | 3 |
|  | Faculty Electıve Course 4 | 2 | 0 | 2 | 3 |
| **SEÇMELİ OLARAK ALINMASI GEREKEN AKTS TOPLAMI** | **14** |
| **TOTAL ECTS TO BE COLLECTED IN PHASE I** |  |

**PHASE I OBJECTIVES AND LEARNING OUTCOMES**

**Objective:**

During this semester, basic information about the cell, which is the most basic of medical education, and practical manipulation, which is the basis of dentistry, and the usage areas and internal structure of the substances used in our field will be covered. It is aimed to provide our students with the basics of the basic chemical and biological structure of the organism and the concept of the cell, which is the smallest structural and functional unit of the organism, the basic structure of the tissue and skeletal system and the dynamics and general working principles of the system, basic communication skills, the importance of scientific research and methods of accessing scientific knowledge, medical approach and basic professional skills. It is aimed to provide our students with pre-clinical hand practice and professional skills in dental practice.

Learning Objectives:

1. Describe the basic structure and functions of the cell.

2. Explain the interaction between cells, receptors, messenger systems and their functions.

3. Explain the role of the cell cycle in the growth and developmental stages of the organism and its importance in terms of homeostasis of the organism.

4. Defines the structure, function and metabolism of biomolecules.

5. Explain the structure, synthesis and function of hereditary material.

6. Explain the basic processes, molecular mechanisms and regulation of homeostasis.

7. Learns basic histological examination methods and use of microscope

8. Distinguish different cells and tissues with their structural and histochemical properties at the level of light microscopy.

9. Classifies microorganisms as disease agents, defines their general characteristics, has knowledge about transmission and protection.

10. Discusses the importance of embryology and its place among other disciplines.

11. Explains the concept of basic health.

12. Recognises the structures related to the movement system, explains the relationships between the peripheral nervous system and peripheral vascular system.

13. Interprets basic information about the movement system in clinical terms.

14. Defines the sources of access to information.

15. Explains the importance of science in medicine.

16. Defines the internal structure and usage areas of the substances used in dentistry.

17. Applies the basic professional skill techniques required in clinical practice.

**THE BASIS OF LIFE: CELL AND TISSUE SYSTEMS COMMITTEE**

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| --- | --- | --- | --- |
| **COURSES** | **THEORETICAL COURSE DURATION (h)** | **PRACTICAL****COURSE** **DURATION(h)** | **TOTAL****COURSE** **DURATION****(h)** |
| 1011010 *Organic Chemistry* | 9 | 0 | 9 |
| 1011011 *Histology and Embriology* | 18  | 0 | 18 |
| 1011012 *Medical Biology* | 15  | 0 | 15 |
| 1011013 *Biophysics* | 10  | 0 | 10 |
| 1011014 *Physiology* |  6 | 0 | 6 |
| **TOTAL** | **58** | **0** | **58** |

**AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE**

**Objective:**

At the end of this course, our students will learn about basic health concepts and physician-patient communication and will have knowledge about the basics of the basic chemical and biological structure of the organism.

**Learning Objectives:**

1. To gain knowledge about the structure, function and metabolism of biomolecules by acquiring knowledge of organic chemistry.

2. Defines the structural properties of organic molecules.

3. Name organic compounds based on functional groups.

4. Classifies organic compounds according to their structural properties.

5. Explain the basic concepts of molecular biology and genetics.

6. Understands the structure, synthesis and function of hereditary material.

7. Have knowledge about the damage to genetic material, its causes and its place in medicine.

8. Explain the basic principles of biophysics.

9. Explains living system functions with mathematical approach, explains the resting state of mammalian cell membrane.

10. Understands the basic processes, molecular mechanisms and regulation of homeostasis.

11. Explains the concept of basic health.

12. Makes a general explanation about the history of medicine from past to present.

**TOPICS**

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| --- |
| **ORGANIC CHEMISTRY**  |
| **Topic** | **Type** | **Time** |
| Atomic structure and chemical bonds | Theoric | 1 |
| Chemical bonds and molecular geometry | Theoric | 1 |
| Intermolecular interactions and their biochemical importance | Theoric | 1 |
| Organic chemistry and isomerism | Theoric | 1 |
| Chemical reactions and types of biochemical reactions  | Theoric | 1 |
| Aqueous solution properties and concentration units | Theoric | 1 |
| Acid-base concept | Theoric | 1 |
| Buffer Solutions | Theoric | 1 |
| Buffer systems in living things | Theoric | 1 |
| **HISTOLOGY AND EMBRIOLOGY** |
| **Topic** | **Type** | **Time** |
| Introduction to histology: Types of microscopes and histochemical methods | Theoric | 2 |
| Cell | Theoric | 2 |
| Introduction to tissues and lining epithelium | Theoric | 1 |
| Lining epithelium | Theoric | 2 |
| Glandular epithelium | Theoric | 2 |
| Connective tissue and adipose tissue | Theoric | 2 |
| Cartilage and bone tissues, bone formation and destruction | Theoric | 2 |
| Muscle tissue | Theoric | 1 |
| Nervous tissue | Theoric | 2 |
| Skin and skin adnexes | Theoric | 2 |
| **MEDİCAL BİOLOGY**  |
| **Topic** | **Type** | **Time** |
| Cell Concept | Theoric | 1 |
| Membrane structure and transport | Theoric | 2 |
| Intracellular compartments | Theoric | 2 |
| Cell organisation and movement  | Theoric | 2 |
| Mitochondria | Theoric | 1 |
| Lysosome, peroxysome | Theoric | 1 |
| Cell cycle: Mitosis-meiosis | Theoric | 2 |
| Cell organisation and movement  | Theoric | 2 |
| Intracellular signal transmission | Theoric | 2 |
| **BIOPHYSICS** |
| **Topic** | **Type** | **Time** |
| Biophysical foundations of the cell and living | Theoric | 1 |
| Diffusion and permeability across the cell membrane | Theoric | 1 |
| Physicochemical principles of equilibrium and steady state in cells | Theoric | 1 |
| Biophysical study of cellular functions | Theoric | 1 |
| Molecular basis of membrane potential and thermodynamic approach | Theoric | 1 |
| Electrical conductors and insulators analog of the cell membrane | Theoric | 1 |
| Electric potentials in electrically excitable cells and the electric field in the membrane | Theoric | 1 |
| Passive membrane model and cable theory: Conductivity and capacitive properties of the membrane | Theoric | 1 |
| Excitability of the membrane: The concept of threshold potential | Theoric | 2 |
| **PHYSIOLOGY** |
| **Topic** | **Type** | **Time** |
| Introduction to cell physiology | Theoric | 1 |
| Body fluid compartments and their properties | Theoric | 1 |
| Cell membrane and dynamics | Theoric | 2 |
| Bioelectric potentials | Theoric | 2 |

**GROWTH AND DEVELOPMENT IN DENTISTRY COMMITTEE**

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| --- | --- | --- | --- |
| **COURSES** | **THEORETICAL COURSE DURATION (h)** | **PRACTICAL****COURSE** **DURATION(h)** | **TOTAL****COURSE** **DURATION****(h)** |
| 1021010 Histology and Embriology | 13  | 0 | 13 |
| 1021011 Medical Biology  | 11  | 0 | 11 |
| 1021012 Biophysics |  4 | 0 | 4 |
| 1021013 Anatomy |  4 | 0 | 4 |
| 1021014 Biochemistry | 18 | 0 | 18 |
| **TOTAL** | **52** | **0** | **52** |

**AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE**

**Aim:**

At the end of this course board, Term I students will learn basic anatomical terminology, the cell and genetic material, which is the smallest structural and functional unit of living organism, genetic mechanisms that control the formation and continuity of normal structure, nucleic acid metabolism and cellular concepts on the basis of basic sciences.

**Learning Objectives:**

1. Identify different cells by their structural and histochemical characteristics.

2. Explain the principles of processing, preservation and transmission of genetic information through generations.

3. Establishes the connection between the causes and consequences of errors and anomalies in genetic information.

4. Defines the basic structure and functions of the cell.

5. Explains the structure and functions of organelles and membranes in the cell.

6. Explains the cell membrane with electrical elements.

7. Explain cell physiology, intercellular interaction, receptors, messenger systems and their functions.

8. Have knowledge of basic anatomical terminology.

9. Have general knowledge about bones, joints and muscles.

10. Defines radiation.

11. Explain the biological effects of radiation.

**TOPICS**

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| --- |
| **HISTOLOGY AND EMBRIOLOGY** |
| **Topic** | **Type** | **Time** |
| Cell cycle, gametogenesis and apoptosis | Theoric | 2 |
| Menstrual cycle, ovulation, fertilization | Theoric | 1 |
| 1st week of human development: from fertilization to implantation | Theoric | 2 |
| 2nd Week of human Development: Formation of bilaminar embryonic disc  | Theoric | 1 |
| 3rd week of human development: Formation of trilaminar embryonic disc | Theoric | 2 |
| Organogenesis and fetal period | Theoric | 2 |
| Placenta and fetal membranes | Theoric | 1 |
| Human birth defects and teratogens | Theoric | 2 |
| **MEDICAL BIOLOGY** |
| **Topic** | **Type** | **Time** |
| Nucleic acids: DNA, RNA | Theoric | 2 |
| Genome organisation | Theoric | 1 |
| DNA replication | Theoric | 1 |
| Transcription | Theoric | 1 |
| Translation | Theoric | 1 |
| Control of gene expression  | Theoric | 1 |
| DNA mutations and mutagens | Theoric | 2 |
| Molecular genetic techniques | Theoric | 2 |
| **BIOPHYSICS** |
| **Topic** | **Type** | **Time** |
| Definition of radiation and general properties | Theoric | 1 |
| Biological effects of radiation | Theoric | 1 |
| Biological effects of ionizing radiation | Theoric | 2 |
| **ANATOMY** |
| **Topic** | **Type** | **Time** |
| Introduction to anatomy and general terminology | Theoric | 1 |
| General information about bones | Theoric | 1 |
| General information about joints | Theoric | 1 |
| General information about muscles | Theoric | 1 |

**HEAD AND NECK SYSTEM COMMITTEE**

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| --- | --- | --- | --- |
| **COURSES** | **THEORETICAL COURSE DURATION (h)** | **PRACTICAL****COURSE** **DURATION(h)** | **TOTAL****COURSE** **DURATION****(h)** |
| 1031000 Histology and Embriology | 9 | 0 | 9 |
| 1041011 Anatomy | 28 | 15 | 43 |
| 1041013 Biochemistry | 5 | 0 | 5 |
| 1041014 Physiology | 3 | 0 | 3 |
| 1041012 Microbiology | 1 | 0 | 1 |
| **TOTAL** | **50** | **15** | **65** |

**AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE**

**Aim:**

At the end of this course board, Term I students; basic structure of tissue and skeletal system, basic structure of teeth and oral cavity, basic structure of tissue and skeletal system, basic structure of teeth and oral cavity, physiological function and biochemical structure of saliva, salivary glands and antibacterial structure of saliva.

**Learning Objectives:**

1. Have knowledge about the content, structure and function of saliva.

2. Defines dental tissues by classifying them.

3. Recognise epithelial, connective, blood and lymph, cartilage and bone tissues at microscopic level, describe their structural properties and the development of the skeletal system.

4. Describes the general composition and functions of blood.

5. Defines the terms of head and neck anatomy and anatomical posture.

6. Has the ability to use tools and materials such as atlas, model, bone and cadaver to be used in theoretical and practical courses.

7. Gains knowledge about the nomenclature and structure of the bones that make up the human body, describes joint types and joint movements.

8. Explains the role of stem cells in the normal functioning of tissues by specifying their properties. They will learn basic information about the structure, physiological function and biochemical structure of saliva, salivary glands and antibacterial structure of saliva.

**TOPİCS**

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| **HISTOLOGY AND EMBRIOLOGY** |
| **Topic** | **Type** | **Time** |
| Pharyngeal complex | Theoric | 2 |
| Face, palate development | Theoric | 2 |
| Histology of oral structures and salivary glands | Theoric | 2 |
| Dental histology: Enamel | Theoric | 1 |
| Dental histology: Dentin | Theoric | 1 |
| Dental histology: Pulp, cementum, periodontal ligament, alveolus | Theoric | 1 |
| **ANATOMY** |
| **Topic** | **Type** | **Time** |
| Neurocranium | Theoric | 2 |
| Viscerocranium | Theoric | 1 |
| Viscerocranium  | Practical | 1 |
| Maxilla | Theoric | 1 |
| Maxilla | Practical | 1 |
| Mandible | Theoric | 1 |
| Mandible | Practical | 2 |
| Whole skull skeleton | Theoric | 2 |
| Temporomandibular Joint | Theoric | 1 |
| Temporomandibular Joint | Practical | 1 |
| Temporal zone and parotid zone | Theoric | 1 |
| Temporal zone and parotid zone | Practical | 1 |
| Fossa infratemporalis, fossa pterygopalatina and mastication muscles  | Theoric | 2 |
| Fossa infratemporalis, fossa pterygopalatina and mastication muscles  | Practical | 1 |
| Scalp and face expression muscles | Theoric | 2 |
| Scalp and face expression muscles | Practical | 1 |
| Neck fascias and fascial spaces | Theoric | 2 |
| Neck muscles | Theoric | 1 |
| Neck muscles | Practical | 2 |
| Neck triangles | Theoric | 1 |
| Head and neck arteries | Theoric | 1 |
| Head and neck arteries | Practical | 1 |
| Head and neck veins and lymphatic drainage  | Theoric | 1 |
| Head and neck veins and lymphatic drainage  | Practical | 1 |
| Root of the neck | Theoric | 1 |
| Oral cavity, cheeks, lips and teeth | Theoric | 2 |
| Tongue, salivary glands and palate | Theoric | 1 |
| Tongue, salivary glands and palate | Practical | 1 |
| Head and neck clinical anatomy | Theoric | 4 |
| **MEDICAL BIOCHEMISTRY** |
| **Topic** | **Type** | **Time** |
| Saliva biochemistry: Organic content | Theoric | 1 |
| Saliva biochemistry: Inorganic content | Theoric | 1 |
| Buffering capacity of saliva | Theoric | 1 |
| **PHYSIOLOGY** |
| **Topic** | **Type** | **Time** |
| Introduction to digestive physiology, chewing and swallowing | Theoric | 1 |
| Sense of taste and sensory receptors | Theoric | 1 |
| Saliva: Structure, content, function | Theoric | 1 |
| **MİKROBİYOLOJİ** |
| **Topic** | **Type** | **Time** |
| Antibacterial properties of saliva | Theoric | 1 |

**MOTION SYSTEM COMMITTEE**

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| --- | --- | --- | --- |
| **COURSES** | **THEORETICAL COURSE DURATION (h)** | **PRACTICAL****COURSE** **DURATION(h)** | **TOTAL****COURSE** **DURATION****(h)** |
| 1031010 Anatomy | 13 | 11 | 24 |
| 1031011 Biophysics | 10 | 0 | 10 |
| 1031012 Physıology | 12 | 2 | 14 |
| **TOTAL**  | **35** | **13** | **48** |

**AIMS AND LEARNING OBJECTIVES OF THE COMMITTEE**

**Aim:**

The aim of this course is to provide Term I students to learn the basic structures of the movement system in general terms and to have anatomical and physiological knowledge about the working principles.

**Learning Objectives:**

1. Describe the structural features of joint and muscle tissues and the development of muscle tissue.

2. Understands the types of joints and muscles in the upper extremity, explains the parts of the upper extremity muscles and their relationship with the joint.

3. Explains the anatomical nomenclature and functions of bones and joints in the skeleton.

4. Explains the anatomical structure of the upper extremity muscles.

5. Has the ability to use tools and equipment such as atlas, model, bone and cadaver to be used in theoretical and practical courses.

6. Explains the organisation of the nervous system and the physiology of nerve conduction.

7. Explains neurotransmitter substances and physiological properties of autonomic nervous system.

8. Describes the physiology of bone, joint and muscle tissue.

9. Explains the basics of muscle contraction.

**TOPİC**

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| **ANATOMY** |
| **Topic** | **Type** | **Time** |
| Shoulder arch and upper extremity bones and joint | Theoric | 2 |
| Shoulder arch and upper extremity bones and joint | Pratik | 2 |
| Vertebral column, ribs and sternum - Vertebral, costal and sternal joints  | Theoric | 2 |
| Vertebral column, ribs and sternum - Vertebral, costal and sternal joints  | Pratik | 1 |
| Pelvic arch and lower extremity bones and joints | Theoric | 2 |
| Pelvic arch and lower extremity bones and joints | Pratik | 1 |
| Back muscles, neck muscles, suboccipital muscles and suboccipital triangle | Theoric | 2 |
| Back muscles, neck muscles, suboccipital muscles and suboccipital triangle | Pratik | 1 |
| Axilla (fossa axillaris) and plexus brachialis  | Theoric | 2 |
| Axilla (fossa axillaris) and plexus brachialis  | Pratik | 2 |
| Chest muscles, shoulder muscles and arm muscles | Theoric | 1 |
| Forearm muscles, fossa cubitalis and hand muscles | Theoric | 1 |
| Forearm muscles, fossa cubitalis and hand muscles | Pratik | 2 |
| Gluteal region and thigh muscles | Theoric | 1 |
| Gluteal region and thigh muscles | Pratik | 2 |
| Trigonum femorale, canalis adductorius and fossa poplitea, leg and foot muscles | Theoric | 2 |
| **PHYSIOLOGY** |
| **Topic** | **Type** | **Time** |
| Physical properties of muscle cell  | Theoric | 1 |
| Physical properties of muscle cell  | Pratik | 2 |
| Smooth muscle physiology | Theoric | 2 |
| Skeletal muscle physiology | Theoric | 2 |
| Peripheral nerve physiology | Theoric | 2 |
| Synaptic transmission | Theoric | 2 |
| Tendon Reflexes | Theoric | 1 |
| Autonomic nervous system physiology | Theoric | 2 |
| **BIOPHYSICS** |
| **Topic**  | **Type** | **Time** |
| Cell membrane excitability and action potential  | Theoric | 1 |
| Action potential generation | Theoric | 2 |
| Processes related to excitation-contraction coupling | Theoric | 1 |
| Processes related to excitation-contraction coupling | Theoric | 1 |
| Physical basis of muscle contraction | Theoric | 1 |
| Contraction mechanism: sliding filaments theory | Theoric | 2 |
| Generation of muscle strength and biomechanical properties | Theoric | 2 |