

<b>COURSE INFORMATION</b>					
<b>Course Title</b>	<i>Code</i>	<i>Phase/Semester</i>	<i>L+P Hour</i>	<i>Credits</i>	<i>ECTS</i>
Basic Medical Sciences	MED 104	1/1-2	485+58	40	40*

\*ECTS credits are the university credits of the courses in Yeditepe University, Faculty of Medicine, Undergraduate Medical Education Program

<b>Prerequisites</b>	Fulfilled the admission requirements for the program
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<b>Language of Instruction</b>	English
<b>Course Level</b>	Second Cycle including First Cycle Degree (One Tier Programme)
<b>Course Type</b>	Compulsory
<b>Course Coordinators</b>	<p><b>PHASE COORDINATION COMMITTEE</b></p> <p>Bilge GÜVENÇ TUNA Ph.D, Assoc. Prof. (Coordinator)</p> <p>Aylin YABA UÇAR, Ph.D, Assoc. Prof. (Co-coordinator)</p> <p>Elif Çiğdem KELEŞ, Ph.D, Assist. Prof. (Co-coordinator)</p> <p>Seda Güleç YILMAZ, Ph.D, Assoc. Prof. (Co-coordinator)</p> <p>Aikaterini PANTELI, MD, Assist. Prof. (Co-coordinator)</p> <p>Ahmet Saç, MD (Co-coordinator)</p> <p><b>PBL COORDINATION COMMITTEE</b></p> <p>Serdar ÖZDEMİR, MD, PhD, Assist. Prof. (Coordinator)</p> <p>Tümay SADIKOĞLU, MD, Assist. Prof. (Co-coordinator)</p>

<b>Goals</b>	<p><b>In evidence based manner;</b></p> <p>1. <i>To convey basic knowledge on medical history, organic chemistry, biology, biophysics, biochemistry, biostatistics, anatomy, physiology, embryology, histology, microbiology, immunology, behavioral sciences, civilization history and medical ethics.</i></p>																																																																																																																																																																																																																																																						
<b>Content</b>	<p><b>Course Components:</b></p> <p>COMMITTEE I Basic Medical Sciences (7 weeks)  COMMITTEE II Cell (8 weeks)  COMMITTEE III Tissue I (6 weeks)  COMMITTEE IV Tissue II (8 weeks)  COMMITTEE V Energy and Metabolism (6 weeks)</p> <p style="text-align: center;"><b><u>CONTENT of COURSE</u></b></p> <p><b>Anatomy Department (total 76+26)</b></p> <table border="1" data-bbox="408 674 1375 2085"> <thead> <tr> <th rowspan="2">Topics</th> <th colspan="2">Hour</th> <th rowspan="2">Committee</th> </tr> <tr> <th>Theoretical</th> <th>Practical</th> </tr> </thead> <tbody> <tr><td>Introduction to Anatomy</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Terminology in Anatomy</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Introduction to Osteology</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Bones of the Shoulder</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Bones of the Upper Limb</td><td>2</td><td>0</td><td>1</td></tr> <tr><td>Bones of the Shoulder and Upper Limb</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Bones of the Pelvis</td><td>1</td><td>0</td><td>1</td></tr> <tr><td>Bones of the Lower Limb</td><td>2</td><td>0</td><td>1</td></tr> <tr><td>Bones of the Pelvis &amp; Lower Limb</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Vertebral column, ribs and sternum</td><td>2</td><td>1</td><td>2</td></tr> <tr><td>Neurocranium</td><td>3</td><td>1</td><td>2</td></tr> <tr><td>Viscerocranium</td><td>3</td><td>1</td><td>2</td></tr> <tr><td>Introduction to Arthrology</td><td>2</td><td>0</td><td>3</td></tr> <tr><td>Joints of the Upper Limb</td><td>3</td><td>1</td><td>3</td></tr> <tr><td>Joints of the Lower Limb</td><td>3</td><td>1</td><td>3</td></tr> <tr><td>Joints of the Vertebral Column</td><td>1</td><td>0</td><td>3</td></tr> <tr><td>Joints of the Axial Skeleton</td><td>1</td><td>0</td><td>3</td></tr> <tr><td>Joints of the Vertebral Column and Axial Skeleton</td><td>0</td><td>1</td><td>3</td></tr> <tr><td>Joints of the Cranium and Fontanelles</td><td>2</td><td>1</td><td>3</td></tr> <tr><td>Introduction to Myology</td><td>2</td><td>0</td><td>3</td></tr> <tr><td>Muscles of the Back</td><td>1</td><td>0</td><td>3</td></tr> <tr><td>Muscles of the Back and Nape</td><td>1</td><td>1</td><td>3</td></tr> <tr><td>Introduction to Peripheral Nervous System</td><td>1</td><td>0</td><td>3</td></tr> <tr><td>Spinal Nerves</td><td>1</td><td>0</td><td>3</td></tr> <tr><td>Muscles of the Shoulder Girdle</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Muscles of the Shoulder Girdle and Axilla</td><td>1</td><td>1</td><td>4</td></tr> <tr><td>Muscles of the Arm</td><td>2</td><td>1</td><td>4</td></tr> <tr><td>Muscles of the Forearm</td><td>2</td><td>1</td><td>4</td></tr> <tr><td>Muscles of the Hand</td><td>2</td><td>1</td><td>4</td></tr> <tr><td>Brachial Plexus</td><td>2</td><td>0</td><td>4</td></tr> <tr><td>Nerves of the Upper Limb</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Vasculature of the Upper Limb</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Brachial Plexus, Nerves and Vasculature of the Upper Limb</td><td>0</td><td>1</td><td>4</td></tr> <tr><td>Cervical Muscles and Triangles</td><td>1</td><td>1</td><td>4</td></tr> <tr><td>Cervical Muscles</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Muscles of the Head and Scalp</td><td>2</td><td>1</td><td>4</td></tr> <tr><td>Cervical Plexus</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Nerves and Vasculature of the Neck</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Cervical Plexus, Nerves and Vasculature of the Neck</td><td>0</td><td>1</td><td>4</td></tr> <tr><td>Nerves of the Head</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Vasculature of the Head</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Nerves and Vasculature of the Head</td><td>0</td><td>1</td><td>4</td></tr> <tr><td>Muscles of the Thoracic Wall</td><td>1</td><td>0</td><td>4</td></tr> <tr><td>Muscles of the Abdominal Wall</td><td>1</td><td>0</td><td>4</td></tr> 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Fontanelles	2	1	3	Introduction to Myology	2	0	3	Muscles of the Back	1	0	3	Muscles of the Back and Nape	1	1	3	Introduction to Peripheral Nervous System	1	0	3	Spinal Nerves	1	0	3	Muscles of the Shoulder Girdle	1	0	4	Muscles of the Shoulder Girdle and Axilla	1	1	4	Muscles of the Arm	2	1	4	Muscles of the Forearm	2	1	4	Muscles of the Hand	2	1	4	Brachial Plexus	2	0	4	Nerves of the Upper Limb	1	0	4	Vasculature of the Upper Limb	1	0	4	Brachial Plexus, Nerves and Vasculature of the Upper Limb	0	1	4	Cervical Muscles and Triangles	1	1	4	Cervical Muscles	1	0	4	Muscles of the Head and Scalp	2	1	4	Cervical Plexus	1	0	4	Nerves and Vasculature of the Neck	1	0	4	Cervical Plexus, Nerves and Vasculature of the Neck	0	1	4	Nerves of the Head	1	0	4	Vasculature of the Head	1	0	4	Nerves and Vasculature of the Head	0	1	4	Muscles of the Thoracic Wall	1	0	4	Muscles of the Abdominal Wall	1	0	4	Muscles of the Abdominal Wall and Inguinal Canal	1	0	4	Muscles of the Thoracic and Abdominal Wall	0	1	4	Nerves and 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**Biophysics Department (total 46 h)**

Topics	Hour		Committee
	Theoretical	Practical	
Introduction to Biophysics: Medicine, Science or Art	1	0	1
Physical Measurements and Units, Unit standards	1	0	1
Statics (Mass and Weight), Gravitation Law	1	0	1
Newton's Laws of Motion	1	0	1
Center of Mass, Moment	1	0	1
Nature of Light, electromagnetic spectrum	1	0	1
Reflection and Refraction of Light	1	0	1
Bio-optics: Vision and Eye, Refraction errors	1	0	1
Lenses; Lens-maker Equation	1	0	1
Optical Properties of Microscopes	2	0	1
Optical Aberrations	1	0	1
Electric Charges, Electric Field	1	0	1
Membrane Impedance, Bioelectrical Activity	1	0	1
Electric Current Effects on Human Tissue	1	0	1
Electrical Security Systems	1	0	1
Radiation Biophysics: Nucleus and Radioactivity	1	0	2
Nuclear stability	1	0	2
Interaction of radiation with matter: Particle type ( $\alpha$ , $\beta$ particles)	1	0	2
Interaction of X or gamma rays with matter	1	0	2
Photoelectric Action, Compton Action	1	0	2
Half Value Layer, Attenuation	1	0	2
Units of Radioactivity	1	0	2
Radioisotopes in Medicine	1	0	2
Biological mechanisms of Radiation	1	0	2
Radiation Protection (Safety)	1	0	2
Medical Imaging: Applications of X-ray attenuation & detection	1	0	2
Medical Imaging: Nuclear Medicine	1	0	2
Lasers in Medicine	2	0	2
Asymmetric Distribution & Transport of Ions	2	0	3
Resting Membrane Potential: Ionic Balance	1	0	3
Nernst and Goldman Equations	1	0	3
Action potential: Rheobase and Chronaxie	1	0	3
Biophysical Modeling of Membrane & Ion Channels	1	0	3
Impulse Propagation	1	0	3
Contractile Machinery; Sliding Filament Theory	1	0	3
Muscle Mechanic; Mechanical Powers of Cardiac and Skeletal Muscle	1	0	3
Biophysics of Smooth Muscle Contraction	1	0	3
Digital recording of biomedical signals	2	0	4
Mechanical Properties of Biomaterials	1	0	4
Stress-Strain, Stiffness	1	0	4
Elasticity	1	0	4
Shear Stress, Poisson's Law	1	0	4

**Biostatistics Department (total 24+2)**

Topics	Hour		Committee
	Theoretical	Practical	
Main Concepts in Biostatistics	2	0	4
Frequency Distributions	2	0	4
Graphics	1	0	4
Central Tendency measurements	3	0	4
Central Dispersion measurements	2	0	4
Rates and Ratios	1	0	4
Standardization of Disease Rates	1	0	4
Probability	2	0	5
Theoretical Distributions	4	0	5
Diagnostic Testing	1	0	5
The Description of Epidemiology	1	0	5
Epidemiological Research Methods and Calculation of the Risk	3	0	5
Sampling in Epidemiology	1	0	5
Basic Statistical Calculations on Excel	0	2	2

**Biochemistry Department (total 54+4)**

Topics	Hour		Committee
	Theoretical	Practical	
Glycerophospholipids, Sphingophospholipids	2	0	4
Classification of Carbohydrates, General Features of Carbohydrates	1	0	4
Monosaccharide Derivatives, Disaccharides, Polysaccharides, Starch, Glycogen	1	0	4
Glycosaminoglycans, Structures and Functions	1	0	4
Monosaccharide Derivatives, Disaccharides, Polysaccharides, Starch, Glycogen	1	0	4
Classification of Lipids, General Features of Lipids	2	0	4
Saturated and Unsaturated Fatty Acids, Essential Fatty Acids	2	0	4
Eicosanoids	2	0	4
Isoprene Derivatives, Steroids, Bile Acids	2	0	4
Amino Acids, General Features, Classification	2	0	4
Primary, Secondary, Tertiary, Quaternary Structures of Proteins	2	0	4
Triacylglycerols	2	0	4
Glycoproteins, Collagen, $\alpha$ keratin	2	0	4

Nucleotides	2	0	4
Enzymes, Kinetics,Regulatory Enzymes	2	0	4
ATP Production, Substrate Level Phosphorylation, Oxidative Phosphorylation	1	0	4
Oxidative Decarboxylation	1	0	4
International Enzyme Commission Classification of Enzymes	2	0	4
ATP Production, Substrate Level Phosphorylation, Oxidative Phosphorylation	2	0	4
Spectrophotometry	0	2	4
Transport Through Biological Membranes	4	0	5
Glycogenesis	2	0	5
Digestion and Absorption of Carbohydrates	3	0	5
Glycogenolysis	2	0	5
Gluconeogenesis	2	0	5
Glycolysis	1	0	5
Regulation of Glycogenesis and Glycogenolysis	2	0	5
Fibrinolysis, Fibrinolytic and Antifibrinolytic Agents	2	0	5
Pentose phosphate pathway	2	0	5
Secondary Hemostasis, Procoagulation, Anticoagulation	2	0	5
Glucose Determination in Blood, Occult Blood in Feces, Bleeding Time	0	2	5

#### Behavioral Science (total 24h)

Topics	Hour		Committee
	Theoretical	Practical	
Life Cycle: Pregnancy through Preschool	1	0	4
Life Cycle: School Age, Adolescence and Adulthood	1	0	4
The Biological Bases of Behavior	2	0	4
Life Cycle: Aging, Death and Bereavement	2	0	4
Sleep and Sleep Disorders	1	0	4
Substance Related Disorders	1	0	4
Psychoanalytic Theory and Defense Mechanism	2	0	4
Learning Theory	1	0	4
Perception	2	0	4
Emotions	1	0	4
Culture and Illness	2	0	5
Human Sexuality	1	0	5
Violence and Abuse	1	0	5
The Physician-Patient Relationship	2	0	5
Legal and Ethical Issues in Medicine	2	0	5
Introduction to Psychopathology	2	0	5

#### Physiology Department (total 16+5h)

Topics	Hour		Committee
	Theoretical	Practical	
Introduction to Physiology and Homeostasis	2		1
Distribution of Substances in Body Fluids	1		2
Cell Membrane	1		2
Osmotic Pressure and Permeability of The Cell Membrane	1		2
Transport of Substances Through the Cell Membrane	3		2
Osmosis & Diffusion Laboratory		1	2
Membrane Potentials and Action Potentials	2		3
Neuromuscular Transmission	1		3
Skeletal Muscle Physiology	1		3
EMG I Laboratory		1	3
EMG II Laboratory		1	3
Smooth Muscle Physiology	2		3
Physiology of Cardiac Muscle	2		3
Smooth Muscle Contractility Laboratory		1	3
Cardiac Muscle with PhysioEx Laboratory		1	3

#### Histology Department (total 49+15h)

Topics	Hour		Committee
	Theoretical	Practical	
Introduction to Histology: Basic Terminology	1		1
Microscopy (Brightfield, Fluorescent, Confocal)	1		1
Electronmicroscopy	1		1
Other Histologic Methods	1		
Methods of Histology; Tissue Processing	1		1
Methods of Histology; Immunohistochemistry	1		1
LAB: Microscopy		1	1
Cell; General Specification	2		2
Cell Cycle and Cell Death	1		2
Meiosis	1		2
Introduction to Embryology and Human Developmental Period	2		2
Gametogenesis; Spermatogenesis	2		2
Gametogenesis; Oogenesis and Folliculogenesis	1		2
Ovarian and Uterinal Cycle	1		2
First Week of Development: Fertilization	1		2
First Week of Development: Cleavage and Formation of Blastocyst	1		2
Second Week of Development: Implantation and Bilaminar Germ Disc Formation	1		2
Third Week of Development: Gastrulation; Primitive Streak,	1		2

Notochord Formation			
LAB: Developing Human-I	0	2	2
Histology of Covering Epithelium; Structure, Classification	1		3
Histology of Covering Epithelium; Surface Specification	1		3
Histology of Glandular Epithelium	1		3
LAB: Histology of Epithel Tissue (Simple Sq & Cubic Ep-Kidney, Simple Columnar Ep-Colon, Stratified Sq Ep.-Esophagus, Transitional Ep Bladder)	0	2	3
Histology of Muscle Tissue; General Specification	1		3
Histology of Striated Skeletal Muscle	1		3
Histology of Heart & Smooth Muscle	1		3
Development of the Muscular System	1		3
LAB: Histology of Muscle Tissue (Pseudostratified Ep-Duc. Efferentes, Striated Muscle-Tongue, Smooth Muscle- Intestine, Cardiac Muscle-Heart)	0	2	3
Histology of Connective Tissue; Extracellular Matrix	1		3
Histology of Connective Tissue; Cells	1		3
Histology of Connective Tissue Proper; Types	1		3
Blood; RBC and Platelets	1		3
Blood WBC, Blood Smear	1		3
Haemopoiesis	1		3
LAB:Histology of Connective Tissue and RBC	0	2	3
Histology of Adipose Tissue	1		4
Histology of Cartilage Tissue	1		4
Histology of Bone Tissue; Microscopic Structure	1		4
Histology of Bone Tissue; Ossification	1		4
LAB: Histology of Cartilage Tissue and Bone Tissue (Loose Areolar, Dense Irregular CT-Skin; Dense Regular CT-Tendon, Hyalin Cartilage-Trachea, Fibrous Cartilage-Vertebral Disc)	0	2	4
Development of the Axial Skeleton and Limb	1		4
Histology of Nervous Tissue; General Specification	1		4
Histology of Nervous Tissue; Neuron Types	1		4
LAB: Histology of. Nerve Tissue (Spongy Bone, Endochondral Ossification, Pukinje Neuron-Cerebellum, Alpha Motor Neuron-Spinal Cord)	0	2	4
Third to Eight Weeks: Embryonic Period (Somitogenesis; Mesoderm Orgnization)	1		5
Third to Eight Weeks: Embryonic Period (Neurulation; Neuroectoderm Organization, Angiogenesis)	1		5
Foldings and Body Cavities	1		5
Third Month to Birth:Organogenesis & Fetal Periods	1		5
Extraembryonic Structures: Placenta, Chorion, Amnion	1		5
LAB: Developing Human II	0	2	5
Twin and Parturition	1		5
Infertility and Contraception	1		5
Asissted Reproductive Technology	1		5
Congenital Anomalies and Teratology	1		5

**Immunology Department (total 12)**

Topics	Hour		Committee
	Theoretical	Practical	
What is Immunology?	4	-	3
Cells and Tissues of Immune System			
Innate Immunity	4	-	4
Adaptive Immunity			
Signal Transduction in Immunity (1)	4	-	5
Cytokines and Immune Markers (1)			
Antigen antibody reactions (2)			

**Microbiology Department (total 12)**

Topics	Hour		Committee
	Theoretical	Practical	
Introduction to Basic Microbiology and Applications	1	0	2
Bacterial Metabolism	1	0	
Bacterial Genetics	1		2
Classification and General Structures of Bacteria	2	0	2
Classification and General Structures of Fungi	2	0	2
Classification and General Structures of Parasites	2	0	2
Classification and General Structures of Viruses	2	0	2
Sterilization and Disinfection	1	0	2

<b>Organic Chemistry Department (total 18 h)</b>			
Topics	Hour		Committee
	Theoretical	Practical	
Acids & Bases	2	0	1
Alkenes	4	0	1
Benzene & Aromaticity	2	0	1
Alcohols and Ethers	2	0	2
Carbonyl compounds	2	0	2
Carboxylic acids and nitriles	2	0	2
Amines	2	0	2
Steroids	2	0	

<b>Medical Biology Department (total 45 h + 6 h)</b>			
Topics	Hour		Committee
	Theoretical	Practical	
Introduction to Medical Biology	1	0	1
Origin of Life	1	0	1
Molecular Composition of Cells	1	0	1
Macromolecules	1	0	1
Organelles	1	0	2
Cell Membrane	1	0	2
Cytoskeleton	1	0	2
Extracellular matrix	1	0	2
Cell cell interactions, cell junctions	1	0	2
Human Genome Structure	1	0	2
Structure of Nucleic Acids (DNA and RNA) replication	2	0	2
Types of Mutations	1	0	2
DNA Damage and Repair Mechanism	1	0	2
Transcription	2	0	2
Protein Synthesis	2	0	2
Control of Gene Expression	2	0	2
Cell Cycle	1	0	2
Cell Division Kinetics	1	0	2
Mitosis- Meiosis	2	0	2
DNA isolation	0	2	2
Signal Transduction	2	0	3
Cell Death and Molecular Mechanisms	1	0	3
Molecular Mechanisms of Cancer	2	0	3
Chromosome Structure and Function	1	0	3
Chromosome Abnormalities	2	0	3
Tools in Medical Biology	2	0	3
Gene Identification in Cancer	0	2	3
Epigenetics and Nutrigenetics	2	0	4
Pharmacogenetics	1	0	4
Single Gene Inheritance	1	0	4
Multifactorial Genetic Disorders	1	0	4
Stem Cells	1	0	4
Gene Therapy	1	0	4
Biological Aspects of Development	2	0	4
Population Genetics	0	2	4
Mitochondrial Genome	2	0	5

<b>Medical History and Ethics (total 20)</b>			
Topics	Hour		Committee
	Theoretical	Practical	
Approaches to Medicine/ Medicine in Prehistoric Times	1	0	1
Medicine in Early Civilisations (Mesopotamia, Egypt)	1	0	1
Greek Medicine: From Mythology to Natural Philosophy	1	0	1
Hippocrates to Celsus	1	0	1
Galen	1	0	1
Indian and Chinese Medicine	1	0	1
Late Antiquity: Byzantine, Arab	1	0	1
Medicine in Abbasid Baghdad	1	0	1
The Time of Ibn Sina	1	0	1
Seljuk and Ottoman Medicine	1	0	1
Rise of the Hospitals	1	0	2
From Mahmud II's Mekteb-i Tibbiye to the University Reform 1933	1	0	2
The Demise of Humoral Theory	1	0	2
Medicalisation	1	0	2
Cells and Bacteria	1	0	2
Anaesthesia, Antisepsis	1	0	2
Genetic Medicine	1	0	3
History of our Future	1	0	3
Heyday and Crisis (20 th C.)	1	0	3
Antibiotics, Cancer Therapy	1	0	3



	,1.1.9.,1.1.,3.1.2.,3.1.3.		
5.0. define four basic tissue types with cells and extracellular matrix.	1.1.1.,1.1.2.,1.1.7.,1.1.8., 1.1.9.,3.1.1.,3.1.2.,3.1.3.	1, 6	A
6.0. define transport mechanism of biological membranes and its correlation with ATP usage	1.1.1.,1.1.2.,1.1.7.,1.1.8., 1.1.9.,3.1.1.,3.1.2.,3.1.3.	1, 6	A
7.0. list the enzymes in blood coagulation	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
8.0. for enzymes; 8.1. list basic properties and classes of enzymes,	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
8.2. describe regulatory functions of enzymes,			
8.3. define the functions of enzymes in			
9.0. define the link between the structure and function of tissues	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
10.0. define muscular, vascular and nervous system	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
11.0. list basic properties and classes of microorganisms.	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
12.0. describe basic terms and concepts about first aid.	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
13.0. describe basic terms and concepts of communication skills	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
14.0. describe basic terms and concepts about epidemiology.	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
15.0. list fundamental steps of a research study.	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
16.0. describe biostatistics. Basic terms of concepts of biostatistics	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
17.0. explain case scenario related basic medical science topics in a clinical context	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8</b> <b>.,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1,2, 6	A



18.0.define basic elements of immune response	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8 .,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A
19.0.describe scientific study design and types of scientific rearch describe scientific study design and types of scientific rearch	<b>1.1.1.,1.1.2.,1.1.7.,1.1.8 .,1.1.9.,3.1.1.,3.1.2.,3.1.3.</b>	1, 6	A

**Teaching/Learning Methods:**

● **CONTACT HOURS (CH)**

1. Theoretical-Class/Auditorium/Conference Hall/Multimedia
  - 1.1. Lecture/Tutorial
  - 1.2. Case report
  - 1.3. Case presentation
  - 1.4. Research seminar
  - 1.5. Seminar
  - 1.6. Student seminar/Journal club
  - 1.7. Invited speaker
  - 1.8. Hospital conference
  - 1.9. Online/Distance or e-learning (paper based or ICT based)
  - 1.10. Other:
2. Theoretical-Group Activity/Interactive
  - 2.1. Case discussion
  - 2.2. Discussion class
  - 2.3. Small group study session/Problem solving session/Brainstorm session
  - 2.4. Exercise class
  - 2.5. Oral presentation and criticism
  - 2.6. Panel
  - 2.7. Workshop
  - 2.8. Online/Distance or e-learning (paper based or ICT based)
  - 2.9. Other:
3. Practice Based-Laboratory/Class
  - 3.1. Demonstration class
  - 3.3. Laboratory teaching Clinical skills laboratory
  - 3.4. Small group study session/Problem solving session
  - 3.5. Exercise class
  - 3.6. Workshop (practical class)
  - 3.7. Other:
4. Clerkship (Clinical practice and training)
  - 4.1. Field study/Fieldwork
  - 4.2. Outpatient clinic
  - 4.3. Patient bedside
  - 4.4. Imaging round
  - 4.5. Laboratory round
  - 4.6. Work based practice
  - 4.7. Grand round
  - 4.8. Operating room
  - 4.9. Invasive Intervention room
  - 4.10. Night shift at ward
  - 4.11. Night shift at intensive care unit
  - 4.12. Night shift at emergency care unit
  - 4.13. Other:
5. Work placement/Internship (Clinical performance under supervision)
  - 5.1. Field study/Fieldwork
  - 5.2. Outpatient clinic
  - 5.3. Patient bedside
  - 5.4. Imaging round
  - 5.5. Laboratory round
  - 5.6. Work based practice
  - 5.7. Grand round
  - 5.8. Operating room
  - 5.9. Invasive intervention room
  - 5.10. Night shift at ward
  - 5.11. Night shift at intensive care unit
  - 5.12. Night shift at emergency care unit
  - 5.13. Other:

**INDEPENDENT STUDY HOURS (ISH)**

6. KNOWLEDGE (Levels: Knowledge, Comprehension, Application, Analysis, Synthesis, Evaluation)
- 5.14. Theoretical/Written/Oral exam/s
  - 5.15. Presentation
  - 5.16. Seminar
  - 5.17. Discussion
  - 5.18. Session
  - 5.19. Research paper writing
  - 5.20. Project writing
  - 5.21. Report writing
  - 5.22. Dissertation writing
  - 5.23. Homework
  - 5.24. Investigation/Survey study
  - 5.25. Other:
6. SKILLS: (Levels: Imitation, Manipulation, Precision, Articulation, Naturalization)
- 6.1. Oral/practical exam/s
  - 6.2. Presentation
  - 6.3. Seminar
  - 6.4. Discussion
  - 6.5. Session

<p><b>Assessment Methods:</b></p>	<p>6.6. Exercise  6.7. Workshop  6.8. Imaging round  6.9. Laboratory round  6.10. Grand round  6.11. Other:  7. ATTITUDES (Receiving, Responding, Valuing, Organization, Characterization)  7.1. Questionnaire (self-assessment)  7.2. Paper case  7.3. Other:  8. COMPETENCY (Doing/Making, Co-ordinating/Operating, Observing/Analysing/Listening to/ Controlling/Driving, Choosing/Communicating/Enhancing, Conceiving/Visioning/Foreseeing)  9.1. Portfolio preparation  9.2. Clinical performance at outpatient wards  9.3. Clinical performance at inpatient wards  9.4. Clinical performance at night shifts (ward, emergency care unit, intensive care unit)  9.5. Other: (e.g. mini-clinical exam, etc.)  10. PROFICIENCY (Doing/Making, Co-ordinating/Operating, Observing/Analysing/Listening to/ Controlling/Driving, Choosing/Communicating/Enhancing, Conceiving/Visioning/Foreseeing)  10.1. Portfolio preparation  10.2. Clinical performance at outpatient wards  10.3. Clinical performance at inpatient wards  10.4. Clinical performance at night shifts (ward, emergency care unit, intensive care unit)  10.5. Other: (e.g. mini-clinical exam, etc.)</p> <p>A. Knowledge Assessment  a. Written Exam (MCQ+EMQ+KFQ) (F, S)  b. Objectively Structured Oral Examination (S)  c. Oral Examination (F)  d. Other:  B. Skills Assessment  a. Practical Examination (F)  b. Objectively Structured Practical Examination (S)  c. Mini Clinical Examination (S)  d. Other:  C. Attitude Assessment  a. Mini Clinical Examination (S)  b. Questionnaire (self-assessment) (F)  c. Paper case (S)  d. Observation of behaviour (360<sup>o</sup>) (F, S)  e. Other:  D. Competency Assessment  a. Mini Clinical Examination (S)  b. Clerkship/Internship Guide/Checklist Assessment (F, S)  c. Professional Portfolio Assessment (F)  d. Presentation Performance Assessment (F)  e. Seminar Performance Assessment (F)  f. Project Writing Assessment (S)  g. Other:  E. Proficiency Assessment  a. Mini Clinical Examination (S)  b. Clerkship/Internship Guide/Checklist Assessment (F, S)  c. Professional Portfolio Assessment (F)  d. Presentation Performance Assessment (F)  e. Seminar Performance Assessment (F)  f. Other:</p> <p>*F: Formative, S: Summative</p>
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## COURSE CONTENT

Week	Topics	Study Materials
1-6	Committee I: Basic Medical Sciences	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
7	Committee Exam	
8-15	Committee II: Cell	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
16	Committee Exam	
17-20	Committee III: Tissue I	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
21-22	Midterm Break (2 weeks)	
23	Committee III: Tissue I	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
24	Committee Exam	
25-32	Committee IV : Tissue II	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
33	Committee Exam	
34-39	Committee V: Energy and Metabolism	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos, Specifically designed phantoms, Medical and laboratory devices, Medical and non-medical consumables, Practice materials
40	Committee Exam	
43	Final Exam	
47	Incomplete Exam	

<b>RECOMMENDED SOURCES</b>	
<b>Textbooks</b>	<ul style="list-style-type: none"> <li>• Gray's Anatomy for Students</li> <li>• Hollinshead's Textbook of Anatomy</li> <li>• A Textbook of Neuroanatomy</li> <li>• Textbook of Biochemistry with Clinical Correlations</li> <li>• Harper's Illustrated Biochemistry</li> <li>• Lehninger Principles of Biochemistry</li> <li>• Biophysics: A Physiological Approach</li> <li>• Physics in Biology and Medicine (4th edition)</li> <li>• Introductory Biophysics: Perspectives on the Living State</li> <li>• Primer of Biostatistics</li> <li>• Junqueira's Basic Histology: Text and Atlas 13th Ed.</li> <li>• The Developing Human: Clinically Oriented Embryology, 10th Ed.</li> <li>• Molecular Biology of the Cell</li> <li>• Clinical Bioethics: Theory and Practice in Medical-Ethical Decision Making</li> <li>• Blood and Guts: A Short History of Medicine</li> <li>• Medical Microbiology 8th ed, 2016</li> <li>• Organic Chemistry</li> <li>• Guyton Physiology</li> <li>• Human Physiology</li> <li>• Basic Immunology, Functions and Disorders of the Immune System</li> </ul>
<b>Additional Resources</b>	<ul style="list-style-type: none"> <li>• Each instructor will provide her/his notes to the students</li> </ul>

<b>MATERIAL SHARING</b>	
<b>Documents</b>	Textbooks, Lecture presentations, Course notes, Checklists, Laboratory Practice Manuals, Videos
<b>Assignments</b>	
<b>Exams</b>	After the exam; exam questions, question discussions, individual performance analysis reports

<b>ASSESSMENTS</b>	
<p>Assessments table will be made with consideration of each learning objective for each committee and will be announced and explained in introductory lectures at the beginning of each committee.</p> <p><b>EXAMINATION MATRIX</b> MED 104 Basic Medical Sciences I</p>	
<u>Committee Exams</u>	: WE +
OSPE Written Exam:	
Number of Questions	100
Question Type	: Multiple Choice Questions*
	Committee Score (CS)= 95% of [90% CE (MCQ) + 10% (LPE)] + 5% of
PBL-P	
<u>Final Exam</u>	: WE
Number of Questions	200
Question Type	: Multiple Choice Questions*
<p>The mean of committee examinations and the final examination will form 60% and 40% of the end of the year grade, respectively.</p>	
Incomplete Exam	: WE
Number of Questions	: 100 - 200
Question Type	: Multiple Choice Questions*
MCQ: Multiple Choice Questions	

EMQ: Extended Matching Questions  
 OSPE: Objective Structured Practical Exam  
 WE: Written Examination (WE)  
 SRPC: Scientific Research and Publication Course

**COURSE  
 CATEGORY**

Professional (Knowledge and Skills: Normal structure and function of the human body at molecular, cellular,tissue and organ level; introduction to clinical practice-basic clinical skills)

**COURSE'S CONTRIBUTION TO PROGRAM**

	<b>PODG.1. Basic Professional Competencies</b>	<b>Contribution</b>				
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
	<b>POD.1.1. Clinical Competencies</b>					
<b>PO.1.1.1.</b>	<b>values</b> preventive health services, <b>offers</b> primary prevention (i.e. prevention of diseases for the protection of health), secondary prevention (i.e. early diagnosis and treatment) tertiary prevention (i.e. rehabilitation) and quaternary prevention (i.e. prevention of excessive and unnecessary diagnosis and treatment) services, <b>provides</b> consultancy on these issues.		X			
<b>PO.1.1.2.</b>	<b>employs</b> a patient-centered approach in patient management.		X			
<b>PO.1.1.3.</b>	<b>recognizes</b> most frequently occurring or significant clinical complaints, symptoms, signs, findings and their emergence mechanisms in clinical conditions.		X			
<b>PO.1.1.4.</b>	<b>takes</b> medical history from the applicant himself/herself or from the individual's companions.	X				
<b>PO.1.1.5.</b>	<b>does</b> general and focused physical and mental examination.		X			
<b>PO.1.1.6.</b>	<b>interprets</b> findings in medical history, physical and mental examination.				X	
<b>PO.1.1.7.</b>	<b>employs</b> diagnostic procedures that are used frequently at the primary health care level.	X				
<b>PO.1.1.8.</b>	<b>selects</b> tests that have evidence-based high efficacy at the primary health care level and <b>interprets</b> results.	X				
<b>PO.1.1.9.</b>	<b>makes</b> clinical decisions using evidence-based systematic data in health care service.				X	
<b>PO.1.1.10</b>	<b>performs</b> medical interventional procedures that are used frequently at the primary health care level.	X				

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<b>PO.1.1.11</b>	<b>manages</b> healthy individuals and patients in the context of health care services.		X			
<b>PO.1.1.12</b>	<b>keeps</b> medical records in health care provision and <b>uses</b> information systems to that aim.	X				
	<b>POD.1.2. Competencies related to Communication</b>					
<b>PO.1.2.1.</b>	throughout his/her career, <b>communicates</b> effectively with health care beneficiaries, co-workers, accompanying persons, visitors, patient's relatives, care givers, colleagues, other individuals, organizations and institutions.			X		
<b>PO.1.2.2.</b>	<b>collaborates</b> as a team member with related organizations and institutions, with other professionals and health care workers, on issues related to health.				X	
<b>PO.1.2.3.</b>	<b>recognizes</b> the protection and privacy policy for health care beneficiaries, co-workers, accompanying persons and visitors.				X	
<b>PO.1.2.4.</b>	<b>communicates</b> with all stakeholders taking into consideration the socio-cultural diversity.					X
	<b>POD.1.3. Competencies Related to Leadership and Management</b>					
<b>PO.1.3.1.</b>	<b>manages</b> and <b>leads</b> within the health care team in primary health care organization.					
<b>PO.1.3.2.</b>	<b>recognizes</b> the principles of health management and health sector economy, models of organization and financing of health care services.					
<b>PO.1.3.3.</b>	<b>recognizes</b> the resources in the health care service, the principles for cost-effective use.					
	<b>POD.1.4. Competencies related to Health Advocacy</b>					
<b>PO.1.4.1.</b>	<b>recognizes</b> the health status of the individual and the community and the factors affecting the health, <b>implements</b> the necessary measures to prevent effects of these factors on the health.	X				
<b>PO.1.4.2.</b>	<b>recognizes</b> and <b>manages</b> the health determinants including conditions that prevent access to health care.	X				
	<b>POD.1.5. Competencies related to Research</b>					
<b>PO.1.5.1.</b>	<b>develops, prepares</b> and <b>presents</b> research projects					
	<b>POD.1.6. Competencies related to Health Education and Counseling</b>					
<b>PO.1.6.1.</b>	<b>Provides</b> consultancy services and <b>organizes</b> health education for the community to sustain and promote the health of individual and community.		X			
	<b>POD.2. Professional Values and Perspectives</b>					
	<b>POD.2.1. Competencies related to Law and Legal Regulations</b>					
<b>PO.2.1.1.</b>	<b>performs</b> medical practices in accordance with the legal framework which regulates the primary health care service.					X
	<b>POD.2.2. Competencies Related to Ethical Aspects of Medicine</b>					
<b>PO.2.2.1.</b>	<b>recognizes</b> basic ethical principles completely, and <b>distinguishes</b> ethical and legal problems.					X
<b>PO.2.2.2.</b>	<b>pays importance to</b> the rights of patient, patient's relatives and physicians, and <b>provides</b> services in this context.					X
	<b>POD.2.3. Competencies Related to Social and Behavioral Sciences</b>					
<b>PO.2.3.1.</b>	<b>ates</b> historical, anthropological and philosophical evolution of medicine, with the current medical practice.					

<b>PO.2.3.2.</b>	<b>cognizes</b> the individual's behavior and attitudes and factors that determine the social dynamics of the community.					
<b>POD.2.4. Competencies Related to Social Awareness and Participation</b>						
<b>PO.2.4.1.</b>	<b>leads</b> community with sense of responsibility, behavior and attitudes in consideration of individual behaviors and social dynamics of the community, and if there is a necessity, <b>develops</b> projects directed towards health care services.					
<b>POD.2.5. Competencies Related to Professional Attitudes and Behaviors</b>						
<b>PO.2.5.1.</b>	<b>displays</b> a patient-centered and holistic (biopsychosocial) approach to patients and their problems.					
<b>PO.2.5.2.</b>	<b>respects</b> patients, colleagues and all stakeholders in health care delivery.			X		
<b>PO.2.5.3.</b>	<b>displays</b> the proper behavior in case of disadvantaged groups and situations in the community.					
<b>PO.2.5.4.</b>	<b>takes</b> responsibility for the development of patient safety and healthcare quality.					
<b>PO.2.5.5.</b>	<b>evaluates</b> own performance as open to criticism, <b>realizes</b> the qualifications and limitations.					
<b>PODG.3. Professional Development and Self-Worth</b>						
<b>PODG.3.1. Personal Development and Values</b>						
<b>PO.3.1.1.</b>	<b>embraces</b> the importance of lifelong self-learning and <b>implements</b> .					X
<b>PO.3.1.2.</b>	<b>embraces</b> the importance of updating knowledge and skills; <b>searches</b> current advancements and <b>improves</b> own knowledge and skills.					X
<b>PO.3.1.3.</b>	<b>uses</b> English language at least at a level adequate to follow the international literature and to establish communication related to the profession.					X
<b>POD.3.2. Competencies Related to Career Management</b>						
<b>PO.3.2.1.</b>	<b>recognizes</b> and <b>investigates</b> postgraduate work domains and job opportunities.					
<b>PO.3.2.2.</b>	<b>recognizes</b> the application requirements to postgraduate work/job domains, and <b>distinguishes</b> and <b>plans</b> any requirement for further training and work experience.					
<b>PO.3.2.3.</b>	<b>prepares</b> a resume, and <b>recognizes</b> job interview methods.					
<b>POD.3.3. Competencies Related to Protection and Development of Own Physical and Mental Health</b>						
<b>PO.3.3.1.</b>	<b>implements</b> the rules of healthy living.					
<b>PO.3.3.2.</b>	<b>displays</b> appropriate behavior specific to work under stressful conditions.					
<b>PO.3.3.3.</b>	<b>uses</b> self-motivation factors.					



<b>ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION</b>			
<b>ACTIVITIES</b>	<b>Quantity/ day</b>	<b>Time (hour)</b>	<b>Workload (hour)</b>
Lectures	485		485
Laboratory Practices	58	1	58
Scientific Project Writing	1	15	15
Independent Study for Mid-term Exam	397	1	397
Mid-term Exam (MCQ+OSPE)	10	2	20
Independent Study for Final Exam	223	1	223
Final Exam (MCQ)	1	4	4
SCIENTIFIC RESEARCH and PROJECT I Exam	1	1	1
Total Workload			1203
Total Work Load / 30 (h)			40.1
ECTS Credits of the Course			40