COURSE INFORMATON					
Course Title	*Code*	*Phase/Semester*	*L+P Hour*	*Credits*	*ECTS*
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

Prerequisites	Fullfilled the admission requirements for the program

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

Goals

In evidence based manner;

1. *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.*

Content

Course Components:

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 Enegry and Metabolism (6 weeks)

CONTENT of COURSE

Anatomy Department (total 76+26)

Topics	Hour		Committee
	Theoretical	Practical	
Introduction to Anatomy	1	0	1
Terminology in Anatomy	1	0	1
Introduction to Osteology	1	0	1
Bones of the Shoulder	1	0	1
Bones of the Upper Limb	2	0	1
Bones of the Shoulder and Upper Limb	0	1	1
Bones of the Pelvis	1	0	1
Bones of the Lower Limb	2	0	1
Bones of the Pelvis & Lower Limb	0	1	1
Vertebral column, ribs and sternum	2	1	2
Neurocranium	3	1	2
Viscerocranium	3	1	2
Introduction to Arthrology	2	0	3
Joints of the Upper Limb	3	1	3
Joints of the Lower Limb	3	1	3
Joints of the Vertebral Column	1	0	3
Joints of the Axial Skeleton	1	0	3
Joints of the Vertebral Column and Axial Skeleton	0	1	3
Joints of the Cranium and 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 Vasculature of the Thoracic Wall	1	0	4
Nerves and Vasculature of the Abdominal Wall	1	0	4
Nerves and Vasculature of the Thoracic and Abdominal Wall	0	1	4
Discussion	2	0	4
Muscles of the Pelvic Girdle and Gluteal Region	1	0	5
Muscles of the Pelvic Girdle	1	1	5
Muscles of the Thigh	2	1	5
Muscles of the Leg	2	1	5
Muscles of the Foot	2	1	5
Lumbosacral Plexus	2	0	5
Nerves of the Lower Limb	1	0	5
Vasculature of the Lower Limb	1	0	5
Lumbosacral Plexus, Nerves and Vasculature of the Lower Limb	0	1	5
Discussion	2	0	5

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 (α, β 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, α 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	3
Life Cycle; School Age, Adolescence and Adulthood	1	0	3
The Biological Bases of Behavior	2	0	3
Life Cycle; Aging, Death and Bereavement	2	0	3
Sleep and Sleep Disorders	1	0	4
Substance Related Disorders	1	0	4
Psychoanalythic 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 Devopmental 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
Haemopoesis	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? Cells and Tissues of Immune System	4	-	3
Innate Immunity Adaptive Immunity	4	-	4
Signal Transduction in Immunity (1) Cytokines and Immune Markers (1) Antigen antibody reactions (2)	4	-	5

Microbiology Department (total 12)

Topics	Hour		Committee
	Theoretical	Practical	
Introduction to Basic Mİcrobiology 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

Organic Chemistry Department (total 18 h)

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	

Medical Biology Department (total 45 h + 6 h)

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
Mithocondrial Genome	2	0	5

Medical History and Ethics (total 20)

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 Tıbbiye 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

SCIENTIFIC RESEARCH AND PROJECT I (total 4 h + small group studies 15 h)	Hour		Committee
Topics	**Theoretical**	**Practical**	
What is Scientific Research and Scientific Methodology?	1		1
Searching Scientific Literature	1		1
Scientific Study Design and Types of Scientific Research	1		3
How to Prepare and Write a Scientific Project?	1		3
Small Group studies	3		1
Small Group studies	3		2
Small Group studies	3		3
Small Group studies	3		4
Small Group studies	3		5
Problem Based Learning (PBL, total 28 h)	**Hour**		**Committee**
	Theoretical	**Practical**	
	4		1
	6		2
	6		3
	6		4
	6		5
Health Law total 42 h)	**Hour**		**Committee**
	Theoretical	**Practical**	
Basic Legal Concepts	2	0	1
Branches of Law	2	0	1
International Legal Documents	2	0	1
Patients' rights	2	0	1
Physicians' rights and responsibilities	2	0	1
Patient autonomy	2	0	2
Privay and data protection	2	0	2
Informed consent	2	0	2
Proving consent	2	0	2
Presumed consent	2	0	2
Forced treatment	2	0	2
Euthanasia	2	0	2
Proxy agreement and liability	2	0	2
Contractor agreement and liability	2	0	2
Complication and malpractice	2	0	3
Criminal Responsibility	2	0	3
Clinical Trials	2	0	3
Abortion and sterilisation	2	0	3
Gender affirming care and surgery	2	0	3
False documentation	2	0	3
Health tourism	2	0	3

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
1.0. explain information about medical history, anatomy, physiology, embryology, histology, organic chemistry, biology, biophysics, biochemistry, biostatistics, microbiology, immunology, behavioral sciences, civilization history, health law and medical ethics, and elective courses.	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.	1, 6	A

2.0.for biophysics; 2.1.explain basic terms and concepts. 2.2.explain its essential application areas in medicine.	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.	1, 6	A
3.0. explain the structure and function of the cell.	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.	1, 6	A
4.0. describe the stages of early embriyonic development	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.	1, 6	A
5.0. define four basic tissue types with cells and extracellular matrix.	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.	1, 6	A
6.0. define transportmechanism of biological membranes and its correlation with ATP usage	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4.,	1, 6	A

	2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.		
7.0. list the enzymes in blood coagulation	1.1.1.,1.1.2.,1.1.3.,1.1.4., 1.1.5., 1.1.6, 1.1.7., 1.1.8., 1.1.9., 2.1.1.,2.1.2., 2.1.3., 2.1.4., 2.5.1, 2.5.2., 2.5.3, 3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.	1, 6	A
8.0. for enzymes; 8.1. list basic properties and classes of enzymes, 8.2. describe regulatory functions of enzymes, 8.3. define the functions of enzyemes in	1.1.1.,1.1.2.,1.1.3.,1.1.4., 1.1.5., 1.1.6., 1.1.7., 1.1.8., 1.1.9, 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4., 3.2.1.,3.2.2.,3.2.3.	1, 6	A
9.0.define the link between the structure and function of tissues	1.1.1.,1.1.2.,1.1.3.,1.1.4., 1.1.5., 1.1.6, 1.1.7, 1.1.8., 1.1.9, 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.	1, 6	A
10.0.define muscular, vascular and nervous system	1.1.1.,1.1.2,1.1.3.,1.1.4.,1 .1.5.,1.1.6.,1.1.7.,1.1.8.,1. 1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1,2.3.2, 2.4.1.,2.4.2.,2.4.3. 2.5.1., 2.5.2.., 2.5.3., 3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.	1, 6	A
11.0.list basic properties and classes of microorganisms.	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
12.0. describe basic terms and concepts about first aid.	1.1.1.,1.1.2,1.1.3.,1.14.,1. 1.5.,1.1.6.,1.1.7.,1.1.8.,1. 1.9.,	1, 6	A

	2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.3.1,2.3.2, 2.4.1,2.4.2,2.4.3 2.5.1, 2.5.2., 2.5.3		
13.0. describe basic terms and concepts of communication skills	2.5.1., 2.5.2., 2.5.3.	1, 6	A
14.0.describe basic terms and concepts about epidemiology.	3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.	1, 6	A
15.0. list fundamental steps of a research study.	3.1.1.,3.1.2.,3.1.3.,3.1.4, 3.2.1,3.2.2,3.2.3	1, 6	A
16.0. describe biostatistics. Basic terms of concepts of biostatistics	3.1.1.,3.1.2.,3.1.3.3.,1.4, 3.2.1,3.2.2,3.2.3	1, 6	A
17.0.explain case scenario related basic medical science topics in a clinical context	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.	1,2, 6	A
18.0.define basic elements of immune response	1.1.1.,1.1.2.,1.1.3.,1.1.4., 1.1.5., 1.1.6., 1.1.7., 1.1.8., 1.1.9.,2.1.1., 2.1.2, 2.1.3., 2.1.4., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.	1, 6	A
19.0.describe scientific study design and types of scientific rearch describe scientific study design and types of scientific rearch	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.	1, 6	A

SKILLS			
1.0. apply first aid skills to anatomic models.	1.1.1.,1.1.2.,1.1.3.,1.1.4., 1.1.5., 1.1.6, 1.1.7, 1.1.8., 1.1.9.,2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.		
2.0. use communication skills in patient-doctor interviews in simulated settings.	1.1.1.,1.1.2.,1.1.3.,1.14., 1.1.5.,1.1.6.,1.1.7.,1.1.8., 1.1.9., 2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2.,2.4.3., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.3.1.4, 3.2.1.,3.2.2.,3.2.3.		
3.0. Search scientific literature	3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.		
4.0. apply basic laboratory techniques and use equipment.	1.1.1.,1.1.2.,1.1.3,1.1.4, 1.1.5., 1.1.6, 1.1.7, 1.1.8., 1.1.9., 3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.		
5.0. use biopsychosocial approach in medical practice.	2.1.2., 2.1.3., 2.1.4., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3.,3.1.4., 3.2.1.,3.2.2.,3.2.3.		
6.0. display (demonstrate) scientific reasoning, information literacy, and skills of self-directed, life-long learning.	1.1.1.,1.1.2.,1.1.3.,1.1.4., 1.1.5., 1.1.6, 1.1.7, 1.1.8., 1.1.9.,2.1.1., 2.1.2., 2.1.3., 2.1.4., 2.5.1., 2.5.2., 2.5.3., 3.1.1.,3.1.2.,3.1.3., 3.1.4., 3.2.1.,3.2.2.,3.2.3.		
7.0. write a scientific article review	3.1.1.,3.1.2.,3.1.,3.3.1.4., 3.2.1.,3.2.2.,3.2.3.		
ATTITUDES			
1.0. values teamwork, interpersonal skills, and significance of psychosocial issues	2.2.1., 2.2.2., 2.2.3., 2.2.4., 2.3.1.,2.3.2., 2.4.1.,2.4.2,2.4.3. 2.5.1., 2.5.2., 2.5.3.		

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

Assessment Methods:	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.) 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 (360^0) (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: *F: Formative, S: Summative

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	

RECOMMENDED SOURCES	
Textbooks	● Gray's Anatomy for Students ● Hollinshead's Textbook of Anatomy ● A Textbook of Neuroanatomy ● Textbook of Biochemistry with Clinical Correlations ● Harper's Illustrated Biochemistry ● Lehninger Principles of Biochemistry ● Biophysics: A Physiological Approach ● Physics in Biology and Medicine (4th edition) ● Introductory Biophysics: Perspectives on the Living State ● Primer of Biostatistics ● Junqueira's Basic Histology: Text and Atlas 13th Ed. ● The Developing Human: Clinically Oriented Embryology, 10th Ed. ● Molecular Biology of the Cell ● Clinical Bioethics: Theory and Practice in Medical-Ethical Decision Making ● Blood and Guts: A Short History of Medicine ● Medical Microbiology 8th ed, 2016 ● Organic Chemistry ● Guyton Physiology ● Human Physiology ● Basic Immunology, Functions and Disorders of the Immune System
Additional Resources	● Each instructor will provide her/his notes to the students

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

ASSESSMENTS

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.

EXAMINATION MATRIX

MED 104 Basic Medical Sciences I

Committee Exams : 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
Final Exam : WE
Number of Questions 200
Question Type : Multiple Choice Questions*

The mean of committee examinations and the final examination will form 60% and 40% of the end of the year grade, respectively.

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)

COURSES CONTRIBUTION TO PROGRAM					
COMPETENCE AREA-1 / Professional Practices	**Contribution**				
COMPETENCE 1.1. Health Service Provider	**1**	**2**	**3**	**4**	**5**
Competency 1.1.1. Integrates knowledge, skills, and attitudes acquired from basic and clinical medical sciences, behavioral sciences, and social sciences to provide health services.					**X**
Competency 1.1.2. Demonstrates a biopsychosocial approach that considers the individual's sociodemographic and sociocultural background without discrimination based on language, religion, race, or gender in patient management.					**X**
Competency 1.1.3. Prioritizes the protection and improvement of individuals' and community's health in the delivery of healthcare services.					**X**
Competency 1.1.4. Performs the necessary actions in the direction of maintaining and improving the state of health as considering the individual, social, social and environmental factors affecting health.					**X**
Competency 1.1.5. Provides health education to healthy/ill individuals and their families, as well as to other healthcare professionals, by recognizing the characteristics, needs, and expectations of the target audience.					**X**
Competency 1.1.6. Demonstrates a safe, rational, and effective approach in the processes of protection, diagnosis, treatment, follow-up, and rehabilitation in health service delivery.					**X**
Competency 1.1.7. Performs interventional and/or non-interventional procedures safely and effectively for the patient in the processes of diagnosis, treatment, follow-up, and rehabilitation.					**X**
Competency 1.1.8. Provides healthcare services considering patient and employee health and safety.					**X**
Competency 1.1.9. Considers changes related to the physical and socio-economic environment at both regional and global scales that					**X**

affect health, as well as changes in the individual characteristics and behaviors of those who seek healthcare services.					
COMPETENCE AREA-2 / Professional Values and Approaches	**Contribution**				
COMPETENCE 2.1. Adopting Professional Ethics and Principles	**1**	**2**	**3**	**4**	**5**
Competency 2.1.1. Considers good medical practices while performing the profession.					**X**
Competency 2.1.2. Fulfills duties and obligations within the framework of ethical principles, rights, and legal responsibilities required by the profession.					**X**
Competency 2.1.3. Demonstrates determined behavior in providing high-quality healthcare while considering the patient's integrity.					**X**
Competency 2.1.4. Evaluates own performance in professional practices by considering own emotions and cognitive characteristics.					**X**
COMPETENCE 2.2. Health Advocate					
Competency 2.2.1. Advocates for the improvement of healthcare service delivery by considering the concepts of social accountability and social responsibility in the protection and enhancement of community health.					**X**
Competency 2.2.2. Plans and implements service delivery, education, and counseling processes related to individual and community health, in collaboration with all stakeholders, for the protection and improvement of health.					**X**
Competency 2.2.3. Evaluates the impact of health policies and practices on individual and community health indicators and advocates for the improvement of healthcare quality.					**X**
Competency 2.2.4. Gives importance to protecting and improving own physical, mental, and social health and takes necessary actions for it.					**X**
COMPETENCE 2.3. Leader-Manager					
Competency 2.3.1. Demonstrates exemplary behavior and leadership within the healthcare team during service delivery.					**X**
Competency 2.3.2. Utilizes resources in a cost-effective, socially beneficial, and compliant manner with regulations in the planning, implementation, and evaluation processes of healthcare services as the manager in the healthcare institution.					**X**
COMPETENCE 2.4. Team Member					
Competency 2.4.1. Communicates effectively within the healthcare team and takes on different team roles as necessary.					**X**
Competency 2.4.2. Displays appropriate behaviors while being aware of the duties and responsibilities of healthcare workers within the healthcare team.					**X**
Competency 2.4.3. Works collaboratively and effectively with colleagues and other professional groups in professional practice.					**X**
COMPETENCE 2.5. Communicator					
Competency 2.5.1. Communicates effectively with patients, their families, healthcare professionals, and other occupational groups, institutions and organizations.					**X**
Competency 2.5.2. Communicates effectively with individuals and groups who require a special approach and have different sociocultural characteristics.					**X**
Competency 2.5.3. Demonstrates a patient-centered approach that involves the patient in decision-making mechanisms during the diagnosis, treatment, follow-up, and rehabilitation processes.					**X**
COMPETENCE AREA-3 / Professional and Personal Development	**Contribution**				
COMPETENCE 3.1. Scientific and Analytical Approach	**1**	**2**	**3**	**4**	**5**
Competency 3.1.1. Plans and implements scientific research, as necessary, for the population it serves, and utilizes the results obtained, as well as those from other research, for the benefit of the community.					**X**
Competency 3.1.2. Accesses and critically evaluates current literature related to their profession.					**X**
Competency 3.1.3. Applies evidence-based medicine principles in the clinical decision-making process.					**X**

Competency 3.1.4. Uses information technologies to enhance the effectiveness of healthcare, research, and education activities.					**X**
COMPETENCE 3.2. Lifelong Learner					**X**
Competency 3.2.1. Manages effectively individual study processes and career development.					**X**
Competency 3.2.2. Demonstrates skills in acquiring, evaluating, integrating new information with existing knowledge, applying to professional situations, and adapting to changing conditions throughout professional career.					**X**
Competency 3.2.3. Selects the right learning resources to improve the quality of health care and organizes the learning process.					**X**

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION			
ACTIVITIES	Quantity/ day	Time (hour)	Workload (hour)
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