University of Diyala – College of Medicine

2018-2019

First Year

Subject	Hours / week			Credits
	Theory	Practical	Seminars, tutorials	
Medical biology	60	60	15	7
Medical chemistry	60	60	30	8
Medical physics	60	60	15	7
Anatomy	60	90	30	8
Computer Science	30	60		4
Medical terminology	30			2
Arabic language	30			2
Human right and democracy	30			2
Total	360	330	90	40
Average x 5%				

Medical Physics Syllabus

1. Terminology, modeling, and measurement.

2. Physics of the body

2-1 Forces on and in the body.
2-1-1 Introduction
2-1-2 Statics
2-1-3 Frictional forces
2-1-4 Dynamics

2-2 Physics of the skeleton

2-2-1 Introduction
2-2-2 Bone composition
2-2-3 Skeleton design and bone strength
2-2-4 Lubrication of bone joints
2-2-5Measurement of bone mineral in the body

2-3 Energy, work, and power of the body

2-3-1 Introduction
2-3-2 Conservation of energy in the body
2-3-3 Energy changes in the body
2-3-4 Work and power
2-3-5 Heat losses from the body

2-4 pressure

2-4-1 Introduction
2-4-2 Measurement of pressure in the body
2-4-3 Pressure inside the skull
2-4-4 Eye pressure
2-4-5 Pressure in the digestive system
2-4-6 Pressure in the skeleton
2-4-7 Pressure in the urinary bladder
2-4-8 Pressure effects while diving
2-4-9 Hyperbaric oxygen therapy (HOT)

2-5 The physics of lung and breathing

2-5-1 Introduction
2-5-2 The airways
2-5-3 Interaction of blood and lungs
2-5-4 Measurement of lung volumes
2-5-5 Pressure-airflow-volume relationship of the lung.
2-5-6 Physics of alveoli
2-5-7 The breathing mechanism
2-5-8 Airway resistance
2-5-9 Work of breathing
2-5-10 Physics of some common lung diseas

2-6 the physics of the cardiovascular system

2-6-1 Introduction
2-6-2 Major components of the cardiovascular system
2-6-3 O_2 and CO_2 exchange in the capillary system
2-6-4 work done by the heart
2-6-5 Blood pressure and its measurement
2-6-6 Pressure across the blood vessel wall (transmural pressure)
2-6-7 Bernoulli's principle applied to the cardiovascular system

2-6-8 The velocity of blood flow
2-6-9 Blood flow (laminar and turbulent)
2-6-10 Heart sounds
2-6-11 The physics of some cardiovascular diseases
2-6-12 Some other functions of the blood

2-7 Electricity within the body

2-7-1 Introduction
2-7-2 The nervous system and the neuron
2-7-3 Electrical potential of nerves
2-7-4 Electrical signals from muscle (The electrocardiogram)
2-7-5 Electrical signals from the heart (The electrocardiogram)
2-7-6 Electrical signal from the brain (The electroencephalogram)
2-7-7 Electrical signals from the eye (the electrotinogram and the electrooculogram)
2-7-8 Magnetic signals from the heart and the brain (the magnetocardiogram and the magnetoencephalogram)
2-7-9 Current research involving electricity in the body

2-8 Physics of the ear and hearing

2-8-1 Introduction
2-8-2 The outer ear
2-8-3 The middle ear
2-8-4 The inner ear
2-8-5 Sensitivity of the ear
2-8-6 Hearing tests
2-8-7 deafness and hearing aids

2-9 Physics of eyes and vision

2-9-1 Introduction
2-9-2 Focusing elements of the eye
2-9-3 Some other elements of the eye
2-9-4 The retina-the light detector of the eye
2-9-5 The sensation of the vision
2-9-6 Didffraction effects on the eye
2-9-7 Visual acuity and resolution of the eyes
2-9-8 Optical illusions and related phenomena
2-9-9 Defective vision and its correction
2-9-10 Color vision and chromatic aberration
2-9-11 Instruments used in ophthalmology

3- Application of physics in medicine

3-1 Application of heat and cold in medicine
3-1-1 Introduction
3-1-2 Physical basis of heat and temperature
3-1-3 Thermometry and temperature scales
3-1-4 Thermography –mapping & body temperature
3-1-5 Heat therapy
3-1-6 Use of cold in medicine
3-1-7 Cryosurgery
3-1-8 safety with cryogenics

3-2 cardiovascular instrumentation

3-2-1 introduction
3-2-2 Biopotentials of the hearrt
3-2-3 Electrodes of ECG

3-2-4 Amplifier used with ECG
3-2 -5patient monitoring in ECG
3-2-6 Defibrillation
3-2-7 Pacemakers
3-3 Applications of electricity and magnetism in medicine
3-3-1 introduction
3-3-2 electrical shock
3-3-3 high frequency electricity in medicine
3-3-4 low frequency electricity and magnetism in medicine
3-3-5 current research involving electricity applied to body
3-4 sound in medicine
3-4-1 introduction
3-4 -2 general properties of sound
3-4-3 the body as a drum (percussion in medicine)
3-4-4 the stethoscope
3-4-5 ultrasound pictures of the sound
3-4-6 ultrasound to measure motion
3-4-7 physiological effects of ultrasound in therapy
3-4-8 the production of speech (phonation)
3-5 light in medicine
3-5-1 Introduction
3-5-2 measurements of light and its units
3-5-3 application of visible light in medicine
3-5-4 application of ultraviolet and infrared in medicine
3-5-5 Lasers in medicine
3-5-6 application of microscope in medicine
3-6 application of Radiation in medicine
3-6-1 physics of diagnostic X-ray
3-6-1 -1Introduction
3-6-1-2 production of X-ray beams
3-6-1 -3 absorption of X-ray by the materials
3-6-1-4 making an X-ray image
3-6-1-5 Radiation to patient from X-ray
3-6-1-6 producing live X-ray images- fluoroscopy
3*=-6-1-7 X-ray slices of the body
3-6-1-8 Radiation taken with out film
3-6-2 physics of Nuclear medicine and application of Radioisotopes
3-6-2 -1 Introduction
3-6 -2-2Basic characteristics and units of radioactivity
3-6-2 -3 sources of radioactivity for Nuclear medicine
3-6-2 -4 statistical aspects of Nuclear medicine
3-6-2 -5 basic instrumentation and its applications
3-6-2 -6 Nuclear medicine imaging devices
3-6-2 -7 physical principles of Nuclear medicine imaging procedure
3-6-2-8 therapy with radioactivity
3-6-2-9 Radiation doses in nuclear medicine
3-6-3 physics of Radiation therapy
3-6-3- 1 Introduction
3-6-3- 2 the dose units used in Radiotherapy
3-6-3- 3 Principles of Radiation therapy

3-6-3- 4 a short course in Radiotherapy treatment planning
3-6-3- 5 Megavoltage therapy
3-6-3- 6 short-distance in Radiotherapy or brachy thereby
3-6-3- 7 other Radiation sources
3-6-3- 8 closing though on Radiotherapy

3-6-4 Radiation protection

3-6-4- 1 Introduction
3-6-4- 2 Biological effect of ionizing Radiation
3-6-4- 3 Radiation protection units and limits
3-6-4- 4 Radiation protection instrumentation
3-6-4- 5 Radiation protection in diagnostic radiology
3-6-4- 6 Radiation protection in Radiation therapy
3-6-4- 7 Radiation protection in Nuclear medicine
3-6-4-8 Radiation accidents
3-7application of Nuclear physics in medicine
3-7-1 Nuclear magnetic Resonance NMR
3-7-2 magnetic resonance imaging (MRI)

Syllabus of practical physics

(**1) properties of matter**

(1-1) to find the density of liquid by means of a loaded test tube.
(1-2) experiment with a spiral spring.
(1-3) the acceleration of free fall by means of the simple pendulum.
(1-4) the coefficients of (1) static and (2) dynamic friction for wood on wood .
(1-5) the measurement of young's modulus for a wire.
(1-6) the surface tension of water by the capillary tube method /
(1-7) to determine how the surface tension of water varies with temperature using jaegers method.
(1-8) flow of water through a capillary tube:
a- to show that the rate of flow of water through it is proportional to the applied pressure.
b- to deduce the viscosity of water.
(1-9) by means of Ostwald's viscometer:
a- to compare the viscosities of two liquid.
b- to determine how the viscosity of a liquid varies with temperature.
(1-10) experiments with a cantilever.
(1-11) experiment with a bifilar suspension.
(1-12) an experiment on the flow of water through a capillary tube as an introduction to decay curves and study of half- life.

(2)- optics

(2-1) the refractive index of of (a) glass (b)a liquid by real and apparent depth using a travelling microscope.
(2-2) the refractive index of a liquid using a concave mirror.
(2-3) the focal length of a concave lens using a convex lens.
(2-4) to measure the radius of curvature of a mirror or the surface of a lens by means of a spherometer.
(2-5) the wavelength of sodium light by Newton's ring.

3- sound

(3-1) the velocity of sound by means of a resonance tube closed at one end.
(3-2) to determine the frequency of a tuning fork by means of a sonometer.

(4)- electricity and magnetism.

(4-1) the resistivity of the material of a wire using wheat stones bridge.
(4-2) a simple graphical method for determining both the e.m.f. and the internal resistance of a cell.

(4-3) the internal resistance of a cell using a potentiometer .
(4-4) the resistance and electrical conductivity of an electrolyte by kohlrauch s method .
(4-5) to draw a hysteresis curve for a specimen of steel.
(4-6) experiments with the C.R.O.
(4-7)behavior of a capacitance towards alternating current .
(4-8) to investigate the properties of a series resonance circuit .
(5)- radioactivity (theoretically)
(5-1) safety precautions .
(5-2) to investigate the characteristics of a Geiger –muller (G-M) tube.
(5-3) to use a(G-M) tube :
a- to detect backgrounds radiation .
b- to detect and identify the principal nuclear radiations .
c- to demonstrate the directional emission from a radioactive source .
(5-4) investigation of the absorption of gamma radiation by lead .
(6)-Applications of physics in medicine
(6-1) thermometry (thermometer)
(6-2)measurement of pressure in the body(sphygmomanometer)
(6-3) sperometar
(6-4) Bernoulli's principle (blood flow and Doppler effect)
(6-5) electricity with the body .
(6-5-1) ECG electrocardiogram
(6-5-2) EMG electomyogram.
(6-5-3) EEG electroencephalogram.
(6-5-4) HOLTER ECG
(6-6) electrical shock
(6-7) sound and ultrasound
(6-7-1)stethoscope
(6-7-2) Echocardiography
(6-7-3) sonar
(6-7-4) Doppler effect
(6-8) radio therapy .
(6-8-1) radiation sources (radio isotopes)
(6-8-2) therapeutic x-rays
(6-9) diagnostic x- rays
(6-9-1) radiography
(6-9-2) fluoroscope
(6-9-3) CT scan.
(6-9-4) tomography.

Medical Chemistry Syllabus

1. Basic principles and perspectives in medical chemistry and biochemistry (3 hours)
2. Chemistry of carbohydrates (6 hours)
3. Chemistry of lipids (6 hours)
4. Biological membranes and transport (3 hours)
5. Amino acids and peptides (3 hours)
6. Proteins structure and functions (3 hours)
7. Chemistry of nucleotides and nucleic acids (3 hours)
8. Chemistry of nucleic acids (3 hours)
9. Enzymology (6 hours)
10. Nutrition and vitamins (6 hours)
11. Body fluids (3 hours)

Medical Biology Syllabus

1. Cells make up living things (4 Hrs)

Cell theory, Microscopy of today, Prokaryotic cell, Eukaryotic cell, Organelles'(cell membrane , cytoplasm , Nucleus, Ribosomes , Lysosomes, Mitochondria, Golgi apparatus , Cytoskeleton , Vacuoles) , Cilia, Flagella, How Eukaryotic cell Evolved .

2. Membrane models Have Changed (4 hrs)

Early observation, plasma membrane complex, plasma membrane composition, Cell-Cell Recognition, How molecules cross plasma membrane , Transport , Animal cell Junctions, A gap protein .

3. Energy (2 hrs)

Kinetic Energy, Free Energy, Potential Energy, Metabolic reactions, Energy transportations, Metabolism, ATP Energy, Metabolic pathways and Enzymes, phosphorylation &DE phosphorylation, enzymes Activities &inhibition, ATP production.

4. How Cells Acquired ATP (2 hrs)

Cellular respiration, NAD+&FAD, Coenzyme, outside of mitochondria, Inside of mitochondria, Glycolysis, Completion of Aerobic respiration, Electron transport system, Metabolic pool and Biosynthesis, Fermentation.

5. Cells Divisions (4 hrs)

How prokaryotic cell divide, Eukaryotic cell chromosomes, Cell Cycle, How Eukaryotic cell divide, Animals cell divide, comparing between prokaryotic and eukaryotic division.

6. Halving the chromosome Number

Sexual reproduction, Mitosis, Meiosis, Crossing over , Chromosomes Numbers, Phases of mitosis and meiosis , Human life cycle , comparison of mitosis with meiosis, Spermatogenesis , Oogenesis, comparison of spermatogenesis with oogenesis, Significance of meiosis, meiosis production of Genetic variations, Advantage of meiosis.

7 Introducing Gregor Mendel (4hrs).

monohybrid crosses, Mendel's law of segregation, Modern Genetics Has an Explanation, Probability, a Dihybrid Cross, law of independent assortment. Meiosis explains these results of independent assortment.

8. Chromosomes and genes (4 hrs)

Dominance Has Degrees, A Gene Controls, Genes Interact, Environment Affects the Phenotype, Chromosomes Contain Genes, Sex chromosomes, Chromosomes Mutations, Chromosomes changing

9. Considering the Chromosomes

Karyotypes, Nondisjunction &Abnormalities, Down Syndrome, X and Y Numbers Change, Fragile X Syndrome, Considering Autosomal Traits, Some Disorders Are Dominant, Some Disorders Are Recessive, Pedigree Charts, Multiple Alleles, Considering Sex-Linked Traits, Some Traits are Sex-influenced.

10. **Searching for the Genetic Material**

Tetranucleotide hypothesis, Finding the Transforming Substance, Finding the Structure of DNA, DNA Replication, Prokaryotic Versus Eukaryotic Replication.

11.What Genes Do

How Genes Are Expressed, Transcription, How Genes Code for Amino Acids, Genetic Code, Messenger RNA is Processed, Translation, Mutations.

Medical Biology -Practical

1. Introduction to the cell
-Definition, cell benefits, types of it, Prokaryotic cell (ex.bacterial cell) Euokaryotic cell (animal cell)
2. Cell Organells and Features
-Nucleus, Cytoplasm,Golgi apparatus, Mitochondria,
3. Microscope types, -Light M., Electronic M.- Parts of it, -Function of it
4. Cell division, Haploid &Diploid, Mitosis & Meiosis , Sexual cell division
-Human testis (Spermatogenesis), Human ovaries (Oogenesis)
5. Tissue type, Animal tissue, Epithelial tissue (Simple & Stratified T, Connective t. (structure, classification, function, features)
6. Muscular tissue, Skeletal m., smooth m., cardiac m. structure & features
7. Glandular Tissue (types and function).
8. Blood Tissue, Structure and classification of blood cells.
9. Blood film (Test, examination and diagnosis of blood cells)
10. Molecular Biology (DNA structure and replication)
11. Molecular Biology -PCR technique
12. Molecular Biology-RNAs
13. Gene expression
14. Bacterial Culture
15. Cell Culture Technique
16. Embryo Culture Technique
17. Viral tissue culture Technique
18.Karyotyping
19.Phagetyping

Syllabus of anatomy

- Introduction (Terms of position & movement -The human body-Structure of Human body, Skin, fasciae, Blood vessels)
- Muscles, Bones, Joints Nervous System
- Upper limb: Osteology of upper limb
- Surface Anatomy Fasciae of upper limb Cutaneous nerves and vessels
- Pectoral region, Axilla, Back, Lymphatic drainage
- Brachial plexus, Nerve injuries
- Arm (anterior & posterior)
- Forearm (Anterior & posterior compartment)
- Hand
- Radiological Anatomy
- Lower limb, Osteology of lower limb
- Surface Anatomy, Fascia of lower limb, Cutaneous vessels, nerves & lymphatic's
- Gluteal region Post

- compartment thigh Popliteal fossa
- Ant. compartment thigh Med. compartment thigh Lumber plexus
- Leg
- Foot Arches of foot
- Radiological Anatomy
- Thorax, Thoracic walls osteology
- Muscles Nerves & vessels
- Thoracic cavity, Pleura, lungs
- Mediastinum Superior mediastinum
- Heart Pericardium
- Heart chambers Conducting system
- Post. Mediastinum Joints, Movements
- Radiological Anatomy

Medical terminology

Orientation of medical terminology
Objectives of medical terminology
Term of position and colors
Term of numbers
Term of negatives
Term of skin disorder
Term of musculoskeletal disorder
Term of cardiovascular disorder
Term of blood and blood formation organs
Term of respiratory disorder
Condition general
Digestive disorders
Urogenetal disorder
Gynecological disorders
Obstetrical disorders
Fetal neonatal disorder
Endocrine disorder
Disorders of sense
Disorders of vision
Disorder of hearing
Diagnostic disorders
Symptomatic disorder

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2018-2019

Second Year

Subject	Hours / week			Credits
	Theory	Practical	Seminars, tutorials	
Anatomy	60	150	30	10
Histology	75	45	15	7
Embryology	30			2
Physiology	150	90	60	15
Biochemistry	60	60	30	8
Total	375	345	135	42
Average x 5%				

Syllabus of anatomy

- Anterior abdominal wall Male external genitalia
- Abdominal cavity Peritoneum
- Abdominal viscera
- Diaphragm Post. Abdominal wall
- Blood supply of abdomen & Pelvis Autonomic supply Lymphatic drainage
- Bony pelvis Pelvic walls Female external genitalia
- Pelvic viscera
- Perineum
- Vessels, nerves of pelvis & perineum
- Head & neck skull
- Vertebral column Cervical vertebrae
- Face, Muscles Blood & Nerve supply Lymphatic drainage scalp
- Neck, surface anatomy Structural organization Fasciae of Neck Triangles & contents
- Cranial Meninges Folds of dura mater Venous sinuses
- Orbit Lacrimal apparatus
- Temporal & infra temporal fossae Tempromandibular joint
- Root of Neck Thyroid & Parathyroid
- Cranial nerves Examination injuries
- Lymphatic drainage Oral cavity, pharynx Larynx
- Nose, Pterygopalatine fossa ear

Syllabus of histology

- Epithelial tissue
- Connective tissue
- Adipose tissue
- Cartilage
- Bone
- Nerve tissue
- Muscle tissue
- Circulatory system
- Blood cell
- Hematopoiesis
- Lymphoid organ
- Digestive tract
- Organs associated with digestive tract
- The respiratory system
- Skin
- The urinary system
- Endocrine glands
- Male reproduction
- Female reproductive
- Photo receptors and audio receptors

Syllabus of embryology

- Introduction to molecular regulation signaling
- Gametogenesis conversion of germ cell into male and female
- First week to development: Ovulation to implantation
- Second week of development Bilaminar germ disc
- Third week of development,Trilaminar germ disc51
- Third to eighth week the embryonic period
- The gut tube and the body cavities
- Third month to birth: the fetus and placenta
- Birth defects and prental diagnosis

Syllabus of physiology

1.Introduction to Physiology

- General and cellular basis of medical physiology
- Organization of the body
- Units for measuring concentration of solutes
- PH
- Buffers
- Diffusion
- Osmosis, and osmotic pressure

2. Body Fluids

- Fluid compartment of the body
- Measuring the volumes of the body's compartments
- Forces acting upon the ions
- Calculating osmolarity in complex solutions
- Anion gap
- Fluid movement

3. The Cell

- Microscopic observation of the cells
- Composition of human cell
- Basic structures of the cell
- Types of protein in the membrane
- Transport of molecules across cell membrane
- Mediated-Transport systems
- Endocytosis and Exocytosis

4. Blood Physiology

- Composition and function
- The red blood cell (RBC)
- Hemoglobin and hemoglobin variants
- Iron metabolism, anemia, polycythemia.
- Destruction of the red blood cell
- The white blood cell (WBC)
- Morphology and classification specific function of the different variants
- The platelets
- Blood group and blood transfusion
- Homeostasis and blood coagulation
- The plasma composition and function
- The fibrinolytic activity of the plasma (Anti-clotting mechanism)

- Test of homeostasis
- The immune system, Allergy

5. Physiology of Muscle:

- Introduction and types of muscles
- Skeletal muscles, structure, motor unit.
- Excitability
- Mechanical response of the muscle
- Simple muscle twitch
- Types of contraction, muscle fatigue
- Summation of muscle contraction
- Effects of two muscles contraction
- Effects of repeated stimulation
- Clonus and tetanus
- All or non-law, muscle tone
- The sliding filament theory
- Thermal and chemical changes during muscle contraction

6. Physiology of the Nerve Cell (Neurophysiology):

- Prosperities of nerve fiber
- Transmission along nerve fibers
- Types of nerve fibers and compound action potential
- Ionic theory of the membrane potential
- Structure and types of nerve fiber
- Effect of cutting a motor nerve

7. Synaptic and Neuromuscular Transmission:

- Synaptic transmission
- Ionic basis
- Convergence and divergence, spatial and temporal
- Neuromuscular junction
- Neuromuscular transmission and blocking substances

8. Autonomic Nervous System (ANS)

- Introduction and definition
- Functional anatomy: sympathetic and parasympathetic systems
- The concept of membrane receptor
- Chemical transmission in the autonomic nervous system
- Function of sympathetic and parasympathetic nervous systems

9. Cardio Vascular System (CVS)

- The heart
- Pulmonary and systemic circulation
- Physiology of cardiac muscle
- The functions of the heart valves
- Heart sounds
- Prosperities of cardiac muscle (Autorhythmicity, Excitability, Conductivity)
- Cardiac action potentials
- Excitation-contraction coupling in the heart muscle
- Frank-Starling's law of the heart
- Electrical potentia of the heart (ECG)
- Electrical axis and cardiac vector (right and left axis deviation)

10. Respiratory Physiology

- Respiration
- Respiratory airway
- Respiratory mechanism
- Action of respiratory muscles
- Air way resistance
- Chronic obstructive pulmonary disease (COPD)
- Elastic behavior of the lung (compliance)
- Pulmonary surfactant
- Opposing forces acting on the lung
- Work of breathing
- Lung volumes and capacities
- Gas exchange
- Factors influencing rate of gas transport
- Transport of O_2 and CO_2 by the blood
- O_2 –Hb dissociation curve
- Factors affecting the position of the curve
- Central regulation of respiratory control
- Chemical respiratory control (central chemoreceptors, peripheral chemoreceptors)

11. Gastrointestinal System

- Main function of GIT
- Composition of saliva
- Functions of saliva
- Swallowing (Deglutition)
- Lower esophageal sphincter
- Motor disorders of the esophagus
- Functions of stomach
- Mucus secretion by the stomach
- Regulation of gastric secretion
- Pancreas
- Bile salts
- Regulation of biliary secretion
- Functions of the liver
- Bilirubin metabolism and excretion
- Jaundice
- Small intestine
- Large intestine
- Absorption
- Regulation of GIT functions
- Gastrointestinal motility
- Emptying of the stomach
- Movement in colon
- Defaecation

12. Renal Physiology

- Functions of kidneys
- Functional anatomy of the kidney
- The nephron

- Macula densa
- The processes which are carried by the kidney (filtration, reabsorption, secretion)
- GFR
- Factors affecting GFR
- Factors affecting the rate of reabsorption
- Renin-Angio Tensin system
- Auto-regulation of GFR and RBF
- Renal mechanism for excreting diluted urine
- Renal mechanism for excreting concentrated urine
- Counter-current system
- Na+ excretion
- K+ excretion
- H+ secretion
- The micturition reflex
- Diuretics
- The acid-base balance

13. Endocrine System

- Endocrine glands
- Hormone
- Feed back mechanism
- Binding of hormone to the receptor
- Hypothalamus
- Pituitary gland
- Control of ADH secretion
- Anterior pituitary gland
- Classification of pituitary hormones
- Growth hormone
- Thyroid gland
- Parathyroid gland
- Goiter
- Supra renal gland (Adrenal gland)
- Cortex (Clucocorticoids, Mineral corticoids)
- Medulla
- Cushing syndrome
- Addisson's disease
- The pancreas (Glucagon)
- D.M

14. The Reproductive System

- Defects in gametogenisis
- Testis
- Gonadotrophic hormones
- Testosterone
- Spermatogenisis
- Seminal fluid
- Ovaries
- Progesterone
- Menstrual cycle

- Ectopic pregnancy

15. Physiology of Nervous System

- Special Senses
- Introduction and definition
- Auditory system (ear)
- Vestibular system
- The eye (visual system)
- The sense of smell
- Stretch reflex
- Spinal shock
- Synapse (excitatory synapse, inhibitory synapse)
- Supra spinal regulation of stretch reflex
- Electrical events at synapses
- Neural control of body temperature
- Fever
- Brain stem
- Central regulation of visceral function
- Control of feeding and appetite
- Thirst center
- Basal ganglia
- Physiology of the cerebellum and body posture control
- High functions integrated in human brain
- EEG
- Distribution of sleep stage

16. Body Temperature Regulation

- Normal temperature
- Shivering and non-shivering thermogenesis
- Heat loss
- Hypothalamic regulation of body temperature
- Fever
- Hypothermia

17. Sport physiology

- Types of exercise
- Aerobic exercise
- Effect of aerobic exercise on vascular system
- Anaerobic exercise
- Effect of anaerobic exercise on vascular system

Practical physiology- 1st term

1. RBC_s count
2. WBC_s count
3. Differential WBC_s count
4. Estimation of haemoglobin concentration
5. Platelets count
6. Erythrocyte sedimentation rate (ESR)
7. Packed cell volume (PCV)
8. Blood indices
9. Bleeding time

10. Clotting time
11. Prothrombin time
12. Blood grouping
13. Cross matching test
14. Blood banking

Practical physiology / 2nd term

1. Blood pressure measurement
2. Body temperature measurement
3. Examination of the peripheral pulses
4. Respiratory rate
5. Examination of the cranial nerves
6. Examination of motor & sensory systems
7. ECG
8. Interpretation of ECG
9. Pulmonary function test (spirometer)
10. Vision tests
11. Hearing tests
12. Heart sounds
13. Electromyography (EMG)
14. Electroencephalography (EEG)
15. Cardiopulmonary resuscitation (CPR).

Biochemistry Syllabus

1. Metabolism of carbohydrate (16 hours)
   Glycolysis and Gluconeogenesis.
   Citric acid cycle and oxidative phosphorylation.
   Hexose monophosphate shunt.
   Role of hexose monophosphate shunt in metabolism of WBG and in glucose-6-phosphate deficiency (favism).
   Glycogen metabolism.
   Factors which maintain blood glucose level constant.
   Diabetes mellitus.
   Digestion and absorption of carbohydrate.
2. Metabolism of lipids (12 hours)
   Classification of lipids.
   Plasma lipids.
   Fatty acid synthesis.
   Oxidation of fatty acid.
   Phospholipid metabolism.
   Cholesterol metabolism.
   Lipoprotein metabolism.
   Digestion and absorption of fat.
3. Metabolism of amino acids and proteins and their disorder (12 hours)
   Classification and functions of amino acids.
   General properties of proteins.
   Catabolism of amino acids.
   Urea cycle and detoxification of ammonia.
   Break down of phenyl alanine and tyrosine into acetoacetyl CoA.
   Inborn errors of amino acids metabolism.

Conversion of amino acids into specialized products , formation of chemical neurotransmitters.
Creatine and creatinine.
Porphrin metabolism and porphrin disorders.
Protein biosynthesis.
Digestion and absorption of protein.

4.Vitamins and Coenzymes (8 hours)

The fat soluble vitamins :
Vitamin A and the role of vitamin A in visual cycle.
Vitamin D metabolism and biochemical function.
Vitamin E and the antioxidant theory.
Vitamin K – mechanism of action in coagulation.

The water soluble vitamins:
Thiamin and biochemical functions.
Riboflavin and biochemical functions.
Niacin , functions and importance.
Pyridoxine and biochemical functions.
Pantothenic acid and coenzyme A.
Biotin and biochemical functions.
Folic acid , functions , metabolism and antagonism.
Vitamin B12 , mechanism of action and anemia.
Ascorbic acid and biochemical functions.

5.Nuclic acids metabolism. (14 hours)

Structures and general properties of nucleic acids.
Metabolism of purine and pyrimidine nucleotide inside human body.
Hyperuricemia and gout disease.
DNA synthesis.
Functions of human DNA.
Protein biosynthesis and the human genome.
Biochemical mutations.
Types of damage to DNA.
DNA analysis.
Use of recombinant DNA techniques for diagnosis of disease.
Use of recombinant DNA techniques for the prevention and treatment of disease

6. Hormones (8 hours)

Classification of hormones.
Mechanisms of hormones action.
Hormones that regulate fuel metabolism.
Hormones that regulate salt and water balance.
Hormones that regulate calcium and phosphate metabolism.
Hormones that regulate the body size and metabolism.
Hormones that regulate the male reproductive system.
Hormones that regulate the female reproductive system.

7.Metabolism of minerals and trace elements (4 hours)

Ca , Fe , Cu , Zn

8. Special topics (16 hours)

Cell membrane.
Liver and kidney function test.
Renal function.

Cancer and tumor mark.
Clinical enzymology.
Detoxification.

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Third Year

Subject	Hours / week			Credits
	Theory	Practical	Seminars, tutorials	
Pharmacology	90	90		9
Microbiology	75	60	15	7
parasitology	45	60	15	6
Medicine	45	60		5
Surgery	30			2
Community and family medicine	30	30		3
Pathology	60	60		6
Immunology	35	30	10	4
Total	410	390	40	42
Average x 5%				

Pharmacology Syllabus

1-Introduction to Pharmacology (4 hrs.)

- Pharmacokinetics.
- Drug-Receptor Interactions and Pharmacodynamics.

2-Drugs affecting the autonomic nervous system (4 hrs)

- Cholinergic aganists.
- Cholinergic antagonists.
- Adrenergic agonist.
- Adrenergic antagonist.

3-Drugs affecting the central nervous system (12 hrs)

- Neurodegenerative diseases.
- Anxiolytic and Hypnotic drugs.
- CNS stimulant.
- Anesthetics.
- Antidepressants.
- Neuroleptics.
- Opioids.
- Epilepsy.

4-Drugs affecting the cardiovascular system

- Heart failure.
- Antiarrythmics.

5- drugs.(6 hrs)

- Antihypertensives.
- Blood drugs.
- Hyperlipidemias.
- Diuretics.

6-Drugs affecting the endocrine system(6 hrs)

- Pituitary and Thyroid.
- Insulin and Oral hypoglycemic drugs.
- Estrogens and Androgens.
- Adrenal Hormones.

7-Respiratory system (6 hrs).

8-Gastrointestinal and Antiemetic drugs.

9-Chemotherapeutic drugs (16 hrs)

- Principle of antimicrobial therapy.
- Cell wall inhibitors.
- Protein synthesis inhibitor.
- Quinolones, Folic acid antagonists and Urinary tract antiseptics.
- Antimycobacterials.
- Antifungal drugs.
- Antiprotozoal drugs.
- Anthelmintic drugs.
- Antiviral drugs.
- Anticancer drugs.

Immunosuppressants.

10-Anti-inflammatory drugs and Autacoids. (6 hrs)

11-Anti-inflammatory drugs (6 hrs)

- Autacoids and Autacoids antagonists.

- Toxicology.

Microbiology Syllabus

- Introduction to microbiology
- Cell structure
- Growth and metabolism
- Bacterial genetics
- Pathogenesis of bacterial diseases
- Normal flora
- Antimicrobial agents and resistance
- Staphylococci
- Streptococci
- Gram negative cocci, Neisseria species
- Gram positive non-spore forming bacilli, Corynebacterium diphtheria, Listeria monocyogenes
- Gram positive aerobic spore forming bacilli, Bacillus anthracis, B.subtilis, B. cereus
- Gram negative spore forming bacilli, Clostridia species
- Gram negative bacilli,Salmonella, Shigella species
- Gram negative enteric bacilli,
- Proteus species, Pseudomonas
- Gram negative bacilli, Vibrio Cholera
- Gram negative bacilli, Compylobacter, H.pylori
- Gram negative bacilli, H. influenza species
- Gram negative bacilli, Brucella species
- Gram negative bacilli, Yersinia species
- Gram negative bacilli, Bordetella species
- Mycobacterium tuberculosis
- Other mycobacterium species, Spirochetes, Mycoplasma
- Actinomyces, Rickettsia, Chlamydia
- Introduction to Mycology
- The molds, classifications, species types, medical important types, pathogenesis
- The Yeast, classifications, the medical important types, pathogenesis, diseases caused by the yeast
- Antifungal types
- Introduction about virology
- Viral replication, DNA and RNA viruses
- Pathogenesis and host defenses
- Antiviral chemotherapy
- Viral vaccine
- Orthomyxoviruses
- Parainfluenza and Rspiratory syncytial virus
- Measles and Mumps viruses
- Togavirus (rubella virus)
- Rhabdoviruses (rabies)
- Corona viruses and SARS

- Picorna viruses, poliovirus, coxsackey
- Enteroviruses and Echovirus
- Rinoviruses and human rotavirus
- Retroviruses
- Viral hepatitis (HAV, HBV, HCV, HDV,HEV)
- Herpesviruses, HSV type 1 and 2,
- Human cytomegalovirus, Varicella-zoster virus
- EBV and Human herpes virus type-8 (Kaposi's sarcoma)
- Poxvirus and Molluscum
- Adenoviruses
- Papovaviruses (HPV) Human polyoma virus
- Human parvovirus B19
- Arthopod-borne viral infection
- Slow viruses' infection and unconventional viruses

Parasitology Syllabus

1.Introduction about types of parasite and host / and the relation ships

2.Entamoeba histolytica (Trophozoite&cyst stage) morphology, lifecycle, diagnosis,pathogenesis

3.E. coli, E.nanaand Iodamoeba butschlii) bydirect and indirect method

4.Giardia lamblia, Chilomastix mesnili, Trichomonas vaginalis morphology, lifecycle, diagnosis,pathogenesis.

5. Leshmania types and Trypanosoma cruzi

6. Ciliate: Balantidium coli

7. Plasmodium vivax, P. ovale

8. P.falciparium , P.malariae

9. Toxoplasma gondii

10.Introduction about helminthes, classification of helminthes ,Liver flukes , morphology, lifecycle, diagnosis, pathogenesis

11. Intestinal flukes & lung flukes morphology, life cycle, diagnosis,pathogenesis

12. Blood flukes morphology, lifecycle, diagnosis,pathogenesis

13. Cestoda: Diphyllobothrium latum, Taenia saginata and T.solium

14. Echinococcus granulosus andE.multiloculari

15. Hymenolepis nana, H.diminuta and Dipylidium caninum

16. Ascaris lumbricodies and Enterobius vermicularis

17. Trichinella spiralis ,Trichuristrichiura and Strogyloidesstercorali

18.Ancylostoma duodenale and Necator americanus morphology, lifecycle, diagnosis,pathogenesis

19. Wuchereria bancrofti,loa loa and Onchocerca volvulus morphology, lifecycle, diagnosis, pathogenicity

20. Anopheles, Gulex: mouth parts, larva, egg, male and female
21.Phlebotomus papatasii: male and female
22. Sarcoptes scabiei: male and female
23. Hard tick Cyclops of soft tick
24. Difficulty of develop vaccine against parasitic infection
25.Immunity against parasitic infection

Medicine syllabus

1. Introduction to clinical medicine
2. Pulse and temperature
3. Pain, headache, chest pain, abdominal pain
4.Couph, hemoptesis, dyspnea and cyanosis
5. Edema and ascites
6. Dyspahgia, vomiting, diarrhea and constipation
7. Jaundice, weight loss and appetite
8. Polyuria, dysuria and hematuria
9.Nutritional disorders: introduction
10. malnutrition
11. vitamins
12. Mineral deficiency
13. Medical diet and obesity
14. Clinical immunology: introduction
15. Immune reaction
16. HLA and disease, tissue typing
17. Immune deficiency state
18. Immunology and cancer
19.Immunosuppressive therapy
20. Disturbance in water and electrolyte and H concentration
21. Total body water, Water depletion and intoxication
22. Sodium depletion and excess
23. Potassium depletion and excess
24. Magnesium depletion and excess
25. Metabolic acidosis and alkalosis
26. Respiratory acidosis and alkalosis
27.Endemic diseases: protozoal infections
28. Helminthic infection
29. Trematods
30.The use of medical library

Surgery Syllabus

- Fluid balance
- Electrolyte balance
- Acid base balance
- Shock
- Haemorrhage
- Transfusion of blood and
- blood products
- Types of wounds
- Wound healing and adverse scars
- Wound infection
- Ulcers, sinuses and fistulas
- Tumor terminology
- Benign and Malignant tumors
- Biopsy
- Preoperative care and preparation
- Postoperative care

Immunology Syllabus

1. Introduction to immune system
2.Innate (Nonspecific) and specific immune response
3. Antigens
4. Complement system
5.Immunoglobulins: Structure and Function
6. Immunoglobulins: Isotypes, Allotypes and Idiotypes
7. Immunoglobulins: Genetics
8. Immunoglobulins: Ag-Ab Reactions and Selected Tests
9. Antibody Formation
10. Immunization
11. Immune cells and Ag Recognition
12. MHC and T cell receptors
13. Ag processing and presentation
14. Cell-cell interactions in immune responses (part 2)
15. Immunoregulation
16. Tolerance
17. Autoimmunity
18. Hypersensitivity reactions (part 1)
19. Hypersensitivity reactions (part 2)
20. Tumor Immunology (part 1)
21. Tumor Immunology (part 1)
22. Immunodeficiency (part 1)
23. Immunodeficiency (part 1)

Community and family medicine Syllabus

- Introduction and Definisionts.
- Data collection and Sampling methods.
- Data presentation.
- Measurements of central tendency.
- Measurement of variability.
- Range, variance.
- Standard deviation, coefficient of variation.
- Probability, types.
- Characteristics, N.D. curves.
- Importance, test.
- t-test.
- Chi-square test.
- Correlation and regression.
- First term exam.
- Introduction and definition about nutrition.
- Nutrients.
- Protein and fat.
- Carbohydrates.
- Vitamins and minerals.
- Nutrition of pregnancy and lactating women.
- Nutrition of hypertension and Diabetes Mellitus.
- Nutrition of thyroid.
- Nutrition of anemia and heart failure.
- Nutrition of renal failure.
- Total energy requirement.
- Nutritional assessment and recommended dietary awareness
- Second term exam.

Pathology Syllabus

- Introduction
- cell injury Cells injury
- Necrosis
- Degeneration
- Cellular adaption
- Calcification
- Healing and repair
- Bone fracture
- Acute and chronic inflammation
- Neoplasm
- Differentiation and anaplasia
- Preinvasive malignancy
- Hemodynamic disorder edema
- Hemorrhage and thrombosis
- Embolism and infraction Embolism

- Shock
- Hematoposis
- Anemia: classification
- Leukemia: classification
- Myeloproleferatine disorder
- Coagulation disorder
- General pathology of infectious disease
- General pathology of bacterial infections
- General pathology of viral infections'
- General pathology of parasitic and fungal infections'
- Sexual transmitted disease
- Classification of genetic Disease
- Single gene disease
- Immunopathology
- Immunodeficiency
- Autoimmune disease, -Transfusion medicine

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Fourth Year

Subject	Hours / week			Credits
	Theory	Practical	Seminars, tutorials	
Community	90	90	30	10
Forensic medicine	60	60		6
Medicine	120	90		11
Surgery	75	90	15	9
Obstetrics	60	60		6
Pathology	60	60		6
Total	465	450	45	48
Average x 20%				

Syllabus of surgery

1. **The vermiform appendix**
- Anatomy
- Microscopic anatomy
- Acute appendicitis (Pathophysiology, symptoms, signs diagnosis and treatment)
- Differential diagnosis of acute appendicitis
- Appendicular mass
- Appendiceal carcinoid

2. Anatomy and investigations of stomach and duodenal diseases
- Peptic ulcer
- Perforated peptic ulcer
- Gastritis and duodenitis
- Gastric outlet obstruction

3. Gastric lymphoma
- Hypertrophic pyloric stenosis of infancy
- Adenocarcinoma of the stomach
- Introduction to breast diseases (Anatomy, physiology, congenital abnormalities and investigations**)**

4.Mastitis
- Aberrations of normal development and involution
- Phyllodes tumors of the breast
- CA breast

5. The gall bladder and the bile ducts anatomy.
- functions and investigations of biliary diseases
- Gallstons
- Acute cholecystitis
- CBD stones

6.Cholangitis
- Bile duct stricture
- CA gallbladder

7. **Developmental disorders of the salivary glands**
- Inflammatory disorders of the salivary glands
- Sialadenitis
- Tumours of the **salivary glands**

7. Anatomy and functions of the liver
- Investigations of liver diseases

8. amoebic liver abscess
- Pyogenic liver abscess
- Hepatic adenoma
- Hydatid disease of the liver

9. Focal nodular hyperplasia of the liver
- Liver haemangioma
- Liver trauma

10.Approach to patient with acute abdomen
- Approach to patient with abdominal mass

11. Introduction to abdominal wall hernias

- Inguinal hernias

12.Umbilical hernia

- Para umbilical hernia
- Femoral hernia

13.Incisional hernias

- Burst abdomen

14. Introduction to intestinal obstruction (definition, types, complication

15. History to reach the diagnosis to different types of intestinal obstruction

- Investigations used in intestinal obstruction
- Management of acute intestinal obstruction
- Neonatal intestinal obstruction

16. Adhesional intestinal obstruction

- Ileus
- Intussusception
- Sigmoid volvulus
- Pseudo obstruction (Ogilvie's syndrome)
- Mesenteric vascular occlusion

17. Anatomy of the esophagus

- Physiology of the upper and lower esophageal sphincter
- Investigations if esophageal diseases
- Hiatus hernias
- CA esophagus

18. **Pancreas (Anatomy and investigations of pancreatic diseases)**

- Pancreatic fistula
- Cystic fibrosis of the pancreas

19. Acute pancreatitis

- Chronic pancreatitis

20.Adenocarcinoma of the exocrine pancreas

Insulinoma

- Gastrinoma
- VIPoma
- Somatostatinoma

21. Anatomy of the anal canal

- Symptoms and signs of anal diseases
- Investigations of anal diseases

22. **Perianal abscess**

- Fissure in ano
- Fistula in ano

23. **Hemorrhoids**

- Tumours of the anal canal

24.Meckles diverticulum

- Small bowel diverticulum
- Enterocutaneous fistula

- Bowel preparation

25. Tuberculosis of the bowel

- TB of the peritoneum
- Peritonitis and peritoneal abscess
- Mesenteric lymphadenitis
- Crohn’s disease

26. Ulcerative colitis

- Hirschsprung’s disease
- Segmoid diverticulum

27. Stomas

- angiodysplasia
- Adenocarcinoma of the colon
- FAP

28. Introduction to thyroid (anatomy, physiology and investigations)

- Hyperthyroidism and thyrotoxicosis
- Hypothyroidism

29. Retrosternal goiter

- Solitary thyroid nodule
- Thyroiditis
- Neoplasms of the thyroid
- Hyperparathyroidism
- Con's disease
- Pheochromocytoma

Syllabus of Obstetrics

1. **Normal pregnancy – physiological**
   - CVS
   - GIT
   - Renal
   - Blood
   - Nervous system
   - Dermatology
   - Respiratory
   - Endocrinology
2. **Fetal growth and development**
   - sprematogenesis
   - oogenesis
   - fertilization
   - all stages of fetal developments and growth
3. **Preconception, Antenatal care, diagnosis of pegnancy**
   - First trimester
   - Second trimester
   - Third trimester

4. Hematological abnormalities in pregnancy

- Iron deficiency anaemia
- Folic acid dficency anaemia
- Genetic anaemia

- Thrombocytopenia

5. Antenatal imaging and assessment of fetal wellbeing

- Assessment of chromosomal abnormality
- Antepartum assessment of fetal wellbeing

6. Prenatal diagnosis

- Ultrasound screening
- Maternal serum screening
- Diagnostic test
- CVS
- Amniocentesis
- Fetal blood sampling

7. 1st and 2nd trimester pregnancy loss

- Causes of abortion
- Types of abortion
- Diagnosis
- Treatment

8. **Minor disorders of pregnancy and problems due to abnormalities of pelvic organs**

- HEG
- Gastric reflex and constipation
- Skin changes
- Gynecologic tumors with pregnancy
- Diagnosis and treatments

9. **Venous thromboembolism**

- Causes
- diagnosis
- Prevention
- Treatment

10. Antepartum and postpartum haemorrhage

- Placenta previa
- Accidental hemorrhage
- Vasa previa

11. IUGR and amniotic fluid abnormalities

- Cause of IUGR
- Diagnosis and treatment
- Oligohydramnios
- polyhydramnios

12. Malposition and malpresentation

- Breech presentation
- Face and brow presentation
- Oblique and transverse lie
- Occiput posterior
- Causes
- Mode of delivery

13. Multiple pregnancy

- Twin
- High order pregnancy

14. **Hypertension in pregnancy**

- Causes

- Treatment
- Preeclampsia

15. Preterm labour and (PPROM)

- Causes
- Prevention
- Treatment

16. Diabetes in pregnancy

- Complications
- Treatment

17. **Medical disorders in pregnancy**

- Thyroid disease
- Renal disease
- Blood disease

17. Perinatal infection

- TORCH
- Syphilis
- Gonorrhea
- Chlamydia
- Candida

19. **Labour**

- Normal labour
- Abnormal labour
- Failure to progress

20. **Induction of labour and prolong pregnancy**

- Methods of induction
- Complication

21. Operative delivery

- Forceps
- Ventous

22. **Haematoma and perennial injures**

- Episiotomy
- Perineal injury

23. **Shoulder dystosia**

- Steps of management
- Complications

24. **Normal and abnormal puerperium**

- Lochia
- Puerperal pyrexia
- Breast abscess

25. **Psychiatric disorders in pregnancy and puerperium**

- Postnatal blues
- Depression
- Psychosis
- Diagnosis and treatments

26.Neonatology and anesthesia and analgesia in pregnancy

- Analgesia
- Anaesthesia
- Care of newborn

27. **Drug misuse and physical abuse**
    - Drugs and pregnancy

Syllabus of Community medicine

- General epidemiology: - Introduction. – Definition. – Prevalence. – Incidence.
- Measurements of risk.
- Source of infections.
- Definitions of common terms in communicable diseases.
- Study design.
- Screening for diseases.
- Evaluation of screening tests.
- Acute respiratory infection (ARI).
- Poliomyelitis.
- Whooping cough.
- Mumps.
- Diphtheria.
- Amebic dysentery.
- Hepatitis A and Hepatitis B.
- Typhoid fever.
- Meningococcal meningitis.
- Leishmaniasis.
- Hemorrhagic fever.
- IHD.
- Hypertension.
- Brucellosis.
- Measles.
- Cholera.
- ICD 10.
- Communication skills.
- TB .
- Rabies.
- Leprosy.

Medicine syllabus

1. Syptoms and signs of cardiovascular system (CVS) disorders Investigations of CVS
2. Coronary artery disease
3. Heart failure
4. Arrhythmias and anti- arrhythmic drugs
5. Vascular diseases systemic and pulmonary hypertension
6. Congenital heart diseases Pericardial heart diseases
7. Valvular heart diseases Cardiac muscle (myopathic) disorders
8. Viral infections
9. HIV/AIDS
10. STD infections
11. PUO/Septicemia
12. Infections by Mycoplasma,reckittsia, spirockittes
13. Mycobacterial and fungal infections
14. Gram positive cocci and bacilli infections anaerobic gram-positive infections
15. Infections of gram-negative organisms.

Syllabus of pathology

Gastrointestinal pathology, oral cavity oropharynx, and salivary glands
Esophagus pathology, stomach, gastritis
Tumors of stomach
Duodenal peptic ulcer, intestinal tumors
Liver pathology, patterns of hepatic injury
Pathogenesis of liver cirrhosis, alcoholic liver disease
Breast anatomy and histology, pathological classification of breast disease
Who pathological classification of breast tumors
The male breast
diseases of female genital system, malignant tumors
Endometrial tumors, classification of ovarian tumors
Pathology of male genital tract
Diseases of kidney and urinary tract, nephritis, haematuria
Renal changes in hypertension UTI
Tuberculosis in kidney, renal tumors
Bone pathology
Diseases of blood and lymphatic vessels, atherosclerosis, hypertension
Inflammation diseases of blood vessels
Ischemic heart diseases
cardiomyopathy
Congenital heart diseases
Respiratory system, bronchitis, pneumonia, Occupational lung diseases
The pleura
Pathology of endocrine system, thyroid gland, Thyroiditis, adrenal gland
parathyroid gland
Diseases of the skin
Diseases of nervous system

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Fifth Year

Subject	Hours / week			Credits
	Theory	Practical	Seminars, tutorials	
Medicine	75	90		8
Surgery	75	90	60	10
Gynecology	60			4
Pediatrics	60	90		7
Behavioral sciences	30	60		4
Dermatology	30	45		4
ENT	30	45		4
Ophthalmology	45	45		5
Orthopedic	45	45		5
Total	450	510	60	51
Average x 25%				

Syllabus of Medicine

1. Physiological review and normal hematological values
2. Investigations: blood film and bone marrow biopsy
3. Iron deficiency anemia
4. Hypoplastic and leukoerythroblastic anemia
5.Drug-induced blood dyscrasia.
6. Hemolytic disorders.
7. lymphomas
8. Plasma cell dyscrasia and myelosclerosis
9. Polycythemia
10. Hypersplenism and splenectomy
11. Hemorrhagic disorders: vascular purpura and thrombocytopenia.
12. Hemorrhagic disorders: clotting disorders and DIC
13. Thrombosis and use of anticoagulants, fibrinolytics and antifibrinolytics
14. Medical oncology.
15. Physiological and anatomical review
16. Consciousness and its diturbances; Confusion and delirium
17.Consciousness and its diturbances; Coma and its management
18. Disorders of communication (higher brain functions): aphasia, agnosia, apraxia
19.Vascular diseases: ischemic stroke
20. Vascular diseases: intracranial hemorrhage
21. Subarachnoid hemorrhage
22. Pain & its management
23. Primary and secondary headache
24. Space-occupying lesions
25. Neurocutaneous disorders
26.Infection of CNS: Viral and bacterial meningitis
27. Infection of CNS: encephalitis and myelitis
28. Convulsive disorders: epilepsy classification
29. Parkinson's disease and other movement disorders
30.Rheumatic diseases
31. Rheumatoid arthritis and variants
32. Ankylosing spondylitis
33. Osteoarthritis and gouty arthritis
34. Septic and psoriatic arthritis
35. Reciters disease
36. Systemic lupus erythematosus
37. Dermatomyisitis and scleroderma
38. Polyarteritis nodosa and variants
39. Polymyalgia rheumatica
40. Bechets disease

Syllabus of Surgery

1. Primary survey and resuscitation of trauma patient
2. Secondary survey and management
3. Initial assessment and shock management in trauma patient
4.Imaging investigations in trauma patient
    - Physiological changes in severely injured patients
    - Triangle of death
    - Crush injuries
5.Triage
    - Damage control surgery
    - Abdominal compartment syndrome
7.Metabolic response to trauma and lines of resuscitation
8. Head injury
    - Pathophysiology
    - Brain metabolism
    - Cerebral blood flow and autoregulation
    - Intracranial pressure and brain herniation
    - Primary versus secondary brain injury
    - Physiology of blood brain barrier
    - Physiology of different types of cellular injury in head injury
9. Classification of head injury
10. History taking in head injury
    - Clinical features
    - Examination
    - Glasgow Coma Score (GCS)
    - NICE guidelines for computerized tomography (CT) in head injury
    - Management of mild head injury
    - Management of moderate to severe head injury
11. Extradural haematoma
    - Acute subdural haematoma
    - Chronic subdural haematoma
12. Subarachnoid haemorrhage
    - Cerebral contusions
13. Raised intracranial pressure
14. Hydrocephalus
    - Cerebral abscess

Syllabus of Urology

1.Urinary symptoms

- Hematuria
- Renal pain
- Ureteric colic
- Bladder pain
- Perineal pain
- Urethral pain

2.Urinary symptoms

- Altered bladder function
- Out flow obstruction

3.Investigations of the urinary tract

A. Urine

- Dipsticks impregnated with chemicals
- *Microscopy*
- Cytological examination
- Bacteriological culture
- Biochemical examination

B. Tests of renal function

4. Investigations of the urinary tract (Imaging)

- Plain abdominal radiograph
- Intravenous urography
- *Retrograde uretero-pyelography*
- Antegrade pyelography
- Urethrography
- Ultrasonography
- Computerised tomography
- Magnetic resonance imaging tomography
- Endoscopy

5. Congenital abnormalities of the kidneys

- Absence of one kidney
- Renal ectopia
- Horseshoe kidney
- Unilateral fusion
- Simple renal cysts

6.Congenital abnormalities of the kidneys

- Congenital polycystic kidneys
- Infantile polycystic disease
- Unilateral multicystic disease

7.Congenital abnormalities of the renal pelvis

8.Congenital abnormalities of the ureter

9.Urinary Tract Infections

10. Hydronephrosis

11. Renal calculate

12. Ureteric calculus

13. Modern methods of stone removal

14.Renal injury

15. Urethral catheterization

Syllabus of Radiology

1. Introduction

- Aims and objectives of radiology.
- The imaging department.
- Basic principles of X-ray, ultrasound, radio-nuclide imaging, CT and MRI.
- Indications, limitations, & contraindications of x-ray, ultrasound, radionuclide imaging, CT & MRI.
- Contrast medium used in radiology.

- X-ray hazards & radiation protection.

2. **Respiratory system I, II, III**
   - Radiological anatomy of the lungs.
   - Investigations in chest diseases.
   - Chest x-ray technique & procedure, interpretation of normal chest x-ray.
   - Diseases of the chest with normal chest x-ray.
   - Radiological signs of lung disease (Silhouette sign, air space filling, pulmonary collapse, spherical shadows, cavitation, calcification, hilar enlargement, line & widespread shadows).
   - Diseases of the pleura.
   - Diseases of the mediastinum.
   - specific lung diseases (pneumonia, Lung abscess, Pulmonary TB, Pulmonary Hydatid, Diseases of the airway, Pulmonary embolism, Bronchogenic carcinoma, Pulmonary metastases, Pulmonary lymphoma, RDS & ARDS, Chest trauma, Radiation pneumonitis, Cystic fibrosis).
   - Diseases of the diaphragm.

3. The cardio-vascular system I, II
   - Investigations of the cardiovascular system.
   - Radiological evidence of heart disease: (Heart size & shape, evidence of pericardial disease, pulmonary vessels).
   - Specific heart disease (Heart failure, Valvular heart disease, ischemic heart disease, congenital heart disease).
   - Diseases of the aorta.
   - Dextrocardia.

4. Plain abdomen
   - General considerations.
   - Normal findings in plain abdominal films.
   - Interpretation of abnormal plain abdominal film: (Bowel dilatation, Gas outside bowel lumen, Ascitis, Abdominal calcifications).

5. Gastro-intestinal tract I, II
   - Normal radiographic anatomy.
   - Types of contrast study of the GIT
   - Specific radiological terms in GIT diseases.
   - Diseases of the esophagus.
   - Diseases of the stomach small bowel.
   - Diseases of the large bowel.

6. Liver, spleen & pancreas
   - Normal radiographic anatomy & investigations of hepatobiliary system.
   - Diseases of the liver & biliary system.
   - Radiological investigations of the spleen.
   - Radiological investigations & diseases of the pancreas.

7. Peritoneal cavity & retroperitonium
   - Diseases of the peritoneum (ascitis, peritoneal tumors, intra-peritoneal abscesses)
   - Investigations of the retroperitoneum.
   - Diseases of the retroperitoneum (retro-peritoneal lymphadenopathy, disease of the adrenal gland, retro-peritoneal tumors, aortic aneurysm, retro-peritoneal hematoma, retro-peritoneal & psoas abscesses)

8. Urinary tract I, II

- Investigations of the urinary tract
- Urinary calculi and nephrocalcinosis.
- Urinary tract obstruction.
- Renal paranchymal masses (simple renal cyst, Angiomyolipioma, Renal cell carcinoma.)
- Urothelial tumor.
- Infection (acute and Emphysematous pyelonephritis, Renal and perinephric abscess, Pyonephrosis, Renal TB, Chronic pyelonephritis).
- Vesico-ureteric reflux.
- Renal trauma.
- Chronic renal failure.
- Congenital variation of the urtinary tract.
- Diseases of the UB, diseases of the prostrate, diseases of the Urethra.
- Diseases of the Sacrotum and testes.

9. Female genital tract

- Investigations & normal radiographic anatomy.
- Specific diseases of the female genital tract (ovarian masses, uterine masses, pelvic inflammatory disease, endometriosis)
- Ultrasound appearance of normal uterine pregnancy.
- Ectopic pregnancy.

10. Breast imaging

- Investigations of breast.
- Normal radiographic anatomy.
- Specific diseases of the breast (simple cyst, fibroadenoma, breast carcinoma).

11. Radiology of bone diseases I, II, III

- Plain radiographic Signs of bone diseases
- Classification of bone diseases.
- Radiological assessment of solitary bone lesion.
- Malignant bone tumors: (Osteosarcoma, Chondrosarcoma, Ewing s sarcoma, Giant cell tumor).
- Benign tumors & tumor like lesion.
- Bone infection (Osteomeylitis, TB).
- Multiple focal bone lesions (bone metastases & multiple myeloma)
- Generalized decrease in bone density.
- Generalized increase in bone density.
- Acromegaly.
- Radiology of bone trauma.

12. Radiology of joint diseases

- Imaging techniques of joint diseases.
- Plain radiographic Signs of joint diseases
- Arthritis (rheumatoid arthritis, osteoarthritis, pyogenic arthritis)
- Avascular necrosis.

13. Radiology of the spine I, II

- Imaging investigations of the spine
- Anatomical review.
- Plain radiographic Signs of spinal abnormality.

- Specific diseases of the spine: (Metastases, lymphoma & Myeloma, spinal infection, spinal trauma, degenerative disc disease, Spinal stenosis, Ankylosing spondylitis, Spinal dysraphysim, spinal cord compression)

14. Skull & brain I, II

- Imaging investigations of the skull & brain
- Normal radiographic anatomy of the skull & brain.
- Specific brain disorders: (brain tumors, stroke, infection, multiple sclerosis)
- Radiology of head injury.

15. Sinuses, orbit & neck I, II

- Imaging techniques & diseases of the para-nasal sinuses.
- Imaging techniques & diseases of the orbit.
- Imaging techniques & diseases of the salivary glands.
- Imaging techniques & diseases of the thyroid & para-thyroid gland.

16. Angiography

- Definition, indications, principles & complications of arteriograpy.
- Indications of venography.
- Specific vascular disorders (Aneurysms, Atheroma, arterio-venous fistula & malformation, Stenosis & Fibromuscular hyperplasia, Thrombosis & Embolism, vascular Tumors)
- Interventional radiology
- Vascular interventional procedures.
- Percutaneous needle biopsy.
- Percutaneous drainage of abscess & fluid collections.
- Interventions in urinary obstruction.
- Interventions in biliary obstruction.

Syllabus of Gynecology

1. Gynecological assessment of the patients
    - History
    - Examination
2. **Embryology and Anatomy**
    - Embryological development
    - Anatomy of genital tract
3. **Normal and abnormal sexual development and puberty**
    - Sexual differentiation
    - Disorders of sexual development
    - Precocious puberty
4. **The normal menstrual cycle**
    - Hypothalamic pituitary gonadal axis
5. **Disorder of menstrual cycle**
    - Heavy menstrual bleeding
    - Dysmenorrhea
    - Amenorrhea and oligomenorrhea
    - PCOS
    - Postmenapausal bleeding
    - Premenstrual syndrome
6. **Genital infections in gynecology**
    - Types

- Complication
- Treatments

7. **Fertility control**
    - Progestogen-dependent hormonal
    - POP
    - COCP
    - Sterilization
    - Non-hormonal methods of contraception
    - IUCD
    - Condoms
8. I**nfertility**
    - Causes
    - Investigations
    - Management
9. **Problems in early pregnancy**
    - Ectopic
    - Miscarriage
    - Recurrent miscarriage
10. **Benign diseases of uterus and cervix**
    - Types
    - Diagnosis
    - Management
11. **Endometriosis and adenomyosis**
    - Risk factors
    - Stages
    - Treatments
12. **Diseases of the ovary**
    - Benign diseases of the ovary
    - Malignant diseases of the ovary
13. **Malignant diseases of the uterus**
    - Stages
    - Risk factors
    - Diagnosis
    - Managements
14. **Premalignant and malignant diseases of the cervix**
    - Types
    - Treatments
    - Stages of malignancy
    - Risk factors
    - Diagnosis
    - Managements
15. **Conditions affecting the vagina and the vulva**
    - Types
    - Treatments
    - Stages of malignancy
    - Risk factors
    - Diagnosis
    - Managements

16.**Urogynecology**

- Detrusor instability
- Stress incontinence
- Mixed incontinence

17. Pelvic organ prolapses

- Vaginal prolapse
- Uterine prolapse

18. Menopause

- Physiological changes
- Signs
- Symptoms
- Management
- HRT

19. Psychological and ethical aspects of gynecology

- Male impotence
- Female arousal absence
- Domestic violence
- Schizophrenia
- Sleep disorders

20. **Common gynecological procedures**

- D&C
- Hysteroscope
- Vaginoscope
- laproscope

Syllabus of Pediatrics

1. Growth, development, and Nutrition

1.Concept of Growth & Development

2.Assess and measure growth accurately

3.Determine the formation & eruption of teeth

4.Plot & interpret growth charts

5.Assess different stages of normal developmental milestones

6.Determine the Pattern of growth

7- Describe periods of growth

8- Describe the factors which affect the Growth

9- Describe the types infant feeding

10- Advantages of breast feeding

11- Contra-indications of breast feeding

12- How to prepare bottle feed?

2.Malnutrition

1- Overview of Nutritional Requirements

2- Use the history & physical exam. to evaluate nutritional status.

3- Identify etiologic categories of malnutrition,1ry,2ry,

4- Present an approach to recognizing & treating some common nutritional problem of childhood.

5- Display an understanding of the principles for managing severe childhood under nutrition.

6- Definition of Malnutrition
7- Explain the Causes of Malnutrition
8- Measurement and Types of Malnutrition (marasmus and kwashiorkor)
9- Mild/Moderate Malnutrition (Underweight and Stunting)
10- Identify the Nutritional Deficiencies (Iodine & Fe. Vitamins –A,B,C,D,E,K)
11- Outline management of Severe Malnutrition

3.Genetics

1- define the basic of human genetics.
2- describe the basic & types of inherited diseases.
3- identify the most common types of genetic aberrations in human being.

4-Immunization

- Differentiate between (Live vaccines, attenuated live vaccines, Inactivated (killed vaccines)
- Identify Types of vaccines.
- Discuss Route of adminstration
- Education & counseling for child, parents.
- Discuss the benefits of immunization programs.
- Communicate to patients and parents about vaccine benefits and risks
- Conduct an effective plan of management for children regarding immunization
- List possible complications of immunization
- Diagnose potentially lethal anaphylaxis and initiate immediate treatment

5- Infectious, Typhoid, Kala-azar, Brucellosis, Chickenpox, Measles, Rubella

- Determine the IP & possible route of communication.
- Outline measures of prevention
- Identify the presenting features of the infection
- Determine the immunization status of the infants/children.
- Determine Hx of contacts, travel, farm visits, ingestion of un-pasteurized milk or undercooked meat, source of water supply.
- Elicit a Hx of the pregnancy &delivery, maternal Hx of fever, rash, flu-like illness, litter, etc .(Rubella)
- List & interpret clinical & lab. findings which were key in the processes of exclusion, DDx & Dx:
- Describe rapid viral testing, stool tests, & viral serology.
- Define Outline treatment of **(**Typhoid, Kala-azar, Brucellosis, Chicken pox, Measles, Rubella.)
- Enumerate complications of each disease.

6. Infectious, mumps, pertussis, scarlet fever, Roseola.

- Determine the IP & possible route of communication
- Outline measures of prevention to contain the spread of communicable disease.
- Identify the presenting features of the infection.
- Determine the immunization status of the infants/children.
- Determine Hx of contacts.
- Determine complications and prognosis of infectious diseases

- List & interpret clinical & lab. findings which were key in the processes of exclusion, DDx & Dx.
- Conduct an initial plan of Mx for a pt with a childhood communicable disease
- Outline Mx of specific communicable diseases.

7. Infectious, hepatitis A, B,C,D,E.

- Determine the IP & possible route of infection.
- Outline measures of prevention of viral hepatitis.
- Describe rapid viral testing for HAV, HBV, HCV, HDV, HEV)
- Identify complications of viral hepatitis.
- Identify the presenting features of the infection
- Discuss specific treatment
- Outline management
- Conduct a counseling

8. **Neonatology**

Identify the concept of NN sepsis
-Describe the risk factors for NN sepsis
-Explain the types of NN sepsis according to the onset
-Identify the different etiologies
-Discuss the clinical approach to NN sepsis
-Describe the sepsis(infectious) screen
- Outline the treatment

9. **Neonatology**

Define the concept
Describe the pathophysiology of jaundice
Identify the etiology of NN jaundice
Describe the types of NN jaundice
Identify the Risk factors of NN jaundice
Describe the clinical approach to NN jaundice
Outline the management of NN jaundice
Explain the effects, Mechanism and complications of Phototherapy
Enumerate the indications & complications of Exchange transfusion

10-Neonatology

1-Definitions
2-Eplain the Causes
3-What are the Problems encountered by LGA & SGA
4-outline management
5-Conduct a counseling and education program for caregivers of children with poor growth.
6-Conduct an ongoing program to monitor the progress of such children.
7-Appropriately utilize hospitalization, consultation with other health professionals and community resources

11. Neonatology

Fetal lung characteristics ,Causes and classification of cyanosis
Identify the signs of Respiratory Distress

, Describe the Evaluation and Investigation of Neonatal cyanosis
General Management و Differential diagnosis of Neonatal cyanosis
RDS (Describe the pathophysiology, Risk factors, clinical findings, X ray findings, Outline Management. Prevention, Prognosis)
Transient tachypnea of newborn (TTN)(Concept, Mechanism, Risk factors, clinical findings, X-ray findings, Outline Management)
Meconium Aspiration Syndrome (Describe the epidemiology, clinical Features, X ray findings, management)
Diaphragmatic Hernia (Identify the concept, Types,
Describe the Clinical Features X ray findings, Outline the Management)
Congenital pneumonia (explain the Pathophysiology, Identify the risk factors and common M.O., Describe Clinical findings, X ray findings, Outline Treatment.

12. **Poisoning**

1- Identify the risks and risk factors for poisoning in children.
2- Describe the clinical presentation of the important common poisoning in children.
3- Outlines the most important steps of management of poisoning.

13. **Respiratory system**

Pneumonia (Definition, etiology, to assess the predisposing factors for recurrent pneumonia, clinical manifestations, to differentiate between viral, bacterial pneumonia, outline the management and its complications)
Bronchiolitis (Definition, etiology, clinical manifestations, to know the criteria for admission to hospital, to outline management& prevention.

18. Respiratory system

Asthma (Definition, etiology, pathophysiology, to classify asthma according to severity, to assess risk factors of exacerbations, to know the drugs used in the management of acute exacerbations and controller therapy)
Sore throat and strider (How to approach to a case presented with strider, causes and management.

19. **GIT**

Define chronic diarrhea as > 2 weeks in duration.
-Differentiate small bowel & large bowel diarrhea
-Differentiate osmotic from secretory diarrhea, &maldigestion from Malabsorption
-List & interpret clinical & lab. findings which were key in the processes of exclusion, DDx &Dx
-Outline plan of management for patients with ch. diarrhea, including the prevention & treatment of related complications (e.g. pts with CD, pancreatic insufficiency, vitamin & mineral deficiencies.

Diarrhea:

1-Definition, Etiology& Mechanism of diarrhea & vomiting
2-Assess the degree of dehydration &Electrolytes disturbance
3-Differential Dx.
4- Outline Management of diarrheal diseases
5-Expected Complications & Prevention

20. **GIT, Pediatric surgery**

Dehydration & electrolytes changes:

1- Determine the degree and type of dehydration/volume depletion,
2- investigate possibility of electrolyte abnormalities (sodium/potassium/hydrogen ion concentration,

3-Determine Types of Fluids used in Replacement
4-Discuss Fluid Therapy in Paediatric age group.

Pediatric surgery:

Select patients with abdominal pain(AP) who require emergency Tx.
-Elicit clinical findings which are key to establish the most likely etiology of the pain
-Differentiate acute from chronic pain & organic from functional
-Interpret abdominal x-rays
-Conduct an effective plan of Mx for a pt with AP
-Determine which pts have significant liver dysfunction & its cause
-Differentiate between the causes of jaundice
-Describe the immunization status, past &Family Hx.
-Discuss abnormal LFT in the context of the clinical presentation, & select pts requiring medical Mx.
-Outline the epidemiology & natural Hx of viral hepatitis
Differentiate between the causes of jaundice & determine if treatable; ask about hepatitis risk factors,drugs
.- Describe complications related to the presence of liver disease
,- Interpret clinical & lab. findings which were key in the processes of exclusion .differentiation, & diagnosis
.-List the indications for an abdominal U\S, spiral CT, MRI, ERCP& PTC
-Conduct an effective plan of Mx for a pt with jaundice and its causes including acute liver failure
.-Select pts in need of specialized care and/or in need of urgent hospitalization

18. **Hematology: Anemia & iron deficiency anemia**

Define anemia, describe the clinical approach of anemia in children, Discuss the clinical presentations, management &prevention of IDA.

19. **Hematology: - Thalassemia & G6PD deficiency**
- Bleeding disorders (hemophilia, von-Willebrand disease & ITP)

- Describe the prevalence, clinical presentations, management and follow-up of thalassemia and G6PD deficiency.
- Detect common causes of bleeding tendency in children, describe the clinical presentations, management & prognosis of hemophilia, von-Willebrand disease & ITP

20. **Oncology: Leukemia& Lymphoma**:

identify the prevalence, etiology & types of leukemia &lymphoma, describe the clinical presentations, management & prognosis of childhood leukemia & lymphoma

21. **Nephrology: -Nephrotic syndrome**: **Acuteposstreptococcal glomerulonephritis, Hemolytic-uremic syndrome, Henoch-Schonleinpurpura**:

- Define nephrotic syndrome, describe types, etiology, pathophysiology, clinical presentations, complications, investigations, management & prognosis of nephrotic syndrome
- Describe the definition, prevalence, etiology, pathophysiology, clinical presentations, complications, investigations, management & prognosis of acute post-streptococcal glomerulonephritis, Hemolytic-uremic syndrome &Henoch-Schonleinpurpura

22. **Nephrology/ Urology, UTI & Enuresis**

Identify the concept, describe the prevalence, types, risk factors, clinical presentations, complications, investigations, management and prognosis of UTI and Enuresis.

23. **Endocrinology Thyroid gland, hypo/ hyperthyroidism.**
- Identify causes
- Elicit symptoms and signs
- List and interpret clinical and laboratory findings
- Expected Complications & Prevention
- Identify dose of thyroxin and fallow up of treament
- Determine whether the delay is global, isolated to speech/language or motor delay, includes abnormal social interaction
- Outline the management

24.Endocrinology- DM TYP1, Diabetic Ketoacidosis (DKA)
- ClarifyDifferentfactors,may contribute to type 1 diabetes
- Identify signs and Symptomsof DM1
- Discuss diagnosis of DM1(blood test and urine test)
- Education & counseling for child, parents about DM1and diet control
- Determine the Complications
- Outline of management to child with DM TYPE1
- Definition, Etiology, Pathophysiology
- Diagnostic Consideration Of DKA
- How To Manage A ten Year old Child With DKA?
- Describe Prevention & Prognosis Of DKA

25. **Cardiovascular system**

CHD(classification of CHD..Cyanotic & A cyanotic heart lesions),to know the common types of a cyanotic (VSD,ASD,PDA types ,presentations ,diagnosis &management), to know the common types of Cyanotic (TOF,TGA, types ,presentations ,diagnosis &management)

cvs

1- define heart failure and its pathophysiology.
2- enumerate the most common causes of HF.
3- perform management of HF.

26. Neurology: seizure

1- Define seizure.
2- List causes of seizure in children.
3- Describe the specific types and characters of seizure in children.

27. Neurology, febrile convulsion, neonatal seizure , Status epilepticus

FC:

1- Diagnose FC.
2- Evaluate febrile seizure.

NS:

1- Analyze why neonatal seizures are different?
2- List the types of neonatal seizure.
3- List the causes of neonatal seizure.
4- Observe certain types of Neonatal seizure.
5- Evaluate the neonatal seizure.

SE:

1- Define status epilepticus
2- Determine the risks of Status Epilepticus.
3- Perform management of status epilepticus.

28. **Neurology, - AFP, cerebral palsy, Mental retardation**

AFP:

1- Define AFP
2- Determine the clinical types of AFP.3- List the causes of each type of AFP.4- Describe the most common causes of AFP.5- Perform management of AFP.
CP:
1- Define CP.
2-List its causes and types.
3- Describe the most common types.
4-Perform management.
MR:
1- Define MR.
2- What are the grades and causes of MR?
3- Evaluate the child with MR.

29. Neurology, CNS infections

1- Define meningitis/ meningoencephalitis.
2- How to predict CNS infections?
3- Diagnose CNS infections.
4- Performing of CNS infection management.
5- Evaluate the patients for complications.

Syllabus of Orthopedics

1. Fractures and Joint Injuries

- The management of major injuries
- Principle of fractures.
- Injuries of the shoulder, upper arm and elbow.
- Injuries of the forearm and wrist.
- Hand injuries.
- Injuries of the spine.
- Injuries of the pelvis.
- Injuries of the hip and femur.
- Injuries of the knee and leg.
- Injuries of the ankle and foot.

2. General Orthopedics

- Orthopedic diagnosis.
- Infection.
- Rheumatic disorders.
- Crystal deposition disorders.
- Osteoarthritis.
- Osteonecrosis and related disorders

3. Orthopedic surgery

- Acute Osteomyelitis
- Genetic disorders
- Rheumatic disorders
- Hand congenital and acquired deformities
- Neuromuscular disorders
- Congenital foot deformities
- Chronic Osteomyelitis
- Crystal deposition disorders
- Peripheral nerve injuries

- Wrist disorders
- Metabolic and endocrine disorders
- Elbow disorders
- Hip disorders
- Bone Tumors
- Shoulder and pectoral girdle disorders
- Hand disorders
- Scoliosis and kyphosis
- Knee disorders
- Intervertebral disc prolapsed

4. Orthopedic operations

- Knee joint swelling
- Hand infections
- Torticollis
- Deformities of toes
- Ankylosing spondylitis
- Spondylolysthesis

5. Diseases of the spine as Torticollis, Intervertebral disc prolapsed, Scoliosis and kyphosis
6. Deformities of toes
7. Ankylosing spondylitis
8. Spondylolysthesis
9. Bone Tumors
10. Wrist disorders
11. Metabolic and endocrine disorders
12. Genetic disorders

Syllabus of Behavioral sciences

1. Introduction to psychiatry
2. psychopathology
3. Classification of psychiatric disorders
4. Symptoms of psychiatric disorders
5. Symptoms of psychiatric disorders
6. Mood disorders “depression
7. Bipolar disordes "mania"
8. psychosis
9. schizophrenia
10. Other delusional disorders
11. Anxiety disorders
12. Obsessive compulsive disorders
13. Conversional disorders
14. Somatization disorders
15. Drug in psychiatry
16. psychotherapy
17. Impulsive disorders
18. Child psychiatry
19. Neuropschiatric disorders
20. Forensic psychiatry
21. Alcohol & substance misuse

22. Psychiatric liaison syndrome
23. Sexual disorders
24. Eating and sleep disorders

Syllabus of Ophthalmology

1. Refractive errors (The optical system of the eye, myopia, hyperopia, astigmatism, anisometropia, accommodation, presbyopia, contact lenses)
2. Eye lid disorders (congenital diseases, trichiasis, allergic eye lid diseases, eye lid infection - herpes simplex, herpes zoster, benign nodules and cysts, chalazion, stye, marginal blepharitis, malignant tumors - basal cell carcinoma, squamous cell carcinoma, melanoma, ectropion, entropion, ptosis)
3. Orbital eye disorders (Trauma orbital hemorrhage, blow out fracture, Infection: orbital cellulitis, preseptal cellulitis, Tumours: rhabdomyo-sarcoma, cavernous hemangioma, thyroid eye disease.
4. Conjunctival diseases (Applied anatomy; bacterial conjunctivitis; viral conjunctivitis; chlamydial conjunctivitis; allergic conjunctivitis; conjunctival degenerations; pigmented conjunctival lesions; non pigmented conjunctival tumour).
5. Corneal and sclera diseases I (Applied corneal anatomy; bacterial keratitis; fungal keratitis; herpes simplex keratitis; herpes zoster keratitis; corneal abrasion; corneal laceration; corneal foreign body; chemical corneal injury; keratoconus).
6. Glaucoma (Definition; aqueous pathophysiology; optic nerve assessment; visual field assessment; primary open angle glaucoma; primary narrow angle glaucoma; congenital glaucoma; glaucoma medical therapy; laser in glaucoma.)
7. Retinal detachment (Applied anatomy, rhegmatogenous retinal detachment, tractional retinal detachment, exudative retinal detachment, treatment of retinal detachment).
8. Corneal and sclera diseases (Exposure keratopathy, keratoconjunctivitis sicca, keratoplasty, refractive surgical procedures, episcleritis, scleritis).
9. Retinal vascular diseases (Diabetic retinopathy, Central retinal vein occlusion, Branch retinal vein occlusion, Amaurosis fugax, Central retinal artery occlusion).
10. Crystalline lens disorders (Pathogenesis of cataract, causes of cataract, types of cataract surgery, congenital cataract, Ectopia lentis).
11. Retinal diseases (Hypertensive retinopathy, retinitis pigmentosa, Age related macular degeneration, myopic maculopathy)
12. Uveitis (Anatomical classification, clinical classification, etiological classification, clinical features, differential diagnosis, complications, treatment, Hyphema)
13. Neuroophthalmology I (Optic neuritis, optic atrophy, anterior ischemic optic neuropathy, compressive optic neuropathy, alcohol tobacco amblyopia, papilledema)
14. Lacrimal diseases (Applied anatomy, congenital nasolacrimal duct obstruction, Dacryocystitis, Canaliculitis)
15. Neuroophthalmology II (Oculomotor nerve palsy, Abducent nerve palsy, Trochlear nerve palsy, drug induced optic neuropathy)
16. Intraocular tumors (Retinoblastoma, Choroidal melanoma, Metastatic carcinoma)
17. Eye trauma (Terminology of eye trauma, general outlines of treatment, Blunt trauma, anterior segment complications of blunt trauma, posterior segment complications of blunt trauma, Penetrating trauma)
18. Squint (Introduction, infantile esotropia, accommodative esotropia, enotropia, hypertropia, hypotropia).

19. Laser in ophthalmology (Properties of laser light, Laser tissue interaction, Choice of laser wavelength).
20. Laser in ophthalmology
21. **Intraocular tumors**

Syllabus of ENT

1. Surgical anatomy and applied physiology of the nose paranasal senses.
2. Radiology and endoscopy of the nose and paranasal sinuses.
3. Congenital malformation and injuries of the nose and paranasal sinuses.
4. Infection of the nose and paranasal sinuses and their management
5. Nasal allergy and vasomotor rhinitis.
6. Epistaxis.
7. Tumors of the nose and paranasal sinuses.
8. Surgical anatomy and applied physiology of pharynx and esophagus.
9. Inflammation of the mouth and pharynx.
10. Ulcers.
11. Tonsillitis and Adenoid is Adenoid hyper atrophy.
12. Tonsillitis and Adenoidectomy, indications and complications.
13. Tumors of the nasopharynx and hypopharynx-Dyspagia.
14. Surgical anatomy and applied of the Larynx.
15. Congenital malformations and injuries of the Larynx.
16. Acute and chronic Laryngitis.
17. Hoarseness.
18. Stridor.
19. Tumors of the Larynx.
20. Lump in the Neck.
21. Surgical anatomy of the ear –labyrinth.
22. Physiology of hearing and vestibular system.
23. Hearing impairment and audio logical assessment.
24. Vertigo and neurological assessment
25. Congenital malformation, trauma and neoplasm of the ear.
26. Otitis media Acute, chronic and secretory.
27. Complications of the middle ear infections
28. Principles of middle ear surgery.
29. Otosclerosis.
30. Mienier's disease.
31. Vestibular neuronitis
32. Functional endoscopic surgery
33. Laser in ENT
34. Relation between GERD and laryngitis
35. Audiological assessment of hearing

Syllabus of Dermatology

- Anatomy of the skin
- Diagnosis of the skin diseases/psoriasis and lichen planus
- Therapy in dermatology(topical)/ Acne and rosecia
- Therapy in dermatology(systemic)/Urtecaria and erythema
- Genodermatosis-1/Vacuities
- Genodermatosis-2/Connective tissue diseases-1
- Bacterial infections-1/ Connective tissue diseases-2
- First month-first term examination/ Psychodermatoses
- Bacterial infections 2/ Itching
- Viral infections 1/Disorders of keratinization
- Viral infections 2/dermatoses of pregnancy
- Fungal infections 1/Hair disorders
- Fungal infections 2/Nail disorders
- Parasitic infections
- Sexually transmitted diseases 1
- Skin manifestation of systemic diseases 1
- Sexually transmitted diseases 2
- Skin manifestation of systemic disease 2
- Mycobacterial infections
- Skin Tumors
- Eczema and dermatitis
- Skin color disorders
- Photobiology and photoimmunology

University of Diyala – College of Medicine

2018-2019

Sixth Year

Clinical practice

Subject	Hours / week			Credits
	No. of weeks	Practical, tutorials	Seminars	
Medicine	12	300	60	12
Surgery	12	300	60	12
Obstetrics and gynecology	12	300	60	12
Pediatrics	12	300	60	12
Total	48	900	180	48
Average x 40%				