

**COURSE TITLE: ANATOMY****STUDY HOURS: 120+40****PAPER : 1**  
**TERM : 1<sup>ST</sup>****MARKS**  
**THEORY: 60**  
**PRACTICAL: 15**  
**TIME: 2.30 HRS**

The depth of the subject will only be diagram , labeling of the diagram. And brief introduction.

<b>Course Contents</b>	<b>STUDY HOURS (THEORY+PRACTICAL)</b>
<b>A Introduction</b>	<b>3+2</b>
A1 Anatomical terms	
A2 Anatomical positions	
<b>B The study of human cell and functions of organelles, Nucleus, DNA helix, RNA, genetic codes Chromosomes.</b>	
B1 Cell Division	<b>3+2</b>
B2 Mitosis and Meiosis of cell	
<b>C BASIC TISSUES</b>	<b>3+2</b>
C1 Different Types of tissues.	
C2 Connective tissues.	
C3 Epithelial tissues.	
C4 Muscle tissues.	
C5 Nervous tissues.	
C6 Blood tissues.	
<b>D The Skeleton</b>	<b>18+4</b>
D1 Definition of bone	
D2 Types	
D3 Name of bones (the skull, face, thorax, vertebral Colum, pelvis upper limb and lower limb	
D4 Diagram and labeling the following individual bones. Clavicle, scapula, hummers, radius, ulna, sternum, rib, vertebra, pelvis, femur, and tibia.	
<b>E The Joints</b>	<b>6+2</b>
E1 Definition	
E2 Type	
E3 upper and lower limb joints and there movement.	
<b>F Muscular system</b>	<b>12+6</b>
F1 Definition	
F2 Types	
F3 Important Muscles Name of upper and lower limb.	
<b>G The Gastro Intestinal Systems</b>	

15+2

- G1 Mouth
- G2 Pharynx
- G3 Esophagus
- G4 Stomach
- G5 Small Intestine
- G6 Large Intestine
- G7 Accessory organs (Liver, Spleen, Pancreas & Gall Bladder)

## H Respiratory System

6+4

- H1 Organs of respiration
- H2 Upper respiratory tract
- H3 Lower respiratory tract

## I The circulatory system

9+2

- I1 Structure of heart. Different chambers of heart, main arteries arising from the heart
- I2 Main veins of the heart, branches of arch of aorta, Thoracic aorta, abdominal aorta.
- I3 Main vessels of upper and lower limbs.

## K The Nervous System

15+4

- K1 Introduction to  
CNS central nervous system and Peripheral Nervous System
- K2 Name different part of brain with short discretion.  
Cerebrum, Cerebellum, Mid Brain, pons and medulla oblongata,
- K3 Name of cranial nerves
- K4 Name of upper and lower limb nerves

## L The urinary system

4+2

- L1 Structure of kidney, urethra, urinary bladder, prostate gland and ureter
- L2 Differences of right and left kidneys.

## M The Reproductive System

9+2

- M1 Name of Male reproductive system with short description.
- M2 Name of Female Reproductive System with short description.

## N The Endocrine Gland

9+4

- Short description and position of: -
- N1 Pituitary gland
- N2 Thyroid gland
- N3 Parathyroid gland
- N4 Adrenal gland

## O The Skin

3+2

- O1 Epidermis
- O2 Dermis
- O3 Sebaceous glands

O4 Nails

**P The Special Senses: 6+2**

P1 Brief anatomy of eye. Three coats/ layers of eyeball.

P2 Brief anatomy of ear Outer, middle and inner ear,  
nose-inner and outer, Tongue, salivary glands,

**Recommended book:** Foundation of Anatomy and Physiology by  
Kathleen Wilson.  
Anatomy and Physiology for nurses by Roger  
Watson

**Reference Book** Clinical Anatomy by Richard Snell

# **COURSE TITLE: BIOCHEMISTRY**

**STUDY HOURS: 60+20**

		<b>Marks</b>	
<b>PAPER:</b>	<b>03</b>	<b>Theory: 40</b>	
<b>TERM:</b>	<b>1<sup>st</sup></b>	<b>Practical: 10</b>	
		<b>Time: 2:30 Hrs</b>	

The following bio chemistry contents will be taught briefly

<b>COURSE CONTENTS</b>		<b>Study Hours</b> (Theory +Practical)
		6+2
<b>A</b>	<b>Introduction:</b>	
	A.1 Biochemistry	
	A.2 Importance of Biochemistry	
	A.3 PH	
	A.4 Buffer solutions	
	A.5 Indicator	
<b>B</b>	<b>Carbohydrates:</b>	<b>6+2</b>
	B.1 Definition	
	B.2 Classification.	
	B.3 Clinical significance	
	B.4 Caloric value of carbohydrates	
<b>C</b>	<b>Proteins:</b>	<b>6+2</b>
	C.1 Definition	
	C.2 Classifications	
	C.3 Essential aminacids	
	C.4 Clinical significance.	
	C.5 Caloric value of proteins	
<b>D</b>	<b>Lipids:</b>	<b>6+2</b>
	D.1 Definition	
	D.2 Classification	
	D.3 Fatty Acids. (Types, essential F.Acids)	
	D.4 Clinical significance	
	D.5 Caloric value of fats	
<b>E</b>	<b>Enzymes:</b>	<b>6+2</b>
	E.1 Definition	
	E.2 Classification	
	E.3 Diagnostic role of enzymes	
	E.4 Therapeutic value of enzymes.	
<b>F</b>	<b>Vitamins:</b>	<b>6+2</b>
	F.1 Definition	
	F.2 Classification	
	F.3 Water soluble (B, C)	
	F.4 Fat soluble (A, D, K)	

	F.5	Clinical significance	
	F.6	Deficiency disease of vitamins	
<b>G</b>	<b>Nutrition, food &amp; dietetics:</b>		<b>6+2</b>
	G.1	Nutrients	
	G1.1	Macro Nutrients	
	G1.2	Micro Nutrients	
	G.2	Food	
	G2.1	Food calorie	
	G.3	Main food groups	
	G.4	Milk and their clinical properties	
<b>H</b>	<b>Metabolism:</b>		<b>6+2</b>
	H.1	Definitions	
	H.2	Metabolic rate	
	H.3	Basal Metabolic Rate	
	H.4	Factors affecting BMR	
	H.5	Variations of BMR in diseases	
<b>I</b>	<b>BODY FLUIDS AND MINERALS:</b>		<b>6+2</b>
	I.1	Importance	
	I.2	Body fluid compartments	
	I.3	Extra cellular fluid	
	I.4	Plasma	
	I.5	Interstitial fluid	
	I.6	Intra-cellular fluid	
	I.7	Trans-cellular fluid	
	I.8	Composition of body fluid compartments	
	I.9	Diffusion	
	I.10	Osmosis	
	I.11	Osmotic pressure	
	I.12	Sodium	
	I.13	Potassium	
	I.14	Calcium	
<b>J</b>	<b>ACID BASE BALANCE:</b>		<b>6+2</b>
	J.1	Definition	
	J.2	Regulatory processes	
	J.3	Chemical buffer system	
	J.4	Respiratory regulation	
	J.5	Renal regulation	
	J.6	Acid-base disorders (introduction)	

**Recommended book:** Essential of Medical Chemistry by Mushtaq Ahmad  
 Biochemistry for Para Medical / Nurses by Dr. Khalid

Mehmood

**Reference book:**

Lippincott, s Illustrated Reviews Biochemistry  
Harper's Biochemistry

## COURSE TITLE: APPLIED COMPUTER SCIENCES

STUDY HOURS: 40+40

MARKS

PAPER: 4

THEORY: 30

TERM: 1<sup>ST</sup>

PRACTICAL: 20

TIME: 1.30HRS

Note: This is an introduction to computer science. A brief description and definitions of terms will be taught to the students.

## COURSE CONTENTS

1. An over view of Computer system. 1+1
2. The shapes of computer today-Super Computer, Main frame, mini computer, Works stations and PC, 1+1
3. Input methods-Key board, Mouse, 1+1
4. Alter native methods of input-hand devices, optical devices, Audio-visual input devices. 1+1
5. Monitors and sound system-Monitors-PC. Projectors, sound system. 1+1
6. Printer and brief introduction to its types. 1+1
7. Transforming data in to information representation, process, speed etc. 2+2
8. CPU-types with definition 1+1
9. Types of storage devices – Magnetic and optical. 1+1
10. Measuring drive information-access time, file compression, transfer rate, interface standard. 2+2
11. Basic of operating system-interface, programme, files, hardware and software management 2+2
12. Definitions of Unix, DOS, Macintosh operating system, Windows, OS / 2, Windows NT, 95,98, 2000, Linux. 3+3
13. Words processing and Desk tope publishing software. 2+2
14. Spread sheet software. 1+1
15. Presentation programme 1+1
16. Networking-Standard telephone lines, digital lines, Network in the home. 3+3
17. Internet basics 1+1
18. Accessing, connecting, working on Internet, introduction to DICOM, PACS. 3+3
19. Working with images. 2+2
20. Understanding multi-media. 3+3
21. Basics of information system- Use, Parts. 2+2
22. Programming languages and system development life cycle. 2+2
23. Brief of computer crimes, Viruses, Theft and computer environment 3+3

### RECOMMENDED BOOKS:

Fundamental of I.T. concept by Nayaar Kanwal by CECOSE University  
Teacher's Notes

## **COURSE TITLE: PHYSIOLOGY**

**STUDY HOURS: 120+40**

**PAPER: 2**

**TERM: 1<sup>st</sup>**

**MARKS**

**THEORY: 60**

**PRACTICAL: 15**

**TIME: 2.30 Hrs**

The physiology of the following topics will consist of brief description of the function of part of the body.

<b>Course Contents</b>	<b>STUDY HOURS (THEORY+PRACTICAL)</b>
<b>A. The cell and its function</b>	<b>6+2</b>
A1. Structure and Functions of a human cell	
A1..1 The cytoplasm and its organelles	
A1..2 Functional system of the cell	
A2. Endocytosis & Phagocytosis	
A2.1 Ingestion and digestion by the cell	
A.2.2 Functions/Structures of Golgi apparatus	
A.2.3 Cell Division	
A.2.4 Cell reproduction.	
<b>B Circulatory system</b>	<b>3</b>
<b>Cardiovascular system (Heart and circulation)</b>	<b>12+4</b>
B1 Description of Heart and vessels (arteries, vein, and capillaries)	
B 2 Cardiac cycle, diastole and systole	
B 3 Functions of atria and ventricles	
B 4 Functions of valves	
B 5 Heart pumping (Work output of heart)	
B 6 Cardiac output, stroke volume etc.	
B 7 Heart sounds	
B 8 Introduction and function of Lymphatic system	
B9 Introduction to blood pressure and measuring of blood pressure	
<b>C IMMUNITY</b>	<b>3</b>
<b>C1 Blood Cell and there function</b>	
<b>C1.1 RBC</b>	
C1.2 WBC	
C1.3 Platelets	
C2 Composition of blood	
C3 Plasma Protein	
C4 Blood groups	
C5 Coagulation of blood	



- C6 Definition and classification of immunity
  - C6.1 Antigen
  - C6.2 Antibody

## **D Respiratory System**

**12+4**

- D1 Function of the lungs
- D2 Basic mechanism of respiration
- D2 Inspiration, expiration mechanism
- D3 Respiratory rate and tidal volume definitions
- D4 Rate and control of respiration
  - D4.1 Chemical control
  - D4.2 Nervous control
- D5 Transport of oxygen and carbon dioxide in the blood and body fluids

## **E Gastro intestinal tract.**

**12+4**

- E1** Ingestion of food, mastication (Chewing)/Digestion and Swallowing
- E2 Functions of Saliva, Salivary glands
- E3 Functions of stomach
- E4 Functions of Saliva, Gastric Secretion,
- E5 Storage function, mixing of food
- E6 Function of small intestine
- E7 Function of Secretions of the small intestine, secretion of large intestine, Digestion and absorption of food
- E8 Function of large intestine
- E9 Function of secretion of large intestine,
- E10 Digestion and absorption of food
- E11 Function of Liver, spleen and gall bladder
- E12 Functions of Pancreatic secretion, Bile secretion

## **F Metabolism**

**12+4**

- F1 introduction to Metabolism**
- F2 Introduction to fat Metabolism
- F3 Introduction to protein Metabolism
- F4 Introduction to Carbohydrates Metabolism, Role of glucose in Carbohydrate
- F5 Metabolism, Transport of glucose in body tissue,
- F6 Introduction to Lipid metabolism
- F7 Use of proteins for energy,
- F8 Vitamins and their metabolic role.
- F9 Maintenance of body temperature

## **G Nervous System**

**12+6**

- G1 Functions of brain, cerebrum cerebellum spinal cord.

- G2 Name of Cranial nerves and their supply
- G3 Introduction to Autonomic nervous system and their function briefly (Parts and functions)

**H Endocrine Glands. 12+4**

- H1 Introduction to endocrine glands
- H2 The pituitary hormones and their functions
- H3 The thyroid hormone, and there function
- H4 The adreno cortical hormones and there function
- H5 Parathyroid hormones and their functions

**I Reproductive System 12+4**

- I1 Functions of the male reproductive organs
- I2 Functions of the female reproductive system
- I3 Testosterone and other male sex hormones
- I4 Pregnancy, Lactation and female hormones

**J Urinary System 12+4**

- J1 Function of Kidney
- J2 Function of Urinary bladder
- J3 Micturition

**K Special Senses 12+4**

- K1 Introduction to Sensory organs and their function
- K2 Functions and refracting function of eye
- K3 Function of external ear, middle ear and internal ear
- K5 The functions of Tongue and salivary glands.
- K6 The functions of nose and tonsils / Adenoids.
- K7 The functions of skin and its appendages

**Recommended Book** Foundations of anatomy and physiology by Kathleen J.W. Wilson  
Anatomy Physiology for nurses by Roger Watson.

**Reference: Books** Guyton Text book of Physiology by Guyton by Saunders Company