Annexure 40.1

Avinashilingam Institute for Home Science and Higher Education for Women

(Deemed to be University under Category A by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with A++ Grade by NAAC.Recognised by UGC Under Section 12 B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor of Science (Physician Assistant)

Programme Outcomes:

1. Apply possessed knowledge of fundamental subjects to solve different problems.
2. Analyse various research and scientific problems.
3. Design system reactions with appropriate consideration to safety, economy, health and environmental considerations.
4. Solve complex scientific problems by conducting scientific derivations or mathematical simulations.
5. Use modern tools, resources and software.
6. Apply their responsibilities in social and environmental context.
7. Exhibit professional ethics and norms of scientific development.
8. Function individually and in teamwork.
9. Communicate effectively in both verbal and written forms.
10. Manage the work and finance of a research, application projects.
11. Practice the use of lifelong learning.

Programme Specific Outcomes:

1. Function as a health member in hospitals, teaching institutions and community.
2. Acquire skills set in diagnostic, therapeutic, rehabilitative and preventive health care services.

Department of Physician Assistant
Scheme of Instruction & Examinations
(For students admitted from 2022-2023 & onwards)

Part	*Subject Code*	*Name of the Paper/Component*	*Hrs. of Instruction/Week*		*Scheme of Examination*					
			T	*P*	*Duration of Exam*		*CIA*	*CIE*	*Total*	*Credit*
					T	*P*				
		First Semester								
	Core Course									
III	22BPAC01	Anatomy – I	3	2	3	-	50	50	100	3
	22BPAC02	Physiology – I	5	-	3	-	50	50	100	3
	22BPAC03	Principles of Nutrition and Diet Therapy	2	2	3	-	50	50	100	3
	22BPAC04	Infection Control	5	-	3	-	50	50	100	3
	22BPAC05	Human Genetics	5	-	3	-	50	50	100	4
		Discipline Specific Elective (DSE) Course								
	22BPAD01	**DSE I** : Digital Health	2	3	3	-	50	50	100	3
		Games		1	-	-	-	-	-	-
IV	22BXMC01	Medical Camp - I					100	-	100	1
		Second Semester								
I	22BLATA1/ 22BLAHI1/ 22BLAFR1	Tamil: Pothu tamil thazh I -Tamil Ilakkiam / Hindi: Grammar, Translation and General Essay/ French: Fundamentals of French	3	-	3	-	50	50	100	3
II	22BLEN02	English Language for Communication-II	3	-	3	-	50	50	100	3
	Core Course									
	22BPAC06	Anatomy – II	3	2	3	-	50	50	100	3
	22BPAC07	Physiology – II	4	-	3	-	50	50	100	2

III	22BPAC08	Physiology – III Practical - I	-	3	-	3	50	50	100	2
	22BPAC09	Clinical Psychology	4	-	3	-	50	50	100	3
		Discipline Specific Elective (DSE) Course								
	22BPAD02	**DSE II:** Clinical Biochemistry	4	3	3	-	50	50	100	2
		Games	-	1	-	-	-	-	-	-
IV	22BXMC02	Medical Camp - II					100	-	100	1
		Third Semester								
	Core Course									
III	22BPAC10	Pharmacology – I	3	2	3	-	50	50	100	3
	22BPAC11	General Pathology – I	3	2	3	-	50	50	100	3
	22BPAC12	Gynaecology	3	2	3	-	50	50	100	2
	22BPAC13	Fundamentals of Health Sciences	3	2	3	-	50	50	100	2
	22BPAC14	Medicine – I	3	2	3	-	50	50	100	2
		Discipline Specific Elective (DSE) Course								
	22BPAD03	**DSE III**: Microbiology	2	3	3	-	50	50	100	2
IV	22BXMC03	Medical Camp - III					100	-	100	1
		Fourth Semester								
	Core Course									
II	22BPAC15	Pharmacology – II	3	2	3	-	50	50	100	3
	22BPAC16	General Pathology – II	2	2	3	-	50	50	100	3
	22BPAC17	Medicine – II	3	2	3	-	50	50	100	2
	22BPAC18	Obstetrics	3	2	3	-	50	50	100	2
	22BPAC19	Community Medicine	2	2	3	-	50	50	100	2
	22BPAC20	Hospital Posting - I	-	-	-	-	50	50	100	4
III		***Discipline Specific Elective (DSE) Course***								
	22BPAD04	**DSEIV:** Biomedical Instrumentation and Scientific Measurements	4	3	3	-	50	50	100	4
IV	22BXMC04	Medical Camp - IV					100	-	100	1

Internship During Summer Vacation 30 days										
		Fifth Semester								
	Core Course									
III	22BPAC21	Pediatrics	3	2	3	-	50	50	100	3
	22BPAC22	General Surgery	3	2	3	-	50	50	100	3
	22BPAC23	Medicine – III Practical - II	-	5	-	3	50	50	100	2
	22BPAC24	Principles of Emergency Medicine and Disaster Management	4	-	3	-	50	50	100	4
	22BPAC25	Geriatrics	2	2	3	-	50	50	100	3
	22BPAC26	Biostatistics and Research	2	2	3	-	50	50	100	3
	22BPAC27	Hospital Management (Self Study)	1	-	3	-	100	-	100	4
	22BPAC28	Physician Assistant (Computer Based test)	-	-	1		-	100	100	2
	22BPAC29	Hospital Posting - II	-	-	-	-	50	50	100	4
	22BPAC30	Internship	-	-	-	-	100	-	100	4
IV	22BXMC05	Medical Camp - V					100	-	100	1
		Generic Elective Course	2	-	3	-	100	-	100	2
		Sixth Semester								
	Core Course									
III	22BPAC31	Cardiology	3	3	3	-	50	50	100	4
	22BPAC32	Neurology	3	3	3	-	50	50	100	4
	22BPAC33	Nephrology	3	3	3	-	50	50	100	4
	22BPAC34	Respiratory	3	3	3	-	50	50	100	4
	22BPAC35	Gastroenterology	3	3	3	-	50	50	100	4
IV	22BXMC06	Medical Camp - VI					100	-	100	1
		Seventh Semester								
	Core Course									
	22BPAC36	Inservice Training - Rehabilitation	-	6	-	3	50	50	100	5
	22BPAC37	Inservice Training –	-	8	-	3	50	50	100	

III		Medicine &Surgery								5
	22BPAC38	Inservice Training - Paediatrics	-	8	-	3	50	50	100	5
	22BPAC39	Inservice Training - Clinical Obstetrics and Gynaecology	-	8	-	3	50	50	100	5
III		**Eight Semester**								
	Core Course									
	22BPAC40	Inservice Training - Emergency	-	8	-	3	50	50	100	5
	22BPAC41	Inservice Training - Oncology	-	8	-	3	50	50	100	5
	22BPAC42	Inservice Training - Intensive Care	-	8	-	3	50	50	100	5
	22BPAC43	Project	-	6	-	-	50	50	100	4
									Part I,II & III	**164**
									Part IV	**20**
									Total	**184**

Annexure 38.1

Part - IV COMPONENTS

Applicable for B.Sc. Physician Assistant, Bachelor of Optometry (B.Optom), Bachelor in Audiology and Speech Language Pathology (B.ASLP), Bachelor of Physiotherapy (BPT) students admitted in the academic year 2022-2023 & onwards.

S.No.	Components	Subject Code	Semester	No. of Credits
I	**A. Ability Enhancement Courses**			
	Environmental Studies	21BAES01	I	4
	Fundamentals of Research	21BAFU01	II	2
	Communication Skills	23BSCS01	V	2
	Soft Skills	23BSSS01	VI	2
II	**Skill Enhancement Course(SEC)**			
a.	**Value Added Course**	40 Hrs. Duration	III	2
b.	**Co - Curricular Course**	Varied duration	IV	2
	B. Extra - Curricular Course			
	NCC/	**21BXNC01-06**	1-6	24 Credits*
	NSS/	**21BXNS01-06**		6 Credits
	Sports/	**21BXSP01-06**		6 Credits
	Medical Camp (for B.Sc. Physician Assistant and Bachelor in Audiology and Speech Language Pathology Students) /	**22BXMC01-06 /**		6 Credits
	Eye Camp (for Bachelor of Optometry students) /	**22BXEC01-06 /**		6 Credits
	Workstation Ergonomics (for Bachelor of Physiotherapy students)	**22BXWE01-06**		6 Credits
	Clinical Posting (For Bachelor in Audiology and Speech Language Pathology Students alone)	**22BXCP01-05**	2-6	5 Credits
			Total Credits	**38/20/ 43/25 (for B.ASLP)**

Anatomy – I

Semester I **Hours of Instruction/week: 3+2**

22BPAC01 **No of Credits: 3**

Objectives:

- To understand the general structure and nomenclature of human body.
- To improve scientific knowledge of human organs and systems.
- To develop an ability to apply the principles of anatomy in clinical practice.

UNIT I Gross Anatomy **15**

Introduction to Anatomy, nomenclature, anatomical position, axis, planes, and movements.(a)Microscopic features of cell, Tissues of body.(b) Osteology: Names of the bones ,classification of the bones with examples,(c)Microscopic anatomy of bone, ossification (d) Process of repair of bone.

UNIT II Muscular System and Arthrology **15**

Classification and identification of the muscles of the body: main attachments, nerve supply and action (a) Microscopic anatomy of muscles: General features, structure of skeletal muscle, Smooth muscle and Cardiac Muscle, type I and type II muscle fibers (b) Details of attachments of the muscles and movement caused by the muscle. (c) Arthrology: Definition and classification of joints, (d) Microscopic anatomy of articular cartilage; blood supply and nerve supply of the joints.

UNIT III Cardio Vascular and Respiratory System **15**

Cardio Vascular System: (a) Normal position, external features and internal features chambers of heart, nerve supply, types of blood vessels (b)conducting system of heart, (c) systemic circulation. Respiratory System: (a) Position, parts, relations, upper and lower respiratory tract, lungs, diaphragm, Pleura, bronchopulmonary segments, surfactant.
(b) Mechanism of respiration, respiratory muscles (c) pulmonary circulation.

UNIT IV Digestive and Genito Urinary System **15**

Parts, position, situation, shape and size, sub division, surface anatomy, relations, blood supply, nerve supply, venous and lymphatic drainage, histology, applied anatomy, Digestive System: Spleen, Stomach, Duodenum, Liver, Gall Bladder, Pancreas, Large and Small Intestine. Genito-Urinary System: Uterus, Cervix Vagina, Ovary, Ovarian Duct, Testis, Epididymis, Seminal Vesicle, Ductus Deferens, Prostate, Kidney, Ureter, Urinary Bladder and Urethra.

UNIT V Abdominal Wall Viscera and Endocrine Glands **15**

Abdominal wall viscera; (a)Anterior abdominal wall; Posterior abdominal wall; (b)Peritoneal cavity – Greater and lesser sacs ,Histology and microstructure portal vein and porta-systemic anastomosis, Endocrine glands: (a)Thyroid, Para thyroid, Pineal gland, Pituitary gland, Thymus Adrenal gland and Hypothalamus- their location, relations, their hormones, blood supply, nerve supply venous and lymphatic drainage.(b) Clinical manifestations of common endocrine disorders.

Total Hours 75

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of anatomy, cell, tissue, body fluids, bones and blood.

CO2: Know the importance of structure and organization of Muscular System and Arthrology

CO3: Provide students insight into normal structural anatomy of Cardiovascular System and anatomy and ventilation process of respiratory system.

CO4: Aware of structural and functional knowledge of digestive system and genitor urinary System

CO5: Understand the anatomical organization of abdominal wall structure System and Endocrine System.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		M	H	M	L	H		H	M	H
CO2	H		M	L		M	H	M	H		H	H	H
CO3	H	M	L		M	L	M		H	L	H	M	H
CO4	H		M	L		M	M	L	H		H	H	M
CO5	H				M			M	H		H	H	H

Text Books:

1. ***RanganathanTs, (2013) Textbook of Human Anatomy.*** 6th editionS Chand and Company Pvt Ltd Publisher, New Delhi.
2. ***Ross and Wilson, Anatomy and Physiology in Health and Illness,*** Anne Waugh 2010, Publisher ELBS with Churchill Livingstone.
3. ***B.D. Chaurasia, Human Anatomy*** -Vol. I, II, III, (1979 reprint 2008) CBS Publishers and Distributors, New Delhi.

Reference Books:

1. ***Romanes G.J, Cunningham's Manual of Practical Anatomy.***(1986) 15thedition, Reprint 2008 Oxford Medical Publications.
2. ***SinghI.B, Text Book of Human Osteology,*** *(2006)Jaypee Brothers, Medical Publishers.*
3. ***Ross M.H, E. and Williams L.J and Wilkins Romell, Kaye G.I,Histology: A Text and Atlas*** *(1995),*3rd edition, Anne Waugh 2010, ELBS with Churchill LivingstonePublishers.
4. ***Inderbir Singh,Textbook of Human Histology.***(2002), 4th Edition Jaypee Brother, New Delhi.

Physiology – I

Semester I **Hours of Instruction/week: 5**

22BPAC02 **No of Credits: 3**

Objectives:

- To explore the normal functioning of the living organisms.
- To acquire knowledge of the normal physiology of various human systems.
- To learn their principles, mechanisms and control.

UNIT I General Physiology 15

Introduction to Physiology. Cell components and functions. Tissue: formation, repair. Body fluids: compartments, transport across cell membrane, Homeostasis.
Bones: Functions and movements of bones of axial and appendicular skeleton.
Blood: Blood formation, composition, blood groups, blood coagulation process, Blood transfusion. Hemoglobin: Structure, Synthesis and breakdown, estimation.

UNIT II Muscular System and Arthrology 12

Muscular System: Introduction, muscle movements and functions of muscle, Neuromuscular junction. Physiology of muscle contraction -Excitation and contraction coupling, Applied physiology.
Arthrology: Joints and joint movements and its functions.

UNIT III Cardiovascular System 16

Heart and circulation, Functions of cardiac muscle, Cardiac pacemaker. Cardiac cycle : Phases. Conductive system, ECG, Heart sounds, Heart rate and its regulation, Cardiac output and its regulation, Blood pressure. Regional circulation:coronary, pulmonary, renal, cerebral, splanchnic , cutaneous and fetal circulation.

UNIT IV Respiratory System 16

Functional anatomy of respiratory passage and lungs. Function of respiratory tract. Respiratory and non-respiratory function of the lungs. Muscles of respiration, Mechanism of Respiration, Intra pleural and intra pulmonary pressures and their changes during the phases of respiration, surfactant, lung compliance. Pulmonary ventilation and alveolar ventilation. Composition of inspired air, alveolar air and expired air. Exchange of gases, transport of Oxygen and carbon dioxide in the blood. Pulmonary function test - Spirometer and Spirometry, Lung volumes and capacities. Regulation of respiration – neural and chemical.

UNIT V Gastrointestinal System and Excretory System **16**

Functions of GI system: Mastication and Deglutition. Saliva: composition, function, regulation. Gastric secretion composition, phases of secretion, function. Pancreatic secretion: composition, function, regulation. Bile: composition and function. Movements of small and large intestine; Digestion in mouth, stomach, intestine Defecation process. Excretory System: Functions of kidneys, ureters, urinary bladder & urethra. Formation of urine: Filtration, Reabsorption, Secretion. Composition of urine: Mechanism of Micturition and abnormalities.

Total Hours : 75

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of physiology, cell, tissue, body fluids, bones, blood and haemoglobin.
CO2: Know the importance of physiological process of Muscular System and Arthrology .
CO3: Provide students insight into normal physiology of Cardiovascular System.
CO4: Aware of functional anatomy and ventilation process of respiratory system.
CO5: Understand the physiological process of Gastrointestinal System and Excretory System.

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO9	PO 10	PO 11	PSO 1	PSO 2
CO1	M		M		H	H					H		H
CO2		M			H			M				M	
CO3	H		M			M				M			H
CO4	M		M		H	H							
CO5	M		M		H	H							

Text Book:

1. **Sembulingam.K, PremaSembulingam Essentials of Medical Physiology 1999, Reprint 2008,** 4th edition, Jaypee brothers Medical publishers New Delhi.
2. **Ross and Wilson, Anatomy and Physiology in Health and Illness,** Anne Waugh 2010, Publisher ELBS with Churchill Livingstone.
3. **Cohen – Memmler's Structure & Function of Human Body,** 2009, LWW.
4. **Waugh – Ross & Wilson Anatomy & Physiology,** 2008, Elsevier.

Reference Books:

1. **Kim E. Barrett, Susan M. Barman, Scott Boitano, and HeddwenBrooks**
2. **Ganong's Review of Medical Physiology, (2009)** 23 rd Edition, LANGE Basic Science.
3. **John E. Hall Guyton and Hall Textbook of Medical Physiology, 2010**
4. **Venkatesh – Basic Medical Physiology,** 2009, LWW.
5. **Guyton – Medical Physiology,** 2007, Elsevier.

Principles of Nutrition and Diet Therapy

Semester I
22BPAC03

Hours of Instruction/week: 2+2
No. of Credits: 3

Objectives:

- To gain knowledge in the planning and preparation of therapeutic diets.
- To understand the planning, selection and preparation of foods during health and deficiency conditions.

UNIT I Energy 7

Definition of energy, units of energy. Concept of Total Energy Expenditure and factors influencing TEE. Carbohydrates and Lipids: Classification, digestion, absorption and metabolism, functions, sources, requirements and effect of deficiency.

UNIT II Proteins and Minerals 7

Proteins: Classification, Digestion, absorption and metabolism, functions, sources, requirements and effect of deficiency. Macro minerals: functions, sources, requirement, factors affecting the utilization and effect of deficiency - calcium, phosphorus, magnesium. Micro minerals: copper, iron, cobalt, zinc, iodine.

UNIT III Vitamins, Water and Fiber 5

Classification, functions, requirements, deficiency and hyper vitaminosis: Vitamin A, D, E, K, and water soluble vitamins - ascorbic acid, thiamine, riboflavin, niacin, pyridoxine, folic acid, panthothenic acid and cyanocobalamine. Water: Importance, functions, requirements. Fibre: definition, classification, sources and role of fibre in human nutrition and disease.

UNIT IV Concept Of Diet Therapy 6

Classification, purpose and principles of therapeutic diets, modification of normal diets. Obesity and underweight: Etiological factors, grade of malnutrition, complications and diet modification. Definition, causes, signs and symptoms, diet modification for diabetes mellitus; Febrile conditions: typhoid, tuberculosis, malaria, pneumonia, influenza. Gastrointestinal disorders: peptic ulcer, diarrhea, dysentery, constipation. Liver and kidney diseases: jaundice, hepatitis, cirrhosis, hepatic coma acute and chronic renal failure, dialysis: Cardiovascular disease: atherosclerosis, hypertension

UNIT V Nutrition for different age Groups 5

Food and nutritional requirements for infants – nutritional importance of breast feeding, preschool and school going children, adolescent, adult, elderly, pregnant and lactating mothers.

Hours: 30

Practical **Hours: 30**

List of Experiments:

1. Grouping of foods according to food groups.
2. Planning, preparation and evaluation of menu for balanced diet.
3. Preparing the different special therapeutic diets.
4. Planning, preparation and evaluation of menu for Febrile conditions, Obesity, Underweight, Ulcer and Diabetes.
5. Planning, preparation and evaluation of menu for liver diseases, Cardio vascular diseases and deficiency diseases.

Total Hours: 60

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Acquire the knowledge on growth and development and nutritional requirement of all the age groups.

CO2: Apply the knowledge of dietary principles in planning therapeutic diets for disease conditions.

CO3: Relate the causes, symptoms and onset of various types of diseases to plan therapeutic diets for diseases conditions.

CO4: Demonstrate skills in preparing appropriate therapeutic diets and calculate the nutrient content of diets prepared.

CO5: Recommend diets for various health and disease condition.

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO 1	H		H	L		L		M			H	H	M
CO 2	H	L	H			H	M		L	M	M		H
CO 3	H		M			H	L			M	H		H
CO 4	H	L	H		M	H		M			H	M	L
CO 5	H		M	H		H	M	M			H	H	M

Text Book:

1. **Davidson S., Passmore R., Brook J.F and Truswell M Human Nutrition and Dietetics.** (1993). 9th edition. The English Language Book Society, Livingston.

Reference Books:

1. **Robinson C.M and Lawler R.M, Normal and Therapeutic Nutrition. (1986)** Mac Millan Pub. Co., New York.

2. **Krause M.V., and Hunscher M.A., Food, Nutrition and Diet therapy. (1983)** W.B. Saunders company, Philadelphia, London, Toronto.

3. **Swaminathan,M., Essential of food and nutrition**, Vol . I and II (1984) Ganesh and Co, Madras.

4. **HelenA, Guthrie.M Introductory Nutrition**, (1989)7th edition, Toronto.

Infection Control

Semester I **Hours of Instruction/week: 5**
22BPAC04 **No. of Credits: 3**

Objectives:

- To recognize benefits to patients and health-care workers adhering to scientifically accepted principles and practices of infection control.
- To perform these control practices and to monitor infection control practices as a professionals.
- To identify specific barriers and protection from exposure to potentially infectious material.

UNIT I Introduction to Infection Control **15**

Definition of infection, infection control, importance of infection control, sources of infection, nosocomial infections, risk factors, The principles of infection prevention and control. Concept of "The Chain of Infection": Pathogen or infectious agent, Mode of transmission: Contact with pathogen: Direct; Indirect; Droplet; Airborne: Common vehicle (e.g., food, water); Vector borne, Susceptible host.

UNIT II Factor Influencing The Outcome Of Exposures **15**

Causes and spread of infection, Host factors: Natural barriers, Host immunity: pathogen or infectious agent factors: infectivity, pathogenicity, virulence, size of innoculum, route of exposure, duration of exposure. Environmental factors: contamination of environment, fomites: contamination of equipment, device-related and blood-borne infections.

UNIT III Standard Universal Precautions **20**

Standard Universal Precautions for Client Care, Hand Washing. Antiseptics and Disinfectants: Definitions and Common use, Protecting Antiseptics and Disinfectants from Contamination. Surgical Hand Scrub and Attire: surgical hand scrubbing, antiseptic hand scrubbing agents, wearing and removing sterile gloves, surgical attire. Control of routes of transmission: Appropriate selection and use of agents

UNIT IV Reducing Risk of Infection During Clinical Procedure **10**

Aseptic technique, Maintaining a sterile field, Maintaining a safe environment in a surgical procedure area, use and disposal of needles and other sharps. Processing instruments and other reusable items, Decontamination and cleaning: decontamination, preparing chlorine solution, and steps of decontaminating items.

UNIT V Use of Appropriate Barriers **15**

Appropriate selection, donning, doffing, and disposal of personal protective equipment (PPE). Appropriate isolation/ cohorting of patients infected with communicable diseases, Cleaning, steps of cleaning, Sterilization, HLD and storage: Definition and methods of sterilization, autoclaving (steam sterilization), Chemical sterilization, high level disinfection (HLD).

Total Hours: 75

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Recognize the importance of the correct application of reprocessing methods for assuring the safety and integrity of patient care equipment.

CO2: Identify the individual's professional responsibility for maintaining a safe patient care environment.

CO3: Recognize strategies for effective pre-cleaning, chemical disinfection, and sterilization of instruments and devices

C04: Distinguish the various aseptic techniques and appraise the process of reducing risk of infection in clinical area.

CO5: Justify the Correct use of appropriate barrier to control infection.

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO 1	H		H	L		L		M			H	H	M
CO 2	H	L	H			H	M		L	M	M		H
CO 3	H		M			H	L			M	H		H
CO 4	H	L	H		M	H		M			H	M	L
CO 5	H		M	H		H	M	M			H	H	M

Text Books:

1. **Nizam N. Damani (2003), Manual of Infection Control Procedures** Cambridge University Press

Reference Books:

1. **Jennie Wilson, (2007) Infection Control in Clinical Practice,** 3rd edition,BailliereTindall.
2. **Janet McCulloch (2000) Infection Control,** Wiley-Black

Human Genetics

Semester I
22BPAC05

Hours of Instruction/week: 5
No of Credits: 4

Objectives:

- To understand basics of genetics , chromosomes and mutation
- To understand maternal, prenatal and genetic influences
- To understand congenital malformations and other genetic conditions
- To develop skills in laboratory genetics

UNIT I Introduction **15**

Review of cellular division mitosis and meiosis, Characteristics and structure of genes, Chromosomes – sex determination, Law of inheritance, Basic principles of genetics, Medallion theory of inheritance, Multiple allots and blood groups, Sex linked inheritance, Mechanism of inheritance, Errors in transmission (Mutation)

UNIT II Maternal, prenatal and genetic influences on development of defects and diseases **15**

Conditions affecting the mother: genetic and infections, Consanguinity atopy, Prenatal nutrition and food allergies, Maternal age, Maternal drug therapy, Prenatal testing and diagnosis, Effect of radiation, drugs and chemicals, Infertility, Spontaneous abortion

UNIT III Genetic conditions in neonates, children, adolescents and adults **15**

Congenital malformation and teratogenesis, Developmental delay, Dysmorphism, Inborn errors of metabolism – Phenylketonuria, Maple Syrup urine syndrome, Mucopolysaccharidosis, Galactosemia, Neural tube defects and the role of folic acid in lowering the risk, Down syndrome (Trisomy 21), Cancer genetics, , hematological disorders, Genetic haemochromatosis, Huntington's disease, Mental illness

UNIT IV Laboratory genetics **15**

Introduction to genetic testing and its types Sterilization methods, Human chromosome preparation (Peripheral blood lymphocyte culture), Screening for Congenital abnormalities, Karyotyping, Recording of family and personal history, Pedigree construction, pre and post test counseling and evaluation

UNIT V Services related to Genetics **15**

Genetic testing, Human genome project, Gene therapy, The Eugenics movement, Genetic counseling and its types, Legal and ethical issues

Total hours: 75

Course Outcomes:

On the successful completion of the course, students will be able to,

CO1: Understand the basic concepts of genetics

CO2: Understand maternal, prenatal and genetic influences on development of defects and diseases

CO3: Understand the significance of genetic testing.

CO4: Understand genetic disorders in various age groups.

CO5: Appreciate services related to genetics

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO9	PO 10	PO1 1	PSO 1	PSO 2
CO1	M	-	M	L	M	L	M	M	M	L	H	H	H
CO2	M	M	M	L	M	M	M	M	M	M	H	H	H
CO3	M	M	M	L	L	M	M	M	M	M	H	M	M
CO4	M	H	M	H	H	M	M	M	M	H	H	H	H
CO5	M	M	M	L	L	M	M	H	H	L	H	H	H

Reference Books:

1. Mandal: Fundamentals of Human Genetics II Edition New Central Book Agency, Kolkota 1996
2. S D Gangane : Human Genetics II Edition, Saurabh Printers, Noida
3. Jorde Carey BamshadWhite : Medical Genetics, Mosby 2003
4. Ching Chun L : Human Genetics- Principles and methods , Mcgeaw hill book company, Newyork 1961
5. Moore, Keith L: Developing Human Clinically oriented Embryology, II Edition, W B Saunders company, Philadelphia 1977

DSE I: Digital Health

Semester I
22BPAD01

Hrs of Instruction/Week: 2+3
No of Credits: 3

Objectives:

- To know about the basics of Digital Health.
- To know about AI use in the healthcare systems.
- To know about3D products in healthcare system.

UNIT I Digital Health

15

Introduction of Digital Health – Vision - Benefits of Digital Health – Digital Health Initiatives – National Digital Health Mission – Ecosystem – Architecture – Applications of Digital Health -Learning Health System –Characteristics of Learning Health Care System

UNIT II Digital Health Care Products

15

Categories of Digital Health Products and Services - Wearable Fitness Tracker — Smart health watches – Wearable ECG Monitors – Wearable Blood Pressure Monitor – Wearable Biosensor –mHealth –Telehealth – Telemedicine -Difference between mHealth vs Telehealth -Difference between Telehealth vs Telemedicine

UNIT III ML and DL in Healthcare

15

About machine Learning – Benefits of ML in Healthcare – Cognitive Computing – Trend of ML in Medical Health – Applications of ML in Pharma and Medicine – Applications of ML in Healthcare –Big Data – Benefits of Big Data in Healthcare – Features of Big Data in Healthcare – Methods for analysing Big Data in Healthcare - Applications of Big Data in Healthcare -Introduction on Deep Learning –Deep Learning Algorithms– Deep Learning in Clinical Image Analysis.

UNIT IV Artificial Intelligence in Healthcare

15

AI-assisted Robotic surgery – Virtual nursing assistant – Aid Clinical judgment or diagnosis – Administrative task – Image Analysis–Develop Medicines – Analyses Unstructured Data –Forecast Kidney Disease – Contributes to Cancer Research and Treatment – Supports Health Equity – AI in Neuroscience – AI in Thoracic Surgery – AI in Cardiac Management.

UNIT V Robotics &3D Printing in Healthcare

15

Role of Robots in Healthcare – Benefits of robots in Healthcare - Types of Robots in Healthcare – Surgical Robots –Exoskeletons – Care Robots – Hospital Robots –3D Printing for Healthcare – Preoperative planning – Customized Surgery – Designing medical devices – Improving surgical instruments – Creating Protheses – 3D Printed implants – 3D Digital Dentistry – Streamlining drug administration

Total Hours : 75

Course Outcomes:

CO1: Get familiar with Digital Health.

CO2: Understand the working nature of the Wearable Devices used in Digital Health.

CO3: Knowledge on Machine Learning techniques used in healthcare system.

CO4: Knowledge on AI embedded Healthcare system.

CO5: Get familiar with 3D Model Products and Robots in healthcare systems.

CO/ PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	M	M	H	-	H	H	-	M	-	-	-	M	H
CO2	M	M	H	-	H	H	-	M	-	-	-	H	H
CO3	M	H	H	H	H	H	M	M	-	M	-	M	H
CO4	M	H	H	H	H	H	M	M	-	M	-	M	H
CO5	M	M	H	H	H	H	-	M	-	M	-	M	H

Reference Books:

1. Dac-Nhuong Le, Chung Van Le, Jolanda G. Tromp, GiaNhu Nguyen, (2018). "Emerging Technologies for Health and Medicine - Virtual Reality, Augmented Reality, Artificial Intelligence, Internet of Things, Robotics, Industry 4.0", ISBN 978-1-119-50981-3
2. Thomas-Vazquez, Daniel & Singh, Deepti&Hatamleh, Muhanad&Tripathi, Anuj&Vishnoi, Tanushree&Bhat, Sumrita& Thompson, Andrew & Jason, Jeremy & Kim, Keekyoung&Gleadall, Andy & Ruiz, Laura. (2019). "3D Printing in Medicine and Surgery", Woodhead Publishing Series in Medicine, ISBN 978-0-85709-233-5

Website links:

1. https://www.ncbi.nlm.nih.gov/books/NBK470260/
2. https://www.insiderintelligence.com/insights/wearable-technology-healthcare-medical-devices/
3. https://www.singlecare.com/blog/telehealth-vs-telemedicine/
4. https://www.mobihealthnews.com/news/contributed-top-10-use-cases-ai-healthcare
5. https://www.researchgate.net/publication/330724271_Big_Data_in_Health_Care_Applications_and_Challenges
6. https://www.mobihealthnews.com/news/contributed-top-8-healthcare-uses-3d-printing
7. https://amfg.ai/2019/08/30/3d-printing-in-healthcare-where-are-we-in-2019/

English Language for Communication - II

Semester II
22BLEN02

Hours of instruction/Week: 3
No. of credits: 3

Objectives

- To become familiar with the nuances of academic writing
- To produce short and simple connected texts on familiar topics
- To communicate effectively and appropriately in real-life situations

UNIT I Communicate: Outside the Class **9**

Patterns of Language-Modal Verbs
Speaking-Useful Everyday Expressions
Making Language Work-Expressions To Indicate Speculations And Making Inferences

UNIT II Communicate : At the Post Office **9**

Patterns of Language-Phrasal Verbs/ Idioms
Speaking-Distinguishing between pairs of expression
Making Language Work-Clipping , Forming Sentences, Converting SMS into Normal Script

UNIT III Contemplate: How To Win **9**

Writing : completing a story, dialogue

UNIT IV Contemplate: View Points **9**

Speaking: Agreeing/ Disagreeing, expressing one self

UNIT V Contemplate: Snakes and Ladders **9**

Contemplate: Your Self

Speaking: Making comparisons
Writing: Preparing lists

Assignments and Activities in Class:
(a) Model question paper in the text book
(b) Vocabulary building, analyzing poems and listening activities (from CD)

Total Hours : 45

Course Outcomes:

At the end of the course students will be able to

CO1: Use increased vocabulary in their writing

CO2: Use expressions in appropriate context

CO3: Use the English language accurately and appropriately for different purposes

CO4: Understand hoe phrasal verbs, idioms enrich language

CO5: Demonstrate effective writing skills.

Text Book:

1. Krishnaswamy N, sriraman T, Creatinve English for Communication, 2 nd ed. Haryana, Macmillan, 2012.

Reference books:

1. Das, Bikram K, Functional Gramer and Spoken and Written communication in English(A Short friendly Edition), New Delhi: Orient Black Swan, 2010.
2. Mudbhatkel, Maya and Saraswathi, English for Competitive Exminations, Emerald Publishers, 2003.
3. Rajeevan, Geetha and Kiranmani Dutt, Basic Communication Skills, New Delhi: Fooundation Books, 2010
4. Rajeevan K and Radhakrishna Pillai, Spoken English For You, Chennai: Emerald Publishers, 2014

Anatomy – II

Semester II
22BPAC06

Hours of Instruction/week: 3+2
No of Credits: 3

Objectives:

- To understand the general structure and special organs of human body.
- To improve scientific knowledge of human extremities and organs
- To develop an ability to apply the anatomy and applied anatomy clinical practice.

UNIT I Special Sensory Organs **8**

Gross Anatomy of a) Eye-Eyelids, Conjunctiva, Lacrimal gland, eyeball, relations, extra ocular muscles, Orbit, b) Ear- External , Middle and Inner ear, External Acoustic Meatus. c) Tongue: Structure, Histology- Papillae. d) Nose –Walls of nasal cavity, Nasal conchae, nasal meatus, Para Nasal Sinuses e) Skin, nails, hair. f) Lymphatic System-Lymphatic vessel, Lymphaticglands, lymph nodes.

UNIT II Upper and Lower Extremities **20**

Upper extremity: Bones, Muscles,ligaments, Joints of Upper Limb- Shoulder,Arm, Forearm, Hand, Regional Anatomy-Axillary fossa, Cubital fossa, Carpal canal, Arthrokinematics, Blood supply and Lymphatics, Cervical and Brachial Plexus. b) Lower extremity: Bones. Muscles, ligaments and Joints of Lower Limb-Hip, Thigh, Leg, Foot, tarsal tunnel, Arthrokinematics, Blood supply and lymphatics, Lumbar and Sacral Plexus.

UNIT III Thorax **12**

Thoracic cage -- Walls of thorax, joints of thorax, Mediastinum, Diaphragm, Abdominal muscles .Osteology -Features of vertebra (cervical, thoracic, lumbar, sacral) typical and atypical vertebras, sternum, Ribs, muscles associated.

UNIT IV Head and Neck **15**

a)Scalp. Face- Facial bones, Temporo Mandibular Joint, facial muscles, Facialnerve,Arteries, Applied anatomy of face. (b)Structures of neck, Triangles of neck (c) Other areas-Parotid region, Temporal and Infra-temporal fossae. Sub-mandibular region. (d)Mouth- boundaries, structures, soft and hard Palate, (e) Pharynx,Larynx, blood vessels and lymphatic drainage of head and neck.

UNIT V Brain And Spinal Cord **20**

(a)Cranial cavity-Cranial fossa, Meninges, Duramater, (b) Spinal cord: spinal segments, external features and internal structure. (c)Brain: medulla oblongata, pons, mid-brain, cerebellum and cerebrum, Ventricles ,cerebrospinal fluid, circle of willis (d) Cranial Nerves and Spinal nerves(e)Pyramidal and extra pyramidal motor systems, upper and lower motor neurons. (f)Autonomic nervous system: Sympathetic and para sympathetic nervous system.

Total Hours: 75

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of anatomy of special organs in human body.
CO2: Know the importance of structure and organisation of upper limb and lower limb and arthrology and arthrokinematics.
CO3: Provide students insight into normal structural anatomy of thorax and organs in it.
CO4: Aware of structural and functional knowledge of head and neck structures.
CO5: Understand the anatomical organisation of central nervous system, brain, spinal Cord, nerves and peripheral nervous system.

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO 1	H	L	M	M	-	-	M	-	H	-	H	H	H
CO 2	H	M	M	M	-	-	L	M	H	-	H	H	H
CO 3	H	M	M	M	L	L	-	M	H	L	H	H	H
CO 4	H	M	M	M	L	L	-	M	H	L	H	H	H
CO 5	H	M	M	M	M	L	L	M	H	L	H	H	H

Text Books:

1. **RanganathanTs, (2013) Textbook of Human Anatomy.** 6th editions Chand and Company Pvt Ltd Publisher, New Delhi.
2. **Ross and Wilson, Anatomy and Physiology in Health and Illness,** Anne Waugh 2010, Publisher ELBS with Churchill Livingstone.
3. **Chaurasia.B.D.HumanAnatomy(1979 reprint 2008),** Vol. I, II, III, CBS Publishers, New Delhi.

Reference Books:

1. **Romanes G.J, Cunningham's Manual of Practical Anatomy.** (1986) 15th edition, Reprint 2008 Oxford Medical Publications.
2. **SinghI.B, Text Book of Human Osteology,** (2006)Jaypee Brothers, Medical Publishers.
3. **Ross M.H, E. and Williams L.J and Wilkins Romell, Kaye G.I, Histology: A Text and Atlas (1995),** 3rd edition, Anne Waugh .ELBS with Churchill Livingstone.
4. **Inderbir Singh, Textbook of Human Histology.(2002),** 4th Edition Jaypee Brother, New Delhi.

Physiology – II

Semester II
22BPAC07

Hours of Instruction/week: 4
No. of Credits: 2

Objectives

- To explore the normal functioning of the living organisms.
- To acquire knowledge of the normal physiology of various human body systems
- To learn their principles, mechanisms and control.

UNIT I Special Senses **12**

Functional anatomy of eye. Vision: rods and cones, retina and its function, visual pathway, colour vision and electroretinography. Functional anatomy of ear- Peripheral and Central auditory mechanism and auditory pathway. Olfaction . Physiology of taste: taste buds.

UNIT II Endocrinology **14**

General endocrinology, Enumeration of endocrine glands and hormones, General functions of endocrine system, Physiological action, regulation, disorders of hormones –Anterior and Posterior pituitary, Adrenal cortex and Medulla, Pancreatic, Parathyroid, Thyroid, Thyroid function tests.

UNIT III Reproduction **12**

Physiological anatomy of male and female reproductive system, Pregnancy, function of placenta, parturition, lactation, contraception. Regulation of parturition and lactation. Puberty and Menopause, Spermatogenesis and Oogenesis, Menstrual cycle.

UNIT IV Lymphatic and Immunological System **10**

Circulation of lymph, Formation of T-cells, Immunity, Types of Immune response, Antigens and Antibodies. Components of reticuloendothelialsystem, Development and function of reticulo endothelial system.

UNIT V Central Nervous System **12**

Organization of central nervous system. Neuronal organisation at spinal cord level, Synapse receptors, reflexes, sensations and tracts, Physiology of pain. Brain structure and function: cerebellum, thalamus, hypothalamus and cerebral cortex. Formation and functions of CSF .Autonomic nervous system.

Total Hours: 60

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Know the importance of physiological process of Special Senses.

CO2: Understand the General endocrinology and disorders of hormones.

CO3: Provide students insight into normal physiology of male and female reproductive system.

CO4: Aware of functional anatomy of Lymphatic and Immunological System.

CO5: Understand the physiological process of Central Nervous System..

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		M	H	M	L	H		H	M	H
CO2	H		M	L		M	H	M	H		H	M	H
CO3	H	M	L		M	L	M		H	L	H	M	H
CO4	H		M	L		M	M	L	H		H	H	M
CO5	H				M	M		M	H		H	H	H

Text Book:

1. **Sembulingam.K, PremaSembulingam Essentials of Medical Physiology(1999, Reprint (2008)** 4th edition, Jaypee brothers Medical publishers New Delhi.

2. **Ross and Wilson, Anatomy and Physiology in Health and Illness,** Anne Waugh 2010, Publisher ELBS with Churchill Livingstone.

3.**Cohen – Memmler's Structure & Function of Human Body,** 2009, LWW.

4. **Waugh – Ross & Wilson Anatomy & Physiology,** 2008, Elsevier.

Reference Books:

1. **Kim E. Barrett, Susan M. Barman, Scott Boitano, and HeddwenBrooks,Ganong's Review of Medical Physiology,(2009)** 23 rdEdition ,LANGE Basic Science.

2.**John E. Hall Guyton and Hall Textbook of Medical Physiology, 2010**

3.**Venkatesh – Basic Medical Physiology,** 2009, LWW

4.**Guyton – Medical Physiology,** 2007, Elsevier.

5.**West – Best& Taylor Physiologic Basis of Disease,** Waverly.

Physiology – III
Practical - I

Semester II
22BPAC08

Hours of Instruction/week: 3
No. of Credits: 2

Objectives

- To enhance the students with practical knowledge of various tests and procedures.
- To gain the skills about various tests and procedures to perform in hospital and community settings.
- To enable the students distinguish between normal and abnormal data derived as a result of tests which she has performed and observed in the laboratory.

UNIT I

Measurement of vitals : HR, Respiratoryrate,Temperature,SPO2, recording of blood pressurePositioning: Recumbent, Lateral (Right/left), Fowlers, Sims, Lithotomy, Prone, Trendelenburg position

UNIT II

Determination of blood groups and Estimation of haemoglobin, Bleeding time and clotting time.

UNIT III

Identify the areas, auscultate and write the findings, study of heart sounds by using stethoscope, ECG.

UNIT IV

Injections- Intradermal, subcutaneous injections, Intramuscular injectionsand checking skin turgor for dehydration.

UNIT V

Estimation of Blood Glucose level, Naso-gastric tube insertion and Urinary Catheterization.

Total hours: 45

Course Outcomes:
On the successful completion of the course, students will be able to
CO1: Know the importance of checking vital signs and positioning.

CO2: Understand the blood components and blood grouping test.

CO3: Prepare students to check Heart sounds and ECG.

CO4: Aware of Injection techniques and skin turgor.

CO5: Understand the miscellaneous procedures used in Physiology practicals.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		M	H	M	L	H		H	M	H
CO2	H		M	L		M	H	M	H		H	M	H
CO3	H	M	L		M	L	M		H	L	H	M	H
CO4	H		M	L		M	M	L	H		H	H	M
CO5	H				M	M		M	H		H	H	H

Text Books:

1. **Jain.A.K, Manual Of Practical Physiology For MBBS, (2012),** 4th Edition, Avichal Publishing Company

Reference Books:

1. **Michael Swash, Michael Glynn, Hutchinson's Clinical Methods (2007).** 22 nd Edition, Saunders Ltd
2. **Sri Nageswari.K, Rajeev Sharma, Practical Workbook of Human Physiology (2006),** I st Edition, Jaypee

Clinical Psychology

Semester II
22BPAC09

Hours of Instruction/Week: 4
No. of Credits: 3

Objectives

- To help the students gain knowledge about the basic of Psychology
- To counsel the patients with psychosocial problems
- To recognize problems and form behavioural strategies for management

UNIT I Aim and methods of Psychology **12**

Introduction, Definition of psychology, Significance of psychology in everyday life- Scientific methods of psychology.

UNIT II Motivation and Emotional Processes **12**

Motivation: Meaning, Types, Theories, Conflicts and frustration - Emotion: Definition, components, Changes in emotions, theories emotional adjustments, emotions in health and illness. Stress: stressors, cycle, effect, adaptation & coping

UNIT III Personality **12**

Definitions, topography, types, Theories-Psychometric assessments of personality- Alterations in personality

UNIT IV Counselling Skills **12**

Introduction- Definition- Skills of a Counsellor- Core conditions of Counselling - Ethics in Counselling

UNIT V Mental hygiene and mental Health **12**

Characteristics of mentally healthy person - Warning signs of poor mental health - Ego Defence mechanisms and implications - Personal and social adjustments

Total hours 60

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Recognize the importance of Psychology.

CO2: Understand application of Emotional Process in Clinical Area.

CO3: Apply the concept of personality.

CO4: Develop the necessary skills for counseling.

CO5: Understand Mental hygiene and assess Mental wellbeing

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		L	M	L	M	L	L	H	H	H
CO2	H	L	M			M	H	H	H		H	H	H
CO3	H	L	M			M	H	H	H		H	H	H
CO4	H	M	L			M	M	H	H		M	H	H
CO5	H	L	M			M	H	M	H		M	H	H

Text Books:

1. Nelson & Jones (2012). Basic counseling skills- A helper's manual. Sage publications, New Delhi.
2. Psychology, Neil. R Carlson 2nd edition Allyn& Bacon Inc Boston 1987.
3. Introduction to Psychology, Arnof Witting, McGraw Hill 1977.

Reference Books:

1. Contemporary Psychology and Effective Behaviour, James C Coleman IV Edition, Scott Foresman& Co.
2. Handbook of clinical Psychology, Benjamin B Wolman McGraw Hill Book Co 1965
3. Clinical Practice of Psychology –Walker .C.E., Pergamon Press, New York, 1981.
4. Modern Clinical Psychology –Sheldon J.K., Basic Books Inc. Publishers, New York, 1976.

DSE II: Clinical Biochemistry

Semester II
22BPAD02

Hours of Instruction/week: 4+3
No. of Credits: 2

Objectives:

- To understand and learn the collection of biological samples and preservation
- To know about the clinical significance of abnormalities in metabolism of carbohydrate, protein and lipid.
- To learn about the clinical importance of enzymes.

UNIT I Specimen collection 12

Blood, urine, feces, cerebrospinal fluid and amniotic fluid.
Preservation of the specimens - anticoagulants and normal values of biochemical parameters.

UNIT II Abnormalities of carbohydrate metabolism 12

Diabetes mellitus - complications, types and metabolic changes, glucose tolerance test, glycosuria, ketone bodies, ketoacidosis and glycosylated hemoglobin. Fructose and lactose intolerance, galactosemia, lactiacidosis, alcoholism and glycogen storage disease.

UNIT III Abnormalities of Lipid Metabolism 12

Plasma lipids and lipoproteins, fatty liver, obesity, atherosclerosis, hyper and hypo lipoproteinemia.

UNIT IV Abnormalities of Protein Metabolism 12

Plasma proteins and their variations in diseases.
Inborn errors of metabolism - phenyl ketonuria, albinism, alkaptonuria, cystinosis, maple syrup urine disease, gout.

UNIT V Clinical Enzymology 12

Clinical significance of phosphatases, γ-glutamyltransferase, amylase, lactate dehydrogenase, transminases and creatine phosphokinase.

Hours: 60

PRACTICAL I 10

UNIT I Collection of Urine samples

Collection of random and 24 hour's urine samples and use of preservatives.

UNIT II Collection of blood samples 10

Collection of blood samples
Collection by fingertip and venipuncture
Whole blood, Serum, plasma, RBC

UNIT III Routine analysis of urine (Qualitative) 10

Colour, appearance, glucose, proteins, ketone bodies, blood, urinary deposits and bile salts-bilirubin

UNIT IV Urine analysis (Quantitative) 10

Estimation of urea, uric acid, creatinine and calcium in urine.

UNIT V Lipid Profile in Serum 5

Estimation of total cholesterol, HDL, LDL, VLDL cholesterol and triglycerides by kit method.

Hours: 45

Total Hours :105

Course Outcomes:

On the successful completion of the course, students will be able to

CO1: Demonstrate the collection f biological samples and preservation methods
CO2: Gain the knowledge for the clinical significance of metabolic disorder of carbohydrate
CO3: Understand the impact of various metabolic disorders of protein
CO4: Analyse the metabolic disorders of lipids and its impact
CO5: The students will know the importance of clinical enzymology

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		L	M	L	M	L	L	H	H	H
CO2	H	L	M			M	H	H	H		H	H	H
CO3	H	L	M			M	H	H	H		H	H	H
CO4	H	M	L			M	M	H	H		M	H	H
CO5	H	L	M			M	H	M	H		M	H	H

Text Books:

1. ***Chatterjee, M.N.* (2011).*Text Book of Medical Biochemistry,*** Eight Edition, Jaypee Brothers Medical Publishers, New Delhi.
2. ***Chawla, R.*(2008).*Practical Clinical Biochemistry - Methods and Interpretations,*** Third Edition, Jaypee Brothers Medical Publishers, New Delhi.
3. ***Bhagavan, N.V.* (2004).*Medical Biochemistry***, Fourth Edition, Academic Press, Calfornia.

References:

1. Gaw, A., Murphy, M.J., Cowan, R.A., Rectly, D.S., Stewart, M.J. and Shepherd, J. (2008), Clinical Biochemistry, 4thed, Churchill Livingstone, New York.
2. Gowenlock, A.H., Murray, J.R. and Lauchlan, D.M. (2006), Practical clinical Biochemistry, 6thed, CBS Butterworth publishers, New Delhi.
3. Nayak, B. (2002), Manipal Manual of Clinical Biochemistry, 1sted, Jay Pee brothers, New Delhi.

Pharmacology – I

Semester III
22BPAC10

Hours of Instruction/week: 3 + 2
No. of Credits: 3

Objectives:

- To acquire knowledge of the Principles, routes, side effects of medications and Calculate dosages of drugs.
- To describe the details of drugs and chemical agents used in patient care.
- To administer the drug effectively to patients and observe the results

UNIT I General Pharmacology & Classification of Drugs **10**

Definition of terms in Pharmacology, Drug nomenclature (chemical name, non – proprietary name, brand name) Sources of drugs with examples, purpose of medication, Rights of medication, Routes of drug administration. Pharmacokinetics: Absorption, drug distribution, drug transport, drug metabolism, drug excretion- Renal, rectal, pulmonary , biliary excretion, excretion in breast milk, skin and salivary elimination, changes in electrolyte and fluid balance, storage and maintanince of the drug, drug interactions among chemotherapeutic agents, Pharmacological classification of the drugs. Calculate conversions of drugs and dosages.Terminologies and abbreviations used in prescriptions of medications

UNIT II Drug Action and Adverse Reactions **15**

Principles of drug action (stimulation, depression, irritation, replacement, cytotoxic action) Mechanisms of drug action with examples, Dose-response relationship- potency, efficacy, selectivity. Therapeutic index, combined effect of drugs – synergism (additive, Supraadditive), Factors modifying Drug Action, Rational use of drugs, Adverse Drug Effects – severity of adverse drug reactions, Pharmacovigilance activities, Prevention of adverse effects of drugs, Drug withdrawal reactions, Teratogenicity, mutagenicity and Carcinogenicity, Drug induced diseases, Drug interactions – mechanism, selected clinically important drug interaction, Bioassay: Definition, principles of bioassay and types of bioassay. Drug calculation by using formulas

UNIT III Drugs Acting on Autonomic Nervous System, Autacoids and Related Drugs &NSAID **15**

Autonomic Nervous System: Introduction, Classification of drugs affecting ANS, Cholinergic (parasympathetic) drugs*- anticholinergic drugs*, Adrenergic drugs* (catecholamines, noncatecholamines), Anti Adrenergic drugs *mechanism of action, uses, side effects, contraindication and interactions .Autacoids and related drugs: classifications, Histamines and Antihistamines – Pharmacological actions, clinical classifications, doses and preparations of H_1antihistamins, side effects &Toxicity, uses Drug Therapy of Migraine. Non-steroidal Anti-inflammatory Drugs and Antipyretic - Analgesics, pharmacokinetics, uses, adverse effects, precautions and contraindications, interactions. Drugs used for rheumatoid arthritis and gout.

UNIT IV Drugs Acting on Cardiovascular System and Dermatological Pharmacology **20**

Drugs affecting renin angiotensin system – angiotensin converting enzyme inhibitors, Pharmacokinetics, adverse effects, interactions, uses, angiotensin receptor antagonist, , Cardiac glycosides, Drugs for Heart Failure, digitalis toxicity, Antiarrhythmic Drugs – classification, Antianginal and other anti – ischaemic drugs- classification, Drug Therapy in Myocardial Infarction. Drugs for Peripheral vascular diseases, Antihypertensive Drugs – Classification, symptoms profiling of antihypertensive drugs, Drug Induced Hypertension. Dermatological: Systemic Treatment- Corticosteroids, Topical treatment: Calamine lotion, creams, emollients, antifungal drugs

UNIT V Respiratory and Hematologic Drugs **15**

Drugs for cough – Demulcents and Expectorants, Antitussives, Adjuvant antitussives – classification, Drugs for Bronchial Asthma- classification (bronchodilators, Leukotrienee antagonists, corticosteroids), inhaled asthma medication, choice of treatment of asthma. Antitubercular drugs – classification, first line drugs*, Second line drugs, anti tubercular drug regimens, Management of adverse drug reaction with anti tubercular drugs. Hematological: Haematinics: (Iron, vitamin B12 and folic acid), minerals (trace elements) and vitamins and clinical significance, preparations, uses of iron deficiency anemia, megaloblastic anemia, Coagulants, Anticoagulant, Thrombolyticc drugs, Antithrombotics, Antifibrinolytic, Antiplatelet drugs. Plasma expanders and uses of plasma expanders.
**Classification, Mechanism of Action, Pharmacological Actions, Adverse Drug Reactions, Precautions, Contraindications, Preparations, Drug Interactions, Therapeutic Uses/Indications.*

Total Hours: 75

Practicals

1. Drug calculations
2. Log book
3. Antidotes for different poisoning
4. Poison control unit

Course outcomes:

On the successful completion of the course, students will be able to,

CO1: Learn about the terms in pharmacology, Pharmacokinetics and classification of the drugs

CO2: Study about the principles of drug actions, adverse drug effects and drug Interactions on various drugs

CO3: Understand the drugs used on autonomic nervous system, Autocoids drugs and NSAID drugs

CO4: Gain knowledge about Drugs Acting on Cardiovascular System and Dermatology

CO5: Know the drugs acting on Respiratory and Haematology system

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	M	H	H	L	M	M		H	H	H	H	H
CO2	M	L	M	H	H	H	H	H	M	M	M	H	H
CO3	M		M	M	M	H	H	M	H	M	M	H	H
CO4	H		M	H	H	M	L	H	M	L	H	H	H
CO5	M			L	M	M		H	M	L	H	H	H

Text Books:

1. Tripathi K.D, Essentials of Medical pharmacology (2001) 4th edition, J.P.Brothers Medical Publishers Ltd.
2. Tripathi K.D. Pharmacology classification of drugs with doses and preparations, (2001). 2nd edition, J.P.Brothers Medical Publishers Ltd.

Reference Books:

1. Richard.D.Howland and Mary.J.Mycek, (2005). Lippincotts Pharmacology Williams and Wilkins Publishers.
2. Satoskar. R.S.(2008),Pharmacology and Pharmacotherapeutics reprint SD Bhandarkar, SS Ainapure.
3. Susan.B. Masters Bertram.G. Katzung Anthony. Trevor,Basic and clinical Pharmacology (2009) 11 th edition..Tata Mc Graw Hill.

General Pathology – I

Semester III **Hours of Instruction/Week: 3+2**
22BPAC11 **No. of Credits: 3**

Objectives:

- Understand the normal homeostatic mechanisms, the derangements of these mechanism and theeffects on human systems.
- Understand the etiopathogenesis, the pathological effects and the clinico-pathological correlation of common infectious and non-infectious diseases.
- Understand the common growth and abnormal growth of human systems

UNIT I Cell Injury **15**

(a). General pathology – cell injury, (b) Reversible cell injury: Swelling, vacuolation, and hyaline, fatty change. (c)Irreversible cell injury: Calcification, Dystrophic and metastatic calcification, Necrosis, Ischemia, Hypoxia, Infarction and Gangrene, Oncosis and Autolysis (d)Amyloidosis,Exogenous and endogenous pigmentation.

UNIT II Fluid and Electrolyte imbalance And Circulatory Disturbances **15**

(a)Fluid balance; normal fluid balance and abnormal fluid balance (b)Electrolyte imbalance(c)Acid base balance (d) Exudates and transudate CirculatoryDisturbanc(a)Edema(b)Chronicvenouscongestion(c)Thrombosis (d)Embolism (e)Infarction(f)Gangrene (g)shock(h)pleural effusion(i)cardiac tamponade (j)Ascites

UNIT III Growth Disturbances and Neoplasia

(a)Atrophy, Hypertrophy, Hyperplasia, Hypoplasia, Metaplasia, Malformation, Agenesis, Dysplasia. (b)Neoplasia: Benign and Malignant, Carcinogenesis; (c)Tumor and host interactions(d)para neoplastic syndromes(e)Tumor markers. **15**

UNIT IV Inflammation and Repair and Immunopathology **15**

Inflammation:(a)Role of inflammation in the defense mechanisms of the body, Process of Chemotaxis, Opsonization and Phagocytosis, Important chemical mediators of inflammation, (b) Acute inflammation (c) Chronic inflammation (d) Regeneration and repair-Wound healing, fracture healing Immunopathology: (a)Immune system (b)Hypersensitivity reactions(c) Organ transplantation: Graft versus host reaction.

UNIT V Infectious Diseases and Miscellaneous Disorders **15**

(a)Mycobacterial Diseases:Tuberculosis and Leprosy. (b)Bacterial Diseases: Typhoid, Diphtheria, Bacillary dysentery, Syphilis.(c) Viral Diseases: Polio, Herpes, Rabies, Measles(d) Fungal diseases and opportunistic infections(e)Parasitic infections: Malaria, Filaria, Amebiasis, (f) AIDS: Miscellaneous disorders: (a) Autosomal and sex-linked disorders with examples, (b)Metabolic disorders: Lipid disorders, Protein disorders, Carbohydrate disorders(c)Metabolic Syndrome.(d)Protein energy malnutrition: Kwashiorkor, Marasmus, Marasmic-Kwashiorkor, vitamin deficiency disorders.

Total Hours : 75

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of pathology, divisions,basics of cell injury in human body.
CO2: Understand normal and abnormal fluid balance,circulatory disorders associated with it.
CO 3: Provide students insight into normal growth,growth disturbances and tumor pathology
CO4: Know the importance of inflammation,types,process of repair and aware of functional knowledge of immune system of body.
CO5: Understand the classification of infectious disorders and other nutritional disorders.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	L	L	M		M	M	M	L	M		M	H	H
CO2	H		M	L		M	H	M	M		H	H	H
CO3	H	M	L		M	L	M		M	L	H	M	H
CO4	H		M	L		M	M	L	M		H	H	M
CO5	H				M			M	M		H	H	H

Text Books:

1. **Harsh Mohan ,Textbook Of Pathology, 7th Edition(2017),Jaypee publishers Ltd**
2. **Ramnik Sood, Illustrated Pathology(2001),** J.P.Brothers Medical Publishers Ltd
3. **Ramnik Sood, Haematology for Students** (2001). 4th edition,J.P.Brothers Medical Publishers Ltd

Reference Books:

1. **Cotran Robbins, Pathologic Basis of Disease (2007).**6^{th} edition, Elsevier Publications
2. **Vinay Kumar, Ramzi'S Cotran, Stanley L.Robbins, Robbins Basic Pathology, (2004).**updated edition,Elsevier Publications

Gynaecology

Semester III **Hours of Instruction/week: 3+2**
22BPAC12 **No. of Credits: 2**

Objectives

- To Understand and Manage common gynaecological problems and emergencies.
- Be well versed with preventive aspects in Obstetrics and Gynecology.
- Develop required skill and demonstrate compassionate attitude

UNIT I Pelvic organs **15**

Urinary and fecal incontinence (including fistula) Operative gynaecology. Physical Examination:General examination, abdominal examination, Pelvic examination. Position and Speculum examination, Inspection, palpation, auscultation, percussion, summary of clinical problem.

UNIT II Reproductive endocrinology **15**

Puberty -Disorders or ovulation -Polycystic ovarian disease - Hirsutism – Intersex – Infertility. Observation in operating room.

UNIT III Gynecological Infections **15**

Infections in Gynecology Pelvic inflammatory diseases Sexually transmitted disease, HIV in obstetrics and gynecology.Benign disorders of female genital tract. Endometriosis and adenomyosis.Benign lesions of the genital tract.

UNIT IV Menopause and Hormone **15**

Menopause and Hormone replacement therapy Gynaecological oncology – Cancer screening Pre invasive and invasive Witnessing 10 major and minor procedures

UNIT V Gynaecological Cancers **15**

Ovarian Cancer - Uterine malignancy – cancer Cervix - Vulvar cancer - Gestational trophoblastic neoplasia- Radiotherapy and chemotherapy - Gynaecological malignancies - Palliative care.

Total Hours 75

Course Outcomes:

On the successful completion of the course, students will be able to,

CO1: To acquire knowledge about gynecological infections.
CO2: To gain thorough knowledge and skills of Pelvic organ examination
CO3: To understand Reproductive endocrinology.
CO4: To identify Menopausal issues and its Hormones
CO5: To recognize appropriate investigations and management modalities for Gynaecological Cancers

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M	-	M	M	H	H	H	-	H	H	H
CO2	H	L	M	-	H	H	H	H	H	M	H	H	H
CO3	H	M	M	-	-	H	H	M	H	M	H	H	M
CO4	H	M	M	L	M	H	H	H	H	H	H	H	M
CO5	H	M	M	M	H	M	H	H	H	L	H	H	H

Text Books:

1. Priciciples and practice of Obstetrics abnd Gynaecology by KAmal Buckshae, 2001, J.P. Brothers Medical Publishers P.ltd
2. Howkins & Bourne : Shaw's text book of Gynecology- 14th Edition
3. Dutta – Gynecology,NCBA

Reference Books:

1. Broad review series of obstetrics and gynaecology 2nd edition Sakala. 2001, J.P.Brothers Medical Publishers P.ltd
2. Howins & Browrne Shav's Textbook of Gynecology , VG Padubidari N Daftar
3. Mudaliar – Clinical Obstetrics, Orient Blackswan

Fundamentals of Health Sciences

Semester III **Hours of Instruction/week: 3+2**
22BPAC13 **No of Credits: 2**

Objectives:

- To gain knowledge and skill to identify and meet the basic needs of patients using the systemic skill.
- To understand scientific principles and ability to integrate them in rendering patient care
- To develop skill in carrying out basic patient car

UNIT I Concept of health, illness and Primary health care **15**

Concept of Health and Illness - Factors influencing health, Causes and risk factors for developing illness, Health Care Services - Health Promotion and prevention and Primary Care, Diagnosis, Treatment, Rehabilitation and Continuing Care, Health care teams, Types of health care agencies: Hospitals: Types, Organization Functions, Health Promotion and Levels of Disease Prevention, Primary health care and its delivery

UNIT II Health Assessment and Admission, discharge Procedure **15**

Health Assessment: purpose, process of health assessment, History collection, physical examination – vital signs, ROM exercise, preparation of examination: patient and unit, Recording of health assessment., Admission procedure – unit and its preparation, special considerations, medico –legal issues; Discharge procedure - Types: Planned discharge, LAMA and abscond, Referrals and transfers, special considerations, Medico-legal issues, Case sheet writing, Preparing the discharge summaries, Entry of biochemical values in to the patient's file, Billing.

UNIT III Therapeutic relationship and Meeting needs of Patient **15**

Communication - Levels, Elements, Types, Modes, process. Factors influencing communication, Method of effective communication, Attendingskills Communicating effectively with patient, families and team members and maintain effective human relations with special reference to communicating with vulnerable group(children, women, physically and mentally challenged andelderly)Providing safe and cleanenvironment - Physical environment: Temperature, Humidity, Noise, Ventilation, light, Odour, pests control, Reduction of Physical hazards: fire,accidents Safety devices: Restraints, side rails, airways, trapez etc , Hygienic care: Care of the Skin-Bath and pressure points, feet and nail, Oral cavity, Hair Care, Eyes, Ears, and Nose, Factors Influencing HygienicPractice, Physiological needs – physiology of sleep and factors affecting rest and promoting sleep and rest.

UNIT IV Meeting needs of Pre and Post operative patients and Care of Terminally ill patient **15**

Preoperative Phase - Preparation of patient for surgery, Postoperative Phase - Recovery unit, Post operative care, Surgical asepsis, Care of wound - Dressings, Suture Care, Care of Drainage, Application of Bandages, Binders, Splints &Slings, Heat and Cold Therapy
Terminally ill patients - Concepts of Loss, Grief, grieving Process, Signs of clinical death, Care of dying patient: special considerations, Advance directives: euthanasia, will, dying declaration – Emergency, ICU, Ward, Theatre, OP ,organ donation etc, Medico-legal issues, Care of dead body: equipment, procedure and care of unit, Autopsy, Embalming , billing Handing over the body.

UNIT V Documentation and Reporting **15**

Documentation: Purposes of Recording and reporting, Communication within the Health Care Team, Types of records - ward records, computerized documentation, Guidelines for Reporting - Factual Basis, Accuracy, Completeness, currentness, Organization, confidentiality, Methods of Recording, Reporting - Change-of shift reports, Transfer reports, Incident reports, Minimizing legal Liability through effective recordkeeping

Total Hours:75

Course outcomes:

On the successful completion of the course, students will be able to,

CO1: Identify the health and illness of the patient and understand about health Promotion and prevention and primary Care.

CO2: Perform health assessment of each body system, admission and discharge procedure.

CO3: Communicate effectively with patient, families and team member and Maintain effective human relations and evaluate the care for meeting basic, Physiological and psychosocial needs of patient

CO4: Describe the pre and post operative care of patients and terminally ill patients

CO5: Learn about the purposes, types and techniques of recording and reporting

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	M	M	-	M	M	H	H	H	-	H	H	H
CO2	H	L	M	L	H	H	H	H	H	M	H	H	H
CO3	H	M	M	-	M	H	H	M	H	M	H	H	M
CO4	H	M	M	L	M	H	H	H	H	H	H	H	M
CO5	H	L	M	M	H	M	H	H	H	L	H	H	H

Text Books:

1. Taylor. C .etal (2005). Fundamentals of Patient care-The art & science of Nursing Care, New Delhi,Worlers Kluver Health (India) Pvt Ltd.
2. Tumby B K (2001) Fundamnetals Skills and Cocepts in patient care, Philadelphia, Lippincott.
3. Gupta. L. C & Gupta A (1995) Manual of first Aid, New Delhi, Jypee Brothers (P)Ltd.

Reference Books:

1. Craven – Fundamentals of Nursing,2010,LWW
2. Potter – Fundamentals of Nursing ,2009,Elsevier's
3. St John's Ambulance – First AID, 2007,St John's Ambulance Association.
4. LWW – Lippincott's Nursing Procedure, 2008, LWW.
5. Jacob – Clinical Nursing Skills & Procedures ,2008,Jaypee
6. Carpenito – Understanding NursingProcess,2007,LWW

Medicine – I

Semester III **Hours of Instruction/week: 3+2**
22BPAC14 **No. of Credits: 2**

Objectives

- Enable the students to evaluate each patient as a person in society and not merely as a collection of organ systems.
- To understand systemic diseases, investigations, assessment and management
- To develop an interest in and care for all types of patients.

UNIT I Rheumatology and Bone Disease **15**

(a)Anatomy of Joints, Joint pains, Bone pain, Muscle pain and weakness, Back pain,Neck pain.(b)Infectious arthritis, Osteoarthritis, Rheumatoid arthritis,Ankylosing spondylitis, Infective arthritis,osteomyelitis. (c)Metabolic bone disease, Calcium disorders, Tumors of Bone.

UNIT II Skin Diseases **15**

(a)Rash, Pruritis, Erythroderma, Urticaria, Photosensitivity, Blisters, Leg ulcer, Alopecia, Acne, scabies, Fungal infections, Pyoderma, Eczema, psoriasis , Cutaneous drug reactions, (b)Disorders of pigmentation, Disorders of the nails, Skin manifestations of systemic diseases

UNIT III Neurological Diseases **15**

(a)Functional anatomy, physiology and investigations(b) Headache and facial pain, Raised intracranial tension, syncope and vertigo, Sleep disorders, Ataxia, Acute confusional states, Coma and brain death, Aphasias ,dysphagia,Visual disturbances,Sphincter disturbances, Migraine and cluster headaches, Seizures and epilepsy, Cerebrovascular disease, Dementias, Acute and chronic meningitis, Viral encephalitis.

UNIT IV Diseases of Central Nervous System and Oncology **15**

(a)Diseases of cranial nerves, Intracranial tumours,Diseases of spinal cord-Syringomyelia,syringobulbia, Multiple sclerosis,Parkinson's disease ,Cerebellar disorders. Motor neuron disease,Peripheral neuropathy, Nutritional and metabolic diseases of the nervous system, Myasthenia gravis ,Diseases of muscle-myopathies.

(b)Oncology: Cancer genetics.Principles of chemotherapy. Principles of endocrine therapy. Principles of biological therapy, Myeloblative therapy and brachytherapy.

UNIT V Endocrinology and Metabolism **15**

(a)Diabetes mellitus, Acute metabolic complications-Diabetic ketoacidosis, Hyperglycemic non-ketotic coma, Hypoglycemia, End organ damage, Long-term complications (micro and macrovascular)(b)Thyroid glandHyperthyroidism, Hypothyroidism (c)The parathyroid glands*-Hypocalcaemia.(d)The adrenal glands-CushingoidIThe hypothalamus and the pituitary gland(f)The reproductive system-Male hypogonadism, Gynaecomastia, Impotence, Short stature and delayed puberty, Hirsutism.

Definition, Aetiological Factor, Pathophysiology, Signs and Symptoms, Investigations And Diagnosis, Differential Diagnosis,Principles ofTreatment

Total Hours: 75

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of rheumatology,spine diseases,pathology and treatment.
CO2: Provide students insight into integumentary diseases and its treatment.
CO3: Know the importance of brain and neurological diseases, pathology and management.
CO4: Assess central nervous system diseases and oncology medicine and treatment.

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	M	M	L	H	M	H	H	H	H	M	H	H
CO2	M	M	H	L	H	M	H	M	H	L	M	L	L
CO3	H	H	M		H	M	H	M	H	H	M	H	H
CO4	H	H	M		H	H	H	M	H	H	M	H	H
CO5	L	M	M		H	H	H	L	H	H	M	H	L

CO5: Understand the endocrine gland diseases, pathogenesis and its management.

Text Books:

1. **Christopher Haslett, Sir Stanley Davidson, Davidsion's Principles and Practice of Medicine,(2009).** 18th edition, Livingstone publications.
2. **Parveen Kumar, Michael L Clark, Kumar and Clark' Clinical Medicine(2012).** 12th edition, Saunders Ltd Imprint.
3. **R.Alagappan,Manual of Practical medicine,(2005)5th edition,Jaypee brothers Ltd.**

Reference Books:

1. **Vasnaik, Essentials of Emergency Medicine, (2001)** 2nd edition, J.P.Brothers Medical Publishers Ltd.
2. **Dennis. L.Casper, Eugene Braunwald AntonyFauci, Harrison'sPrinciple of Internal Medicine, (2004).** 16th edition, Mcgraw Hill Medical Publishing Division.
3. **Michael Swarsh, Michael Glynn, Hutchison Clinical Methods –An Integrated Approach to Clinical Practice, (2007).** 22 nd edition, Elsevier Saunders.

DSE III: Microbiology

Semester III **Hours of instruction / week: 2+3**
22BPAD03 **No. of credits: 2**

Objectives :

- To acquire knowledge on the various types of microorganisms which are responsible for several infectious diseases
- To enable the students to understand the methods of disinfection and sterilization to control and prevent hospital and community acquired infections.
- To make the students to impart the significance of immune system for the prevention and treatment of diseases

UNIT I Introduction to Microbiology **10**

History of microbiology, Koch's postulates, Features of prokaryotes and eukaryotes, nomenclature and classification, Microbial Nutrition- common nutrient requirements, Nutritional types of microorganisms, growth factors, Culture Media: Synthetic or defined media. Types of Media- Selective, differential and enrichment media. Cultivation of organism, Concept of pure culture. Methods of pure culture of microorganisms – Spread plate, streak plate and pour plate. Identification of microorganisms by staining techniques and biochemical tests. Principles and methods of microbial control: Sterilization – dry heat, moist heat and chemicals, Disinfections – physical, natural gases, chemicals used and preparation of lotions. Medical and surgical asepsis, cross – infection; control of spread of infection

UNIT II Bacteriology **10**

Classification, morphology and cultural characteristics of bacteria,
Lab diagnosis, treatment and prevention of common bacterial infections. Staphylococcus, Streptococcus, Pneumococcus, Neisseria, Corynebacterium 42eutraliza, Clostridia, Enterobacteriaceae – Shigella, Salmonella, Klebsiella, E.coli, Proteus, Vibrio 42eutral, Pseudomonas and Spirochetes

UNIT III Mycology **10**

Nature of fungi : basic structures and classification, Morphology and structure of fungi, Classification of fungi, Nutrition and cultivation of fungus, Superficial mycoses, Cutaneous and Subcutaneous mycosis, Systemic fungal infections with opportunistic mycosis. Candida, Cryptococcus, Dermatophytes, opportunistic fungi (Aspergillus, Zygomycetes and Penicillium Common laboratory methods for diagnosis of fungal infection, Serodiagnosis

UNIT IV Parasitology and Virology **10**

Parasites: Biology of protozoa, Protozoan parasites causing human infection, Medically important 42eutraliza– Ectoparasites
Virology: The nature and properties of viruses, Classification of viruses, Morphology, Laboratory Diagnosis of Viral Infection: Brief appraisal of pathogenicity of viruses, Culture methods, Cytopathic effects, Inclusion bodies, Serological test (CFT, HAI, 42eutralization),

Bacteriophages, Retro viruses – HIV, Hepatitis virus , Pox virus Picrona virus – Polio, Orthomyxo virus – Influenza., Arbo virus – chikungunya, Dengue. Herpies and Adeno viru,Mumps , Measles and Rubella Virus Bacteriophage – structure and significance

UNIT V Immunology **10**

Immunity: General principles of innate and acquired immunity. Immune Response – Humoral immunity and cell mediated immunity. Antigen and Antibodies/Immunoglobulins – types and properties, Sub types of Immunoglublines , Antigen/Antibody Reactions – Precipitation, Agglutination,Complement fixation test, Neutralization, Opsonization, Immune adherence, Immuno fluorescence, Immuno electron microscopic test, Vaccines-production,types of immunization, auto immune disorders

Practicals:

1. Sterilization techniques **25**
2. Staining techniques- simple staining, Gram staining, Negative staining, Flagellar staining, lactophenol cotton blue staining,
3. Plating techniques- spread plate, pour plate, streak plate
4. Isolation of microorganisms from different sources
5. Antibiotic sensitivity test

Total Hours: 75

Course Outcomes

On the successful completion of the course, students will be able to

CO1: Students will be able to apply the methods of disinfection and sterilization to control and prevent hospital and community acquired infections.

CO2: Students will be able to differentiate the various infections caused by bacteria

CO3: Students will be able to compare the different mycological infections

CO4: Students will be able to analyse the harmful effects of protozoa and viruses based on its structure

CO5: Students will be able to discuss the importance of immunity and vaccines in diseases

CO / PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO 1	H	L											
CO 2	H	L				M	H	H	H			H	
CO 3	H	L	M			M	H	H	H				
CO 4	H	M	L			M	M	H	H		M	H	H
CO 5	H	L	M			M	H	M	H		M	H	H

Text Book:

1. **Rajesh Bhatia , Essentials of Medical Microbiology,2001.** 2nd edition, J.P.Brothers Medical Publishers P. Ltd.
2. **James G.Cappucino, Natalie Sherman,**Microbiology- A laboratory manual,2001, 7th edition, Pearson Education Publishers
3. **Mahon and Manuselis, 2006,Textbook of diagnostic microbiology, 8th edition,** Pearson Education Publishers

Reference Books:

1. **Connie R. Mahon, Donald C. Lehman and George Manuselis, Textbook of Diagnostic Microbiology, 2010.** Lippincott
2. **Pamela.C.Champ, Richard.A.Harvey, Bruce.D.Fisher,Lippincott'sIllustrate Review Microbiology, 2007.** 2nd edition, Lippincott
3. **Prescott,L.M., Harley,J.P. and Klein,D.A. 2010, Microbiology,** 8th edition, The McGraw Hill Publishing Company, NewYork

Pharmacology – II

Semester IV
22BPAC15

Hours of Instruction/Week: 3+2
No. of Credits: 3

Objectives

- To describe details of drugs and chemical agents used in patient care situations, store and administer the drugs effectively to patients and observe the results
- To understand the chemotherapy of drugs for specific infections and infestations of the diseases.
- To know the drugs related to the mental disorders

UNIT I Mechanism and action of drugs in GI & Renal system **15**

H2 Antagonists, Proton pump inhibitors, Prostaglandin analogues, Antacids, ulcer protective drugs, Emetics, Anti Emetics, Prokinetic drugs, Digestants, Laxatives, Purgatives and Purgative abuse. Antimicrobials, Probiotics in Diarrhoea, Non specific Anti Diarrhoeal drugsKidney: Diuretics and Anti Diuretics.
Mechanism of Action, Pharmacological Actions, Adverse Drug Reactions, Precautions, Contraindications, Preparations, Drug Interactions, Therapeutic Uses/Indications.

UNIT II Mechanism of action of Hormonal Drugs **15**

Hormones: Pituitary gland, Thyroid gland, Adrenal gland, Insulin, Contraceptives – Male and Female.**Mechanism of Action, Pharmacological Actions, Adverse Drug Reactions, Precautions, Contraindications, Preparations, Drug Interactions, Therapeutic Uses/Indications.*

UNIT III Chemotherapeutic Agents **15**

General principles of chemotherapy, Anti cancer drugs.
**Mechanism of Action, Pharmacological Actions, Adverse Drug Reactions, Precautions, Contraindications, Preparations, Drug Interactions, Therapeutic Uses/Indications.*

UNIT IV Antimicrobials Drugs **15**

Sulphonamides, Cotrimoxazole, Quinolones, Beta lactum antibiotics, Newer macrolides, Urinary Antiseptics, Antileprotic drugs, Antitubercular drugs, Antifungal drugs, Anti viral drugs, Antimalarial drugs, Antiamoebic and Anthelmintics.
**Mechanism of Action, Pharmacological Actions, Adverse Drug Reactions, Precautions, Contraindications, Preparations, Drug Interactions, Therapeutic Uses/Indications.*

UNIT V Peripheral &Central Nervous System **15**

Peripheral Nervous System: Skeletal Muscle Relaxants, Local Anaesthetics
Central Nervous System:General anaesthetics - Inhalational and Intravenous, Sedative – Hypnotics drugs, Antiepileptic drugs, Antiparkinsonismdrugs, Antipsychotic drugs, Opioid Analgesics.
** Mechanism of Action, Pharmacological Actions, Adverse Drug Reactions, Precautions, Contraindications, Preparations, Drug Interactions, Therapeutic Uses/Indications.*

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	M	M		H	M	M	M	H	M	H	M	M
CO2	M	H	M	L	M	M	H	M	H	M	M	H	M
CO3	H	H	H	H	H	M		M	M	M	M	M	H
CO4	H	M	H	H	H	H	H	H	H	H	H	H	H
CO5	H	M		M	M	M	L	L	M	M	M	M	L

Total Hours : 75

Course Outcomes:

On the successful completion of the course, students will be able to,

CO1: Acquire Knowledge about the Gastrointestinal and kidney related drugs.
CO2: Describe drugs used for hormonal disorders and supplementation, contraception and medical termination of pregnancy
CO3: Classify the Chemotherapy drugs for Microbial Diseases &Neoplastic diseases.
CO4: Prescribe the drugs along with doctors for various specific infections and infestations of the diseases.
CO5: Recognize the types of anaesthesia and provide pre and post-operative care to the surgical conditions and provide treatment modalities and therapies used in mental disorders

Text Books:

1. Tripathi K.D, Essentials of Medical pharmacology (2001) 4th edition, J.P.Brothers Medical Publishers Ltd.

2. Tripathi K.D. Pharmacology classification of drugs with doses and preparations, (2001). 2nd edition, J.P.Brothers Medical Publishers Ltd.

Reference Books:

1. Richard.D.Howland and Mary.J.Mycek, (2005). Lippincotts Pharmacology

2. Williams and Wilkins Publishers.

3. Satoskar. R.S.(2008),Pharmacology and Pharmacotherapeutics reprint SD Bhandarkar, SS Ainapure

4. Susan.B. Masters Bertram.G. Katzung Anthony. Trevor,Basic and clinical Pharmacology (2009) 11 th edition..Tata Mc Graw Hill.

General Pathology – II

Semester IV
22BPAC16

Hours of Instruction/Week: 2+2
No. of Credits: 3

Objectives:

- Understand the normal homeostatic mechanisms, the derangements of these mechanism and the effects on human systems.
- Understand the various systemic pathological diseases including cardio-respiratory, genito-urinary, gastrointestinal, reproductive and hemtological system.
- Understand the etiopathogenesis, the pathological effects and the clinico-pathological correlation of common infectious and non-infectious diseases.

UNIT I Cardiovascular and Respiratory Pathology **12**

Cardiology- Rheumatic fever and Rheumatic Heart Disease ,Infective Endocarditis,Atherosclerosis and Ischemic Heart Disease; Myocardial Infarction, Hypertension, Congenital Heart Disease,Pericarditis and other pericardial diseases, Cardiomyopathy.

Respiratory- Obstructive and restrictive lung disorders, Inflammatory diseases of bronchi: chronic bronchitis, bronchial asthma, bronchiectasis, chronic obstructive lung disease. Pneumonia, lung abscess, Pulmonary Tuberculosis,pleuritis. Emphysema, Atelectasis and Hyaline Membrane Disease, Tumors, Occupational lung disorders.

UNIT II Urinary Tract and Gastro-Intestinal Tract Pathology **12**

Uninary Tract- Renal structure, urine analysis, Glomerulonephritis, Nephrotic Syndrome, Acute Renal Failure, Progressive renal failure and end stage renal disease, Pyelonephritis, Reflux Nephropathy, Interstitial Nephritis, Renal tumors,Urinary bladder : cystitis, carcinoma, Urinary tract Tuberculosis, Urolithiasis, Renal Malformations : Polycystic kidneys.

Gastro Intestinal- Carcinoma -oral Cavity and Esophagus, Salivary gland , Peptic ulcer; gastritis, Tumors of stomach, Crohn's disease, Appendictis, Amoebic colitis, Bacillary dysentery, Ulcerative Colitis, Malabsorption ,Tumor of the large and small intestine.

UNIT III Hematopathology, Liver and Biliary Tract Pathology **12**

Hematopathology(a) Anaemia- Nutritional anaemia's -Iron deficiency anaemia, Folic acid/Vit B 12 deficiency anamia,pernicious anaemia, Haemolytic anaemia,Hereditary hemolytic anaemias : Thalassemia, sickle cell anaemia, , Acquired hemolytic anaemias, Aplastic anaemia, (b)Hemostatic disorders : Platelet deficiency(c)Coagulopathies :hemophilia, (d)Leukocytic disorders : Leukocytosis, leukopenia, Acute and chronic Leukemia (e)Blood transfusion : grouping and cross matching,transmissible infections .

Liver and Biliary Tract: Jaundice, Hepatitis,Cirrhosis,Portal Hypertension,Tumors of Liver, Diseases of the gall bladder : Cholecystitis, Cholelithiasis, Carcinoma

UNIT IV Reproductive and Osteopathology **12**

Reproductive System: Diseases of cervix: cervicitis, carcinoma, Diseases of uterus: endometritis,hyperplasia and carcinoma, Diseases of the breast: Mastitis, abscess, Fibrocystic disease, Neoplastic lesions.Prostate: Carcinoma, Ovarian and testicular tumors, Pelvic inflammatory diseases including salpingitis, Genital Tuberculosis.

Osteopathology;Osteomyelitis,MetabolicdiseasesRickets/Osteomalacia,Osteoporosis,.

Tumors: Osteosarcoma, Osteoclastoma, Ewing's Sarcoma, Chondrosarcoma, Metastatic Arthritis: Rheumatoid, Osteo and tuberculous arthritis.

UNIT V Endocrine and Neuropathology 12

Endocrine Pathology- Diabetes Mellitus, lesions of thyroid, Adrenal diseases , Parathyroid lesions, Pituitary disorders.

Neuropathology- Pyogenic and tuberculous meningitis, brain abscess, CNS tumors cerebral edema, raised intracranial pressure,Cerebrovascular diseases.

Total Hours 60

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of cardio respiratory diseases and its pathology.

CO2: Know the importance of urinary tract and gastrointestinal tract diseases and its pathology.

CO3: Provide students insight into hematopathology,liver and biliary tract diseases.

CO4: Aware of female and male reproductive diseases and joint pathologies.

CO5: Understand the classification of endocrine gland disorders and stroke pathogenesis and its clinical features.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		M	M	M	L	H		H	M	H
CO2	H		M	L		M	H	M	H		H	H	H
CO3	H	M	L		M	L	M		H	L	H	M	H
CO4	H		M	L		M	M	L	H		H	H	M
CO5	H				M			M	H		M	H	H

Text Books:

1. **Harsh Mohan ,Textbook Of Pathology, 7th Edition(2017),Jaypee publishers Ltd.**
2. **Ramnik Sood, Illustrated Pathology(2001),** J.P.Brothers Medical Publishers Ltd.
3. **Ramnik Sood, Haematology for Students** (2001). 4th edition,J.P.Brothers Medical Publishers Ltd.

Reference Books:

1. **Cotran Robbins, Pathologic Basis of Disease (2007).**6^{th} edition, Elsevier Publications
2. **Vinay Kumar, Ramzi'S Cotran, Stanley L.Robbins, Robbins Basic Pathology, (2004).**updated edition,Elsevier Publications
3. **Frank Firkin, Colin ChestermanDavid Penington, Brayan Rush, De Gruchy's Clinical Haematology in Medical Practice.(2002)** ,5 edition, Oxford University

Medicine – II

Semester IV
22BPAC17

Hours of Instruction/Week: 3+2
No. of Credits: 2

Objectives:

- To acquire knowledge on the art of history taking, physical examination and about investigation.
- To understand diseases process of various systems of human body
- To enable the student recognize the illness and start early treatment

UNIT I Cardiovascular system

15

(a)Review and correlating of Functional anatomy, Physiology;Diagnosis and evaluation including invasive and non invasive Cardiac investigations and therapeutic procedure,(b)Acute and chronic heart failure, Hypertension , Presyncope and syncope, Cardiac arrest Abnormal heart sounds and murmurs, Congestive cardiac failure, Rheumatic fever and rheumatic heart disease, Valvular heart disease, Ischaemic heart disease, Congenital heart disease, Peripheral vascular disease, Pericardial disease, cardiomyopathy, , Infective Endocarditis, , pericardial effusion and cardiac tamponade,Cardiac tumors.

UNIT II Respiratory Disease

15

(a)Review of Functional anatomy, Physiology and diagnostic methods(b)Respiratory failure, Upper and lower respiratory infections, Bronchial asthma, Chronic obstructive pulmonary disease, Pneumonias, Pulmonary tuberculosis, Bronchial asthma Chronic obstructive airway disease Acute and chronic respiratory failure,Suppurative lung diseases, Bronchiectasis, Lung abscess, Interstitial lung diseases. Occupational lung diseases. Lung Tumors ,Pulmonary hypertension.,Acute respiratory distress syndrome. Obstructive sleep apnoea,chest wall deformities.Diseases of pleura: Plural effusion, empyema., pneumothorax.

UNIT III Kidney and Genitourinary System

15

(a) Review of Functional anatomy, physiology and investigations (b) Disorders of urine volume: Hamaturia, Proteinuria, Oedema. Obstruction of the urinary tract: Incontinence, Acute and chronic renal failure, Infections of the kidney and urinary tract. nephrotic syndromeTubulo-interstitial diseases, pyelonephritis. Renal vascular diseases. Urinary tract calculi and nephrocalcinosis. Tumors of the kidney and genitourinary tract. Renal replacement therapy.

UNIT IV Hematological Disorders

15

(a)Anaemia: Iron deficiency, megaloblastic and common haemolytic anaemias (thalassemia, sickle cell and acquired haemolytic), aplastic anaemia. Common bleeding disorders (thrombocytopenia and haemophilia). . Leukaemias. Polycythemia, Leucopenia, Leucocytosis, Thrombocytopenia, Pancytopenia, Lymphadenopathy, Infections.(b) Blood group and transfusion: Major blood group systems and histocompatibility complex,, Bone marrow transplantation.

UNIT V Gastrointestinal Tract& Accessory organs **15**

(a)Abdominal pain , Gastrointestinal bleeding (b)mouth-oral ulcers, candidiasis, parotitis, GERD, oesophagitis (c),stomach- gastritis, peptic ulcer disease, tumors, (d)small intestine-Acute gastroenteritis , Intestinal tuberculosis, Inflammatory bowel disease, Malabsorption syndrome, (e)colon and rectum,-Bacillary dysentery, Amoebic colitis, Ulcerative colitis, Tumors, Abdominal tuberculosis. (f) peritoneal cavity- Acute and chronic peritonitis, Ascites, (g)liver-Hepatorenal failure, Liver abscess ,Viral hepatitis,Cirrhosis of liver. Fatty liver,gall bladder-cholecystitis, Cholelithiasis,Acute and chronic pancreatitis.

Total Hours : 75

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of cardio vascular diseases,pathology and treatment.
CO2: Know the importance of respiratory diseases ,pathology and management.
CO3: Provide students insight into kidney and genito urinary tract diseases and its treatment.
CO4: Aware of hematopathology Infusion and blood pathologies.
CO5: Understand the gastrointestinal organ diseases, pathogenesis and its management.

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	H	H	H	H	M	H	M	H	H	M	H	M
CO2	H	H	H	M	H	M	H	M	H	H	M	H	M
CO3	H	M	M	H	H	M	H	H	H	H	M	H	M
CO4	H	M	M	H	H	M	H	M	H	L	M	H	L
CO5	H	L	M	M	H	M	H	H	H	H	M	H	M

Text Books:

1. **Christopher Haslett, Sir Stanley Davidson, Davidsion's Principles and Practice of Medicine,(2009).**18th edition, Livingstone publications.
2. **Parveen Kumar, Michael L Clark, Kumar and Clark' Clinical Medicine(2012).**12th edition, Saunders Ltd Imprint.

Reference Books:

1. **Vasnaik, Essentials of Emergency Medicine, (2001)** 2nd edition, J.P.Brothers Medical Publishers Ltd.
2. **Dennis. L.Casper, Eugene Braunwald AntonyFauci, Harrison'sPrinciple of Internal Medicine, (2004).**16th edition, Mcgraw Hill Medical Publishing Division.
3. **Michael Swarsh, Michael Glynn, Hutchison Clinical Methods –An Integrated Approach to Clinical Practice, (2007).** 22 nd edition, Elsevier Saunders.

Obstetrics

Semester IV
22BPAC18

Hours of Instruction/week: 3+2
No. of Credits: 2

Objective:

- To appreciate the concepts and principles of obstetrics.
- To acquire knowledge and skills in rendering care to normal and high risk pregnant woman during antenatal, natal and post natal periods.
- To develop skills in managing normal and high risk neonates and participate in family welfare programme.

UNIT I ANATOMY AND PHYSIOLOGY **15**

Prenatology- Human Genomes, Chromozomal anomalies-menstruation and fertilization- The pelvis - the female organs of generation physiology of ovulation,. – physiology of pregnancy:- maternal changes due to pregnancy diagnosis of pregnancy – the fetus in normal pregnancy – prenatal care – drugs in pregnancy – antepartum fetal surveillance. history taking , presenting an obstetric case. Preparation of final summary

UNIT II PHYSIOLOGY OF LABOUR **15**

Mechanism oflabour. First stage-Signs and symptoms of onsetof labour; Induction oflabour-Secondstage- Signs and symptoms-Conduct of delivery; Episiotomy - Receiving the newborn-initial steps and subsequent resuscitation-Care of umbilicalcord-Immediate assessment including screening for congenitalanomalies-Thirdstage-Signs and symptoms; normal andabnormal-Method of placentalexpulsion -Management -Examination of theplacenta-Examination ofperineum.

UNIT III NORMAL PUERPERIUMAND ITS ABNORMALITIES **15**

Normal puerperium; Physiology Duration- Postnatal assessment -Lactation management - Breast feeding –ImmunizationAssessment and management of woman with postnatal complications- Puerperal infections, breast engorgement & infections, thrombo-Embolic disorders, post- partum haemorrage, Eclampsia and subinvolution-Psychological complications-Post partumBlues.

UNIT IV HIGH-RISK PREGNANCY **15**

Hyper-emesis gravidarum, bleeding in early pregnancy, abortion,ectopic- Pregnancy, vesicularmole, Ante-partumhaemorrage- Infections, RTI (STD), UTI, HIV,TORCH. Pregnancy inducedhypertension & diabetes, Toxemia of pregnancy, hydramnios, Rh incompatibility -Multiplepregnancy- Abnormalities of placenta & cord

UNIT V ABNORMAL LABOUR **15**

CPD and contractedpelvis- Malpositions and malpresentations- Premature labour - precipitate labour, prolongedlabour - Obstetrical emergencies and theirmanagement;Presentation and prolapse of cord, Vasa praevia, amniotic fluid embolism, rupture of uterus, shoulder dystocia,
forceps, vacuum version, manual removal of placenta, cesarean section.

Total Hours 75

Course Outcomes

On the successful completion of the course, students will be able to

CO1: To acquire knowledge of anatomy, physiology related to reproductive system .

CO2: To acquire thorough knowledge of physiology of normal pregnancy and its diagnosis and management.

CO3: To understand normal puerperium and able to diagnose its abnormalties.

CO4: To identify and assist abnormal pregnancy .

CO5: To recognize appropriate investigations and management modalities for abnormal labour

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M	-	M	M	H	H	H	-	H	H	H
CO2	H	L	M	-	H	H	H	H	H	M	H	H	H
CO3	H	M	M	-	M	H	H	M	H	M	H	H	M
CO4	H	M	M	L	M	H	H	H	H	H	H	H	M
CO5	H	M	M	M	H	M	H	H	H	L	H	H	H

Text Books:

1. Priciciples and practice of Obstetrics abnd Gynaecology by KAmal Buckshae, 2001, J.P. Brothers Medical Publishers P.ltd.
2. Basis sciences for obstetrics and Gyanaecology, 5th edition Timchord. 2001, J.P.Brothers Medical Publishers P.ltd.
3. Dutta – Obstetrics,NCBA

Reference Books:

1. 1.Broad review series of obstetrics and gynaecology 2nd edition Sakala. 2001, J.P.Brothers Medical Publishers P.ltd.
2. Howins & Browrne Shav's Textbook of Gynecology , VG Padubidari N Daftar
3. Mudaliar – Clinical Obstetrics, Orient Blackswan

Community Medicine

Semester IV **Hours of Instruction/week: 2+2**
22BPAC19 **No. of Credits: 2**

Objectives

- Understand the concepts of community health and measures of levels of health.
- Learn the epidemiological methods.
- function at the first level in various community health settings both in urban and rural areas.

UNIT I Introduction to Health and Community Health **15**

Definition of health, Community, community health. Evolution and development of community health in India and its presentconcept.Dimensions of health. Health determinants. Indicators of health levels of health care. Definition and Importance of community medicine and various terms. Primary health care: Elements and principles. Health for all by 2000 A.D. Various levels of prevention and modes of intervention with appropriate examples. Difference between community health and institutional health. Qualities and functions of a community health worker.

UNIT II Health planning and policies and problems **10**

Health care delivery system in India (Organizational set-up): Central level,State level, District level,block and local level.Voluntary health agencies, Indigenous system of medicine.National health planning in India : Planning commission,Five Year Plans, National health policies, National population policy , National health programmes.Health problems in India .

UNIT III Aspects of community health **10**

a)Family health –Definitions, functions, Determinants, Role of family and peer group in health, Responsibilities of family in health and disease. Family health care settings : Home visiting: Purposes, Principles, Planning and evaluation. b)School health services-Definitions, aims, goals, need , principles, components, nature and scope, School health team and role of health worker.c) Occupational Health services : Definitions, objectives, occupational hazards , Identification of the physical, chemical and biological hazards, Preventive measures, Various legislations in relation to occupational health. Employees State Insurance Scheme.

UNIT IV Introduction to Epidemiology **15**

Definition of Epidemiology , History of Epidemiology and Some terminologies, components , Aims of Epidemiology, Uses of Epidemiology, Scope , Epidemiological approach, Basic Measurements and tools of measurements in Epidemiology, Natural history of a disease, epidemiological triad, Dynamics of disease transmission, Levels of prevention, Epidemiological research Studies / methods –Observational and Experimental studies.

UNIT V Epidemiology of communicable and non communicable Diseases 10

Epidemiology of communicable diseases :Respiratory, Intestinal,Arthropod-borneinfections,Zoonoses,Surface infections, hospital acquired infections.
Epidemiology of Non communicable diseases : Hypertension,Coronary Heart Disease,Diabetes,Stroke,Malignancies,Obesity,Blindness,Psychiatric disorders,Others.
Control of communicable and non-communicable diseases.

Total Hours 60

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Describe health system and health care services in India.
CO2: Identify major health problems, national health programmes andspecialized community healthservices.
CO3: Demonstrate skills in rendering effective care in allaspects of community health settings.
CO4: Understand theEpidemiology and Epidemiological research methods and its application.
CO5 : State the importance of Epidemiology of communicable and non communicable diseases and its control.

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	H	M			H	L	L	H	H	L	H	M
CO2	H	H	M	H	M	M	L	L	H	H	L	H	M
CO3	H	L	H	M	M	H	L	M	H	H	L	H	L
CO4	H	L	H	H	H	M		M	H	H	M	H	L
CO5	H	L	H	L	H	H		M	H	H	M	H	M

Text Book:

1. Vidya Ratan, Preventive Social Medicine.(2001). 9th edition, J.P.Brothers Medical Publishers P. Ltd.
2. Park.K , Park's Text Book of Preventive and Social Medicine (2009).20th edition, Banarsidas Bhanot
3. Deim ,Community Health Projects,2006,Lippincott

Reference Books:

1. **MahajanB.K., Text Book of Preventive and Social Medicine. (2003),** J.P.Brothers Medical Publishers P. Ltd.
2. **Jain.B , Preventive and Social Medicine.(2004)** J.P.Brothers Medical Publishers P. Ltd
3. **Sathe, Epidemiology & management of Heath Care** ,Popular publication.

DSE IV : Biomedical Instrumentation and Scientific Measurements

Semester IV
22BPAD04

Hours of Instruction/week: 4+3
No. of Credits: 4

Objectives

- To gain knowledge on working of medical diagnostic and therapeutic equipment in the hospital.
- To understand the importance of electrical safety in hospitals.

UNIT I Basic Concept of Medical Instrumentation and Basic Sensors and Principles **10**

Terminology of medicine and medical devices, classifications of biomedical instruments, static and dynamic characteristics, different types of sensors and its principles, amplifiers and signal processing.

UNIT II Origin of Bio Potentials and Electro Physiologic Equipment **10**

Electrical activity of excitable cells, EOG, EMG, ECG, ERG, Audiometer, Phonocardiograph. Types of bio potential electrodes, Biotelemetry

UNIT III Blood Pressure, Flow and Volume Measurements **10**

Measurements of Blood pressure – oscillometric and ausculatory, Cardiac output measurements, Electromagnetic blood flow meters, ultrasonic flow meters, thermal convection velocity sensors, Measurement of gas flow rate. Lung volume, Pulmonary Plethysmography, Chamber Plethysmography

UNIT IV Clinical Equipment and Medical Imaging Equipment **15**

Electrolyte analyser, Blood gas analyser, Blood cell counter, Chromatography, Electrophoresis, Spectrophotometer, Centrifugation techniques, Immuno assay – RIA & ELISA. X-Ray, CT Scan MRI. SPECT, PET, ultrasonography.

UNIT V Therapeutic Equipment and Electrical safety **15**

Drug delivery devices, Safety cardiac pacemaker, defibrillator, hemodialysis, lithotripsy, ventilators, infant incubators, surgical diathermy.
Electrical safety, physiological effects of electricity, safety codes and standards, basic approaches to protection against shock. Ambulance and its power supply. General power supply, ups, convertor, inverter distribution.

Total Hours 60

Practical Hours: 45

List of Experiments

1. Study of ECG and Pagewriter
2. Study of Phonocardiograph and Larynscope
3. Vitals signs monitoring– Pulse oximeter, Temperature monitoring, BP and NIBP Monitoring
4. Study of Ambu bag, Suction Apparatus
5. Study of Spiro meter.
6. Study of Defibrillator and TENS
7. Study of X-Rays, MRI, CT Scan
8. Study of Vascular Doppler.

Total Hours: 105

Course Outcome:

Upon completion of the course, the student will be able to

CO1 Gain knowledge on the scope of medical instrumentation and bio-sensors.
CO2 Describe the principle behind Electro-physiological Equipment.
CO3 Discuss the devices used for measurements of blood flow & gas flow.
CO4 Describe the working of Clinical and Medical Imaging Equipment.
CO5 Discuss the working of therapeutic equipment and the importance of electrical safety.

CO/PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	M	-	-	-	-	-	L	-	-	M	L	M	M
CO2	L	L	L	L	M	M	L	L	M	L	L	H	M
CO3	M	L	-	-	L	L	M	M	M	L	L	M	M
CO4	M	H	L	M	M	L	M	M	M	M	M	H	M
CO5	M	L	H	L	L	M	M	M	M	L	M	H	M

Text Book:

1. John G. Webster, Medical Instrumentation-Application and Design (2007),3rd edition,
2. Dr. M. Arumugam, Biomedical Instrumentation –2011,2nd edition.

Reference Books:

1. R.S Khandpur, Hand book of Biomedical Instrumentation-3rdedition.
2. Keith Wilson and John Walker, TB - principles and techniques of practical biochemistry, (2007), 4th edition, Cambridge University press.
3. Cromwell Leslie ETAL, Biomedical Instrumentation and Measurement (2008), 2nd edition.

Pediatrics

Semester V **Hours of Instruction/week: 3+2**

22BPAC21 **No. of Credits: 3**

Objectives

- Describe the normal growth & development and identify the needs of children at different ages
- Diagnose and appropriately treat common paediatric and neonatal illnesses.
- Identify paediatric and neonatal illnesses and problems that require secondary and tertiary care.

UNIT I Introduction & The Healthy Child **10**

Growth and Development of all age groups, History education and physical examination of age groups, Growth Assessment of all age groups, Immunization, Nutritional needs of Infants and Children: Breast feeding, Weaning, Baby friendly Hospital Initiative.

UNIT II Common Childhood Illness **15**

Nutritional deficiency disorders: Protein energy malnutrition, Hematological disorders: Anemias, Thalassemia , Leukemia, Hemophilia, HIV in children. Respiratory disorders:Adenoiditis,Ppharyngitis, Bronchitis, Tonsillitis, Pleural effusion, Pneumonia, Cyctic fibrosis, Bronchial asthma, Pulmonary Tuberculosis. Cardio vascular disorders:Congenital Cyanotic and Acynotic heart diseases, Congenital cardiac failure, Rheumatic heart diseases. Disorders of Skin, Eyes & Ear:Impetigo, Scabies, Leprosy, Psoriasis, Ringworm infestations, Refractive errors, Glucoma, Conjunctivitis, Retinopathy of prematurity, Otitis media.Endocrine Disorders:Gigantism,Acromegaly,Diabetes Insipidus,Cretinism, Goiter, Precocious puberty,Pseudohypoparathyroidsm,Cushing syndrome,Congenital adrenal hyperplasia (CAH),Diabetes mellitus

*Recoginition of Definition, causes, clinical features, laboratory investigations, Management and prevention.

UNIT III Common Systemic Diseases **15**

Disorders of Central Nervous system: Spina Bifida, Meningitis, Encephalitis, Hydrocephalus,Cerebral palsy, Convulsion, Mental retardation. Disorders of Gastrointestinal system: Acute and chronic Diarrhea, Tracheo esophageal fistula, Hirschsprung disease, Pyloric stenosis, Imperforated anus, Cleft lip and palate, Appendicitis,Celiac disease.Disorders of Genitourinary system: Horse – shoe kidney, Obstructive lesions of the urinary tract, Hypospadias / Epispadias, Undescended testes, Urinary tract infection (UTI), Acute glomerulo nephritis, Nephrotic syndrome, Acute & Chronic Renal failure.Orthopedic disorders: Congenital club foot,Developmental dysplasia of hip (DDH), Juvenile Rheumatoid arthritis, Osteomyelitis, Fracture.

*Recoginition of Definition, causes, clinical features, laboratory investigations, Management and prevention.

UNIT IV Neonatology **10**

Definition, Care of newborn at birth, Classification, Assessment of the newborn, APGAR Scoring, Newborn reflexes, Warning signs of Newborn, Neonatal Resuscitation, High Risk Newborn: Definition, Indication, Factors, Principles, Difference between Term & Preterm, Care of Preterm babies, Post mature infant, KMC,Neonatal hypoglycemia, hypocalcemia, RDS, Neonatal Jaundice, Meconium aspiration syndrome, Congenital anomalies.

UNIT V Paediatrics Emergencies: **10**

Burns, Poisoning including Kerosine oil poisoning,Organophosphorus compoundspoisoning, Pyrethrin poisoning,mercury poisoning,paracetamol poisoning, Bites & Stings including Snake bite, Dog bite, Human bite, Scorpion Sting, Bee sting, Foreign Bodies obstruction, Haemorrhage & Shock

*Recoginition of Definition, causes, clinical features, laboratory investigations, Management and prevention.

Practicals: **15**

- Anthropometric measurements of all age groups and differentiate from normal.
- Calculate Paediatric drug dosage.
- Observe Phototherapy
- Incubator care,
- TPN
- Exchange transfusion
- Radient warmer.

Total Hours : 75

Course Outcomes:

On the successful completion of the course, students will be able to,

CO1: Gain Knowledge on Clinical assessment, Growth and Development, Immunization and Nutritional needs of the children.

CO2: Understand the disease condition and provide the appropriate treatment of common childhood illness

CO3: Identify the Congenital anomalies and recognize the clinical features, investigations, medical and surgical management of common systemic disease of the children.

CO4: Provide care to normal & high risk neonates ,perform neonatal resuscitation, recognize and manage common neonatal problems

CO5: Identify Paediatric Emergencies and carry out crisis intervention

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M	-	M	M	H	H	H	-	H	H	H
CO2	H	L	M	-	H	H	H	H	M	M	H	H	H
CO3	H	L	M	-	M	H	H	M	M	M	H	H	L
CO4	H	L	M	L	M	H	H	H	M	H	H	H	M
CO5	H	M	M	M	H	M	H	H	H	L	H	H	H

Text Book:

1. Nelson, Text Book of Pediatrics and Nelson Essentials of Pediatrics, (2008) Prism Books(p) ltd, 15th Edition.
2. Ghai O.P, Vinod.K.Paul, Aravind Bagga, Ghai Essential Pediatrics (2009), 7th edition, CBS Publishers
3. Ediz, Current Pediatric Diagnosis and Treatment12th Edition, Lange Medical Book.

Reference Books:

1. Avery's Neonatology,2006,LWW
2. Fleisher – Pediatric emergencyMedicine,2006
3. Achar's Textbook of Pediatrics, 2009, Orient BlackSwan.

General Surgery

Semester V **Hours of Instruction/week: 3+2**
22BPAC22 **No. of Credits: 3**

Objectives

- Diagnose and appropriately treat common surgical ailments.
- Identify situations calling for urgent or early surgical intervention and refer at the optimum time to the appropriate centers.
- Requisition and interpret basic relevant investigations
- Provide adequate pre and post-operative and follow up care of surgical patients.
- Counsel and guide patients and relative regarding need, implications and problems of surgery in the individual patient

UNIT I Physical Examination of Human body Systems **10**

History collection, physical examination, subjective assessment, objective assessment of various systems includes Cardio vascular, Respiratory, Neurology Gastrointestinal, Genito, Orthopedic and Nephrology

UNIT II Diagnosis and Evaluation of Human body Systems **20**

Cardio vascular system: thoracic imaging, Electrocardiogram,Echocardiogram, and Cardiac Catheterization & Coronary angiography,CT scan and MRI,Ultrasound,Respiratory system: Auscultation of lung sounds, BP monitoring,blood analysis, Pulmonary function tests, Echocardiogram, CT scan and MRI,Ultrasound,Arterial blood gas analysis,Bronchoscopy.Neurology: Cerebro spinal fluid analysis.X-ray Cerebral Angiography, CT Scan, MRI (Magnetic Resonance Imaging)Nephrology: Laboratory assessment of kidney disease: urinalysis and proteinuria- Diagnostic kidneyimaging-The renal biopsy. Orthopedic: X-ray, CT Scan, MRI, bone scan.Gastrointestinal: Stool assessment – Bristol stool chart, Digital rectal exam, Structural Tests - Radiography ,Ultrasonography, Magnetic Resonance Imaging ,Gastrointestinal Endoscopy, Functional Tests - Esophagogastroduodenoscopy, Colonoscopy, Endoscopic Retrograde Cholangiopancreatogram (ERCP),

UNIT III Cardiovascular and Gastrointestinal surgicalprocedures **15**

Cardiovascular: Open heart surgery and closed heart surgery,Thoracotomy – Median sternotomy, ,Angioplasty,CABG,PTCA,Valve replacement,Valvotomy. Gastrointestinal: Vagotomy/Pyloroplasty, Jejunal feeding tube placement, gastrectomy,vagotomy and Billroth I, pancreaticoduodenectomy. Ileostomy. Retrorectal transanal pull-through (Duhamel's procedure),. Abdominal colectomy.

UNIT IV Ortho, ENT, Skin and Renal surgical procedures **15**

Orthopedic – Osteotomy , Arthroplasty, Fracture management.ENT, Skin surgeries, Nephrotomy, Nephrectomy, Renal Transplantation, Nephral lithotomy,Dialysis

UNIT V CNS and Surgical Neoplasm **15**

Skin preparation,Suture and ligature materials,Incisions and their closure, Classification of surgical wounds CNS Surgeries: Craniotomy, Craniectomy, Tumor Removal.

Total Hours : 75

Course outcomes:

CO1: On the successful completion of the course, students will be able to

CO2: Understand the basics of anatomy and physiology of major body systems

CO3: Know the importance of documentation and assessment knowledge in pre-operative, intra and post-operative care.

CO4: Aware of various surgical procedures and post -operative rehabilitative management of major body system.

CO5: Understand the basic surgical sepsis or infection control and preventive measurements

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	H	L	M	M	H	H	H	-	H	H	H
CO2	H	L	H	-	H	H	H	H	H	M	H	H	H
CO3	H	M	M	-	M	-	H	-	H	M	H	H	M
CO4	H	M	M	L	M	H	H	H	H	H	-	H	M
CO5	H	L	L	M	H	-	H	H	H	L	H	H	H

Text Books:

1. **Bailey and Love – Textbook of Surgery for Medical Students**. ELBS and H.K.LewisandCompany Limited.

2. **Norman S. Williams, Christopher J.K. Bulstrode, and P Ronan O'Connell, Bailey and Love's Short Practice of Surgery, (2008)** 25 th edition Oxford University Press, USA

3. **Manipal Manual of Surgery, K Rajgopal Shenoy,,Anitha Shenoy,**4th edition,2014.

Reference Books:

1. **Wilma Philipps, Barbara C Long,,Nancy Fugate Woods,Shaffer's Medical and Surgical Nursing**, 7th edition, B.I. Publications Pvt. Ltd.

2. **Kochar.S.K,Common Surgical Emergencies, (2001)**, J.P.Brothers Medical Publishers P.Ltd.

3. **Oxford Textbook of Fundamentals of Surgery**, 28 Jul 2016 by **William E. G. Thomas** (Editor), **Malcolm W. R. Reed (Editor), Michael G. Wyatt (Editor).**

Medicine – III
Practical – II

Semester V **Hours of Instruction/week: 5**
22BPAC23 **No. of Credits: 2**

Objectives

- Enable the students to evaluate each patient as a person in society and not merely as a collection of organ systems.
- Develop an interest in and care for all types of patients

Practical **75**

Under Physician Guidance

List of Procedures

1. Perform a thorough clinical examination including internal examinations and examinations of all organs / systems in adults.
2. Arrive at a logical working diagnosis after clinical examination.
3. Observation and Examination of Pupils.
4. Interpret abnormal biochemical laboratory values of common diseases.
5. Start I.V line and infusion, Give intradermal / SC / IM / IV injections.
6. Administer O_2 by mask, catheter and O_2 tent and be able to handle O_2 cylinder.
7. Adopt universal precautions for self protection against HIV and hepatitis and counsel patients.
8. Skin sensitivity tests for drugs and serum.
9. Record and interpret annormal ECG and be able to identify common abnormalities like myocardial infarction and arrhythmias.
10. Insert and manage a C.V.P. line.
11. Conduct CPR (Cardiopulmonary resuscitation) and first aid in newborns, children and adults including endotracheal intubation.
12. Pass a nasogastric tube, stomach tube and do stomach wash.
13. Catheterise bladder in both males and females.
14. Bladder irrigation procedure.
15. Wound washing and dressing.
16. Manage diarrhoeas / dysenteries; Assess dehydration; prepare and administer oral rehydration therapy (ORT).

17. Write a proper discharge summary with all relevant information.
18. Procedure of suctioning.
19. Fracture,POP and Bedsore management.
20. Spirometer – Lung volumes and capacities
21. DVT stockings.
22. Provide first aid to patients.

Total hours 75

Course Outcomes:

On the successful completion of the course, students will be able to,

CO1: Understand and perform various test and procedures in hospital as well as in community settings

CO2 : Understand the blood components and blood grouping test.

CO3: Prepare students to check Heart sounds and ECG.

CO4: Aware of Injection techniques and skin turgor.

CO5: Understand the miscellaneous procedures used in Physiology practicals.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		M	H	M	L	H		H	M	H
CO2	H		M	L		M	H	M	H		H	M	H
CO3	H	M	L		M	L	M		H	L	H	M	H
CO4	H		M	L		M	M	L	H		H	H	M
CO5	H				M	M		M	H		H	H	H

Text Books:

1. **Michael Swarsh, Michael Glynn, Hutchison Clinical Methods –An Integrated Approach to Clinical Practice, (2007).** 22 nd edition, Elsevier Saunders.
2. **Mark KinironsandHarold Ellis, French's Index of differential diagnosis-An A-Z, (2005).** 14th edition, Hodder Arnold -An Hachette UK Company.

Reference Books:

1. **Christopher Haslett, Sir Stanley Davidson, Davidsion's Principles and Practice of Medicine,(2009).**18th edition, Livingstone publications.
2. **Parveen Kumar, Michael L Clark, Kumar and Clark' Clinical Medicine(2012).**12th edition, Saunders Ltd Imprint.

Principles of Emergency Medicine and Disaster Management

Semester V **Hours of Instruction/week: 4**
22BPAC24 **No. of Credits: 4**

Objectives

- Understand the theoretical basis of organ dysfunction and critical illness.
- Apply these principles to treat critically ill patients
- Develop skill and technique in patient management
- Render first aid treatment and apply the basic clinical application principles.

UNIT I Principles of Emergency medicine and Management of Emergency conditions. **10**

Introduction to Emergency medicine and basic principles of Emergency medicine.Management of Cardiac emergencies, Respiratory emergencies, surgical,Endocrine emergencies and circulatory shock, burns, trauma ,toxicological andMiscellaneous conditions.

UNIT II Management of Central Nervous System, Renal and Hematological emergencies **10**

Central Nervous SystemEmergencies: Meningitis, Stroke, Seizure, Statusepileptics, Sub arachnoidhemorrhage Epiduralhemorrhage.Renal: Olguria/ anuria, Acute renal failure, Renal Replacement Therapy , Hematological: Disseminated intravascular coagulation and other coagulation disorders, Thrombocytopenia,anticoagulation - Hemolytic syndromes, Acute blood loss and anemia, Neutropenia , Blood component therapy.

UNIT III Emergency airway management **15**

Introduction, Structure and function of the upper airways, Evaluation of the airway, Ventilation via mask ,Equipment and Technique, Laryngeal mask airway, Endotreacheal Intubation, Paediatric airway management, Complications of short-term Intubation, Extubation of the trachea, BCLS, ACLS, Indications, Defibrillation Methods, Complications, Difference between defibrillation and Cardio version.

UNIT IV Introduction to Disaster **15**

Disaster- meaning, concept- natural Disaster- floods, famine, earthquake, draught, forest fires, coastal hazards and landslides. Manmade Disaster: Chemical and Industrial Accidents, Accidental explosions, Bomb Blast, nuclear disasters, pollutions. Disasters and Development- causes and consequences, Planning for Disasters, Disaster management, Control plan Emergency preparedness, Disaster management cycle, Post disaster review, results of exercises, prevention, mitigation, preparedness.

UNIT V Management of Disaster **10**

Intervention of State in Disaster. Organization and Implementation of the Disaster Response. Preparing Nursing Administrators, Faculty and Students for Disasters. Preparing Staff and inactive registered people to manage casualties. Role of Voluntary organization in Disaster management. Considerations for vulnerable populations. Preparing to plan and care for children during disaster situations

Total Hours: 60

Course outcomes

On the successful completion of the course, students will be able to

CO1: Understand the basic principles of Emergency medicine and Management of various Emergency conditions.

CO2: Know the management of Central Nervous System, Renal and Hematological emergencies.

CO3: Provide students insight into Emergency airway management

CO4: Aware of basics of Disaster.

CO5: Understand the management of Disaster in various settings.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	M	H	L	M	-	-	-	H	-	H	H	H
CO2	H	M	H	-	H	H	H	H	H	M	H	H	H
CO3	H	M	M	-	M	-	-	-	H	M	H	H	M
CO4	H	M	M	L	M	H	H	H	H	H	-	H	M
CO5	H	L	L	M	H	-	H	-	-	-	H	H	H

Text Books

1. Dr. Narayan Reddy K.A, (2007) The Essentials of Forensic Medicine and Toxicology. 26th Edition.
2. Sha Chibber Chanclara , Mary Fvan Hazinski, Textbook of Basic Life support for Health Care Providers, Publisher American Heart Association.
3. Disaster Management Guidelines. GOI-UNDP Disaster Risk Reduction Programme (2009-2012)

Reference Books:

1. Kochar S.K. (2001), Principles and Practice Of Trauma Care by J.P.Brothers Medical Publishers P.Ltd.
2. Pons (2001), Pre Hospital Emergency Care Secrets 1st edition, J.P.Brothers Medical Publishers P.Ltd
3. Blaikie, P, Cannon T, Davis I, Wisner B,At Risk Natural Hazards,Peoples' Vulnerability and Disasters, Routledge,1997.
4. Alexander David, 2000 Introduction in 'Confronting Catastrophe', Oxford University Press.

Geriatrics

Semester V **Hours of Instruction/week: 2+2**
22BPAC25 **No. of Credits: 3**

Objectives

- To enable the students to provide necessary care to older people in both hospitalsand home settings
- To organize and implement different health care programs for the oldest person
- To provide comprehensive health care and rehabilitation to the elderly.

UNIT I Gerontology **10**

Definition and meaning of terms.Concept, trends, and issues of Geriatrics, Myths and facts of aging,Aging process,Physical and physiological changes due to aging ,Theories of aging,Psycho social changes in elderly, Rehabilitation of elderly, Elderly abuse, Geriatric care, Policies and Programmes for elderly, Role of NGOs.

UNIT II Geriatric Medicine **15**

Common Health problems and needs for elderly, Physical Examination of the old age patient,Investigations. Pharmacological Aspects :Pharmacokinetics and Pharmacodynamics in the elderly.Classification and Identification of Risk Factors,Interventions to Modify Risk Factors.Health Risksin old age and their Management : Smoking, Physical Inactivity, Nutrition, Alcohol Abuse,Polypharmacy, falls and Accidents.

UNIT III CNS and Genito Urinary system Disorders **10**

Central Nervous System:The aging brain, Epilepsy, Stroke. Delirium, Dementia.Neurodegenerative Disorders:Parkinson's disease, Huntington's disease, Dystonias, Peripheral Neuropathy, Myasthenia Gravis.
Genitourinary System: Aging changes in the genital tract and Urinary system,Acute and chronic renal failure, Benign Hypertrophy of Prostate, Cancer of the Prostate.GynecologicalProblems:Menopause,Consequencesof oestrogen deficiency, Urinary incontinence, Pruritus vulva, Vaginal discharge and backache, Hormone Replacement Therapy.

UNIT IV Special Senses disorders,Infections and Immune andGastro Intestinal system disorders. **10**

Special Senses: Disorders of the Eye, Disturbance of Hearing,Taste and Smell. Immune disorders in the Elderly:Age related Changes in the Immune System, Consequences of Immunosenescence. Fever. Gastro Intestinal System: Normal Age related changes , Dysphagia, GastroesophagealReflux Disease in elderly (GERD), Fecal incontinence, GI Malignancy, Disease of the liver and Biliary System. Constipation – Prevention and Management.

UNIT V Systemic Changes in Elderly **15**

Respiratory System: Changes with age, Infections of the respiratory system, Chronic Obstructive Airway Disease, Bronchial Asthma, Respiratory Failure. Musculoskeletal System:The aging joints, Rheumatoid Arthritis, Scleroderma, Gout, Myopathy, Osteoporosis.Hematopoietic System: Changes with aging, Anaemia in the elderly, Bone Marrow Failure, Leukaemias and Lymphomas.Dermatology: GeneralisedPruritus,Pigmentation of the Skin,SenilePurpura, Hirsutism and Alopecia, Psoriasis, Pemphigus andPemphigoid.

Total Hours 60

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of Geriatrics, Physical and physiological changes, Policies and Programmes of elderly.

CO2: Know the importance of history taking, doing investigations and identify the risk factors related to old age.

CO3: Provide students insight into systematic disorders in old aging.

CO4: Aware of disorders of sensory and digestive system.

CO5: Understand the various systemic Changes in Elderly.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	L	M	M	M	H	H	H	-	H	H	M
CO2	H	L	-	M	H	H	H	H	H	M	M	H	H
CO3	H	M	-	M	M	H	H	M	H	M	M	H	M
CO4	M	M	M	L	M	H	H	M	H	H	H	H	M
CO5	H	M	M	M	H	M	H	M	H	L	H	H	H

Text Books:

1. **Lesley Bowker, James Price, andSarahSmith**, Oxford Handbook of Geriatric Medicine **(2012).Oxford University Press**
2. **Fillit HM, Rockwood K and Woodhouse K. Brocklehurst's, Textbook of Geriatric Medicine and Gerontology. (2010),** 7th edition, SaundersPublishers.
3. **M.S. John Pathy, Alan J. Sinclair, John E. Morley,**Principles and Practice of Geriatric Medicine :

Reference Books:

1. **Kane R, Ouslander J, Abrass I, Resnick B., Essentials of Clinical Geriatrics: (2008), 6 th edition**, McGraw-Hill Professional.
2. **Koch S, Gloth FM, Nay R, Medication Management in Older Adults: A Concise Guide for Clinicians, (2010).** 1st edition
3. **Brocklehurst's Text Book of Geriatric Medicine and Gerontology**. Eds. TC Tallis, HM Fillit
4. Text Book of Geriatric Medicine. Published by **Indian Academy of Geriatrics.**

Biostatistics and Research

Semester V **Hours of Instruction/week: 2+2**
22BPAC26 **No. of Credits: 3**

Objectives

- To apply and practice the skills needed for scientific research.
- To understand the benefits of qualitative and quantitative research designs

UNIT I Research and research process **10**

Introduction and need for research-Definition of Research -Steps of scientificmethod-Characteristics of goodresearch- Steps of Researchprocess-Research Problem Question-Identification of problemarea-Problemstatement-Criteria of a good research problem-Writingobjectives

UNIT II Research approaches anti designs **13**

Historical, survey and experimental-Qualitative and Quantitative designs-Descriptive Correlational - Semi-experimental-Experimental-Systemic Review-Definition of Population, Sample, Sampling criteria, factors influencing sampling process, typesof samplingtechniques

UNIT III Sampling and data collection **14**

Data- why, what, from whom, when and where tocollect-Data collection methods and instruments:Methods of data collection Questioning, interviewing Observations, record analysis and measurement-Types of instruments Validity & Reliability of the Instrument-Pilot study-Data collection procedure **Analysis of data:** Compilation, Tabulation, classification, summarization,presentation, interpretation of data

UNIT IV Introduction to statistics **13**

Definition, use of statistics,scales ofmeasurement- Frequency distribution and graphical presentation of data- Mean, Median, Mode, Standard deviation- Normal Probability and tests of significance- Co-efficient of correlation-Statistical packages andits application

UNIT V Communication and utilization of Research **10**

Communication of researchfindings-Verbalreport- Writing researchreport-Writing scientificarticle/paper- Critical review of published research
Utilization of researchfindings - Vital Statistics

Total Hours 60

Course Outcomes

CO1: Identify and state the research problem and objectives
CO2: Describe the research approaches and designs
CO3: Explain the sampling process and Describe the methods of data collection
CO4: Explain the use of statistics, scales of measurement and graphical presentation of data
CO5: Communicate and utilize the research findings.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	-	L	M	M	M	H	H	H	-	H	H	M
CO2	M	-	-	M	H	H	H	H	H	M	M	H	H
CO3	M	M	-	M	-	H	H	M	H	M	-	H	M
CO4	M	M	M	L	-	H	H	M	H	H	-	H	M
CO5	H	M	M	M	-	M	H	M	H	-	H	H	H

Text Books:

1. Gupta, S.P, Statistical Methods, (1999). 3rd edition, Educational publication, New Delhi.
2. Mangal, S.K, Statistics In Psychology and Education,(2002), 2nd edition, Prentice Hall. New Delhi.

Reference Book:

1. Gravetter, F.J. and Wallant, L.B,Statistics for Behavioral sciences,(2000). 5th edition, Wadaworth-Thomson learning, Singapore:
2. Jagadeesh – Bio Medical Research, 2009, Wolters Kluwer

Hospital Management
(Self Study)

Semester V **Hours of Instruction/week: 1**

22BPAC27 **No. of Credits: 4**

Objective:

- To familiarize the learner with the basic and advanced concepts of Hospital Management.
- To enable the students to take up consultancy in the Hospital Planning.
- To learn the principles of Health Care Administration of Clinical and Non-clinical Services and its applications in hospital settings.

UNIT I Principles and Practices of Management 3

Basic conceptsofManagement :Definition,Functions of Management,Henry Fayol'scontributions.Planning :Nature andPurpose,Management byObjectives. Organizing :Nature andPurpose,Line and Staff Authority:Decentralization – Centralization. Directing :Communication ,Process of Communication,Hierarchy-Maslow's Need of Hierarchy theory.Controlling andCoordinating :Process of Controlling.Decisionmaking :Nature &purpose,Principles.Human Resource Managementand its functions.

3

UNIT II OrganizationalBehaviour

OrganizationalBehavior :Definition,Importance,Fundamental Concepts ofOB, different models of OB i.e. autocratic, custodial, supportive. Personality&Attitudes :Meaning ofPersonality, Development of Personality, Nature &dimensions ofattitude, JobSatisfaction.Motivation: Definition,Motives, Motivation in hospitals,Motivational theories: their impact on Hospital management, Motivating the employees in hospitals. Group Dynamics&Teams: Formal Organization &Informal Groups &theirinteraction,Importance of teams,team Work.Leadership :Definition of leadership,leadership style,Four systems of management leadership, leadership skills , Leadership activities in a hospital, Functions of a leader.

UNIT III Hospital Planning and admission and discharge 3

Hospital Planning:Types of Hospital Organisation& Statutory Requirements for planning,Steps in HospitalPlanning,Layout,Movements of Patients, Staff,Visitors.Planning for Water supply, Electricity, Drainage and Sewage disposal.Planning for various categories of Staff, Administrative for Appointment, Training.

Hospital admission and discharge:Admission to the hospital- Unit and its preparation,admission bed, Admission procedure, special considerations,Medico-legal issues.Discharge from the hospital: Types-Planned discharge,LAMA and abscond, Referrals and transfers, Discharge Planning,Discharge procedure,Special considerations,Medico--legal issues, Care of the unit after discharge.

UNIT IV Health Care & Administration of Clinical & Non-clinical Services 3

Health CareDeliverySystem,Levels of DiseasePrevention, Radiology Services,Pathology & Clinical Laboratory,Central Sterile Supply Department,Laundry & Linen Services,House Keeping Services, Kitchen CanteenServices, Medical RecordsDepartment,Maintenance of reports and records. Engineering Services: Maintenance of Building, Campus &Utilities, Biomedical services, Fire safety. Public relations.Quality Management in Health Care : Quality control, ISO, ISO

standards,Hospital Accreditation,Role of Quality Council of India (QCI),National Accreditation Board of Hospitals (NABH).

UNIT V Hospital Hazards and Biomedical Waste Management **3**

Fire Hazards- Elements of fire, Fire hazard triangle, Causes of hospital fires, Fire protection: Structure planning and design considerations. Buildings: Electric installations, Water supply, Fire points ,Fuel store, Manual call points, Means of escape and evacuation.

Radiation- Biological effects of radiation,Principles in the layout of a diagnostic rooms, Radiation protection,safety andpreventive measures against hazards,Radioactive waste collection and disposal procedure for obtaining clearance.Biomedical Waste Management : Meaning, Categories of biomedical wastes, disposal of biomedical waste products.

Total Hours 15

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Aware ofPrinciples and Practices of Management.

CO2: Know the various categories of Organizational Behaviour in Hospital.

CO3: Provide students insight into Hospital Planning and admission and discharge.

CO4: Understand the Health Care & Administration of Clinical & Non-clinical Services.

CO5: Identify the Hospital Hazards and dispose under Biomedical Waste Management.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	-	L	M	M	M	H	-	H	-	H	H	M
CO2	H	M	-	M	H	M	H	-	H	M	M	H	H
CO3	H	M	-	M	M	L	H	M	H	M	M	H	M
CO4	M	M	M	L	M	L	H	M	H	H	H	H	M
CO5	H	M	M	M	H	M	H	M	H	L	H	H	H

Text Books:

1. Sharma, (2006), Holistic approach to Hospital Waste Management published by Dept. of Hospital Administration AIIMS, New Delhi.
2. Harold Koontz &Heinz Weihrich,Essentials of Management ,7th Ed., Tata McGraw Hill.
3. R. Llewelyn, Davis & H.M.C. Macaulay, Hospital Planning &Administration , WHO Monograph Series 54 ,Indian Edition – Jaypee Brothers, New Delhi.
4. Shailendra K. **Singh, (2006).**Safety and Risk Management, Mittal Publishers.

Reference Books:

1. **Diwan J.H, (2005)** Safety, Security and Risk Management, APH .
2. **Stephen Ayers and Garmvik, (2006) Text Book of Critical Care**, Holbook and Shoemaker.
3. **Madhuri Sharma, Essential of Hospital Support Services & Physical Infrastructure**,Jaypee Brothers, New Delhi.
4. **S.K. Parthsarthi,Hospital Services Management**,K.J. Hospital, Madras.

Cardiology

Semester VI **Hours of Instruction/week: 3+3**

22BPAC31 **No of Credits: 4**

Objectives:

- To develop an understanding in the evaluation and management of various groups of cardiovascular diseases.
- To acquire knowledge of the appropriate use of diagnostic tests and interpretation of results and use of medications.
- To learn the cardiovascular complications and management of both acute and longterm rehabilitation in post surgical patients.

UNIT I Introduction and Review of Cardiovascular Anatomy and physiology **18**

Basics – structural basis of cardiovascular disease, embryology, chambers, heart valves, surface marking, great vessels, blood, cardiac cycle, heart sounds, circulation of blood ,blood pressure,heart rate,cardiac output,cardiovascular responses to exercise, heart failure and compensatory mechanism, cardiac muscle action , coronary perfusion.

UNIT II Assessment , diagnostic measures and techniques used in cardio and cardiovascular disorders **18**

Auscultation of cardiac sounds,24 hour ambulatory BP monitoring, blood analysis,Basic principles and concepts of thoracic imaging, Electrocardiogram, Pulmonary function tests, Echocardiogram,Cardio -Vascular stress test and Ergometry,TMT; Cardiac Catheterization & Coronary angiography,CT scan and MRI,Ultrasound,Arteriogram,Doppler ultrasound.

UNIT III Cardiovasular diseases **18**

Define, etiology, pathogenesis, clinical features, complications, Conservative and surgicalmanagement of the following conditions:Ischemia heart disease, Myocardial infarction, Heart failure,Cardiac arrest,Rheumatic fever,Hypertension,Infective endocarditis,Myocarditis & cardiomyopathy, Pericardial diseases, Cardiac trauma, tumors of heart,Arterial diseases – atherosclerosis – risk factors, Burger's disease,Peripheral vascular disease, pulmonary thromboembolism

UNIT IV Medical and ICU Management of Cardiovascular diseases **18**

Drugs therapy of heart failure- glycosides, digitalis, inotropic agents, vasodilators, beta blockersACE inhibitors and diuretics;Drug therapy of arrhythmias;Drug therapy of Hypertension- calcium channel blockers,diuretics,beta blockers,alpha blockers,vasodilators,central sympatholytics;Drugs for myocardial ischemia- combination therapy in angina pectoris, role of antiplatelet drugs;Drugs for myocardial infarction;Drugs used in peripheral vascular diseases;NSAIDS in cardiac diseases:**Intensive care unit**(cardiac)Types of ICU, Equipment used in adult and pediatric ICU,Ventilators.

UNIT V Surgical Management and Rehabilitation for Cardiovascular diseases **18**

Surgical conditions that require;Open heart surgery (OHS) and closed heart surgery (CHS),Thoracotomy – Median sternotomy,Heart lung machine,Angioplasty,CABG,PTCA,Valve replacement,Valvotomy,Conditions requiring CHS – Mitral stenosis, Aortic stenosis, PDA, COA,Conditions requiring OHS-ASD, VSD, PS, TOF, TPGV, MS, MR, AS, AR:PVD-Bypass Grafting, Angioplasty and Stent Placement, Atherectomy:Cardiac Rehabilitation Physiotherapy,Phases , contraindication, benefits,Education,Pre and post-operative care and rehabilitation programme.,Importance of life style modification measures.

Total Hours : 90

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of anatomy and physiology of cardiovascular system, body fluids ,blood.

CO2: Know the importance of assessment and diagnostic procedures,invasive techniques in cardiovascular system.

CO3: Improve knowledge in cardiovascular diseases and peripheral vascular diseases.

CO4: Provide students insight into drug and intensive care management of Cardiovascular System.

CO5: Aware of various surgical proceduresand post operative rehabilitative management of cardiovascular system,cardiac rehabilitation and life style modifications.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	H	L	M	M	-	-	H	H	-	H	H	M
CO2	H	H	-	M	H	H	M	H	H	M	M	H	H
CO3	H	H	-	M	M	H	M	M	H	M	M	H	M
CO4	M	M	M	L	M	H	H	M	H	H	H	H	M
CO5	H	M	M	M	H	M	H	M	H	L	H	H	H

Text Book:

1. Sembulingam.K, PremaSembulingam Essentials of Medical Physiology(1999, Reprint 2008) 4th edition, Jaypee brothers Medical publishers New Delhi.
2. Harrison's Textbook of medicine,Mc graw and Hill,19th edition,volume I & II.
3. Brawnwald's Cardiology, Braunwald's Heart Disease , 3rd Edition, George L. Bakris Matthew Sorrentino , Elsevier
4. API's Text book of Medicine (2 Volume),RK Singal,Pritam Gupta,Jaypee brothers.com

Reference Books:

1. **Christopher Haslett, Sir Stanley Davidson, Davidsion's Principles and Practice of Medicine,(2009).**18th edition, Livingstone publications.
2. **Parveen Kumar, Michael L Clark, Kumar and Clark' Clinical Medicine(2012).**12th edition, Saunders Ltd Imprint.
3. **Guyton – Medical Physiology,** 2007, Elsevier.
4. **West – Best& Taylor Physiologic Basis of Disease,** Waverly.

Neurology

Semester VI **Hours of Instruction/week: 3+3**

22BPAC32 **No of Credits: 4**

Objectives:

- To develop an understanding in the evaluation and management of various groups of Neurologicaldiagnoses and disease conditions.
- To acquire knowledge of the appropriate use of diagnostic tests and interpretation of results and use of medications.
- To learn the neurological complications and management of both acute and longterm neurological and neuro surgical patients.

UNIT I Review of Anatomy and physiology **18**

Introduction to neuroscience(neurological and neurosurgical),Emerging trends and issues in neurology and neuro surgery and its implication,neurological and neurosurgical problems , Risk factors associated with neurological conditions , Ethical and legal issues.Review of Anatomy and physiology:Structure and functions of Nervous system- CNS, ANS, cereberal circulation ,cranial and spinal nerves and reflexes, motor and sensory functions,Sensory organs.

UNIT II Assessment , diagnostic measures and Drugs used in neurological and neurosurgical disorders: **18**

Assessment: History taking,Physical assessment, psychosocial assessment,Neurological assessments, Glasgow coma scale interpretation, Common assessment abnormalities. Diagnostic measures :Cerebro spinal fluid analysis. Radiological studies-Skull and spine X-ray CerebralAngiography, CT Scan, Single Photon Emission ComputerTomography(SPECT), MRI (Magnetic ResonanceImaging), MRA, MRS, Functional MRI,My Gelography, PET (Positron Emission Test),Interventional radiology.Electorgraphic studies- Electro encephalography, MEG, EMG, video EEG. Nerve conduction studies-Evoked potentials, visual evoked potentials.Ultrasound studies-Carotid duplex, transcranial Dopplersonography. Immunological studies.Biopsies – muscle, nerve and Brain.Interpretation of diagnostic measures.Drugs used in neurological and neurosurgical disorders :Classification, Indications, contraindications, actions and effects, toxic effects.

UNIT III Management of Traumatic conditions , Neuro emergencies and Cerebro vascular disorders **18**

Traumatic conditions :Cranio cerebral injuries,Spinal & Spinal cord injuries, Peripheral nerve injuries. Neuroemergencies :Increased intra cranial pressure,Unconscious,Herniationsyndrome,Seizure, Severe head injuries, Spinal injuries,Cerebro vascular accidents.

Cerebro vascular disorders : Stroke &arterio venous thrombosis, Haemorrhagic embolus, Cerebro vascular accidents,Intracranial aneurysm, SubarchnoidHaemorrhage,Arterio venous fistula,Brain tumors. Diseases of cranial nerves :Trigiminal neuralgia, Facial palsy,Bulbar palsy.

UNIT IV Management of Degenerating,Neuro infections, Paroxysmal disorders and Developmental disorders. **18**

Degenerating disorders Motor neuron diseases. Movement disorders : Tics, dystopia, chorea,Wilson's disease,essential tremors,Dementia,Parkinson's disease,Multiple sclerosis,Alzheimer's.Neuro infections:Meningitis, Encephalitis, Poliomyelitis, Parasitic infections,Bacterial infections, Neurosyphilis,HIV&AIDS,Brainabscess.Paroxysmal disorders :Epilepsy and

seizures, Status epilepticus, Syncope , Menier'ssyndrome,Cephalgia.Developmental disorders :Hydrocephalus, Craniosynostosis, spina bifida, Meningocele, Meningomyelocele, encephalocele, syringomyelia, Cerebro vascular system anomalies,Cerebralpalsies,Down's syndrome.

UNIT V Management of Neuro muscular disorders , Neoplasms andNeuro Rehabilitation **18**

Neuro muscular disorders: Polyneuritis – G B Syndrome ,Muscular dystrophy,Myasthenia gravis,Trigeminal neuralgia,Bell's palsy,Menier's disease,Carpal tunnel syndrome, Peripheral neuropathies.Neoplasms – surgical conditions :Space occupying lesions – types, Common tumors of CNS.Autoimmune disorders- multiplesclerosis, inflammatory myopathies.Concept and Principles of Neuro Rehabilitation and Neuro ICU.

Total Hours : 90

Course outcomes:

CO1: Understand the review of Anatomy and physiology of nervous system.

CO2: Know the importance of Assessment , diagnostic measures and Drugs used in neurological and neurosurgical disorders

CO3: Provide students insight into management of Traumatic conditions , Neuro emergencies and Cerebro vascular disorders.

CO4: Aware of the management of Degenerating,Neuro infections, Paroxysmal disorders and Developmental disorders.

CO5: Understand the Management of Neuro muscular disorders ,Neoplasms andNeuro Rehabilitation.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M	M	M	-	H	H	H	-	H	H	M
CO2	H	L	M	M	H	-	H	H	H	M	M	H	H
CO3	H	M	M	M	M	-	H	M	-	M	M	H	M
CO4	M	M	M	L	M	H	H	M	-	H	H	H	M
CO5	H	M	M	M	H	M	H	M	H	L	H	H	H

Text Book:

1. Brazis, PW. Masdeu, JC, Biller, J. Localization in Clinical Neurology, 2009, LWW
2. Gilman, S. Newman W. Manter and Gatz, Essentials of Clinical Neuroanatomy and Neurophysiology, 2007, Elsevier.
3. Wijicks, E. The clinical practice of critical care , neurology,2010,Lippincott.
4. Bradley, WG. Daroff, RB. Fenichel, GM. Marsden, CD. Neurology in Clinical Practice,Lww.

Reference Books:

1. **Esteban Cheng-Ching and Eric P Baron ,Comprehensive Review in Clinical Neurology**: A Multiple Choice Book for the Wards and Boards"
2. **Fahn, S. Jankovic, J. Principles and practice of movement disorders,** 2012,Lippincott.
3. **Neurological examination made easy,Geraint Fuller,Updated edition,**5th edition,2017, Elsevier.
4. **James Weyhenmeyer,Rapid Review Neuroscience,** 1st Edition,2016, Elsevier.

Nephrology

Semester VI **Hours of Instruction/week: 3+3**
22BPAC33 **No. of Credits: 4**

Objectives:

- Recognize the importance of nephrology in the context of the health needs of the community and the national priorities in the healthsection.
- Practice the Nephrology concerned ethically and in step with the principles of primary healthcare.
- Demonstrate sufficient understanding of the basic sciences relevant to Nephrology

UNIT I Normal Structure And Functions Of Kidney **18**

Anatomy of thekidney-The renal circulations and glomerular ultrafiltration-Aldosterone regulation of iontransport-Transport of calcium, magnesium and phosphate-Renal acidificationmechanisms-Urine concentration anddilution-Vasoactive molecules and thekidney-Disorders of sodium balance-Disorders of waterbalance-Disorders of acid – base balance- Disorders of potassiumbalance-Disorders of calcium, magnesium and potassium.

UNIT II Evaluation Of The Patient With Kidney Disease **18**

Approach to the patient with kidneydisease-Laboratory assessment of kidney disease: Glomerular filtration rate, urinalysis and proteinuria-Interpretation of electrolyte and acid-base parameters in blood and urine-Diagnostic kidneyimaging-The renal biopsy-Biomarkers in acute and chronic kidneydiseases

UNIT III Disorders Of Kidney Structure And Function **18**

Acute kidney injury-Primary Glomerular disease-Secondary glomerulardisease-Overview of therapy for glomerulardisease-Microvascular and macrovascular diseases of the kidney-Tubulointerstitial diseases-Urinary tract infection inadults-Urinary tractobstruction-Diabetic nephropathy-Nephrolithiasis-Renalneoplasia.

UNIT IV Dialysis And Kidney Transplantation **18**

Hemodialysis - Peritoneal dialysis - Critical care nephrology-Plasmapheresis-Extracorporeal treatment ofpoisoning-Interventional nephrology Transplantationimmunobiology-Donor and recipientissues-Clinical management

UNIT V The Consequences Of Advanced Kidney Disease **18**

Adaptation to nephron loss and mechanisms of progression in chronic kidneydisease-Mechanisms and consequences ofproteinuria-The pathophysiology ofuremia-Chronic kidney disease – mineral bonedisorder-Cardiovascular aspects of kidneydisease-Hematologic aspects of kidneydisease-Endocrine aspects of chronic kidney disease-Neurologic aspects of kidneydisease-Dermatologic conditions in kidneydisease

Total Hours: 90

Course outcomes

CO1: Gain knowledge about normal structure and functions of kidney
CO2: Help the students to evaluate the patient with kidney disease
CO3: Identify the Disorders Of Kidney Structure And Function
CO4: Recognize strategies for Dialysis And Kidney Transplantation
CO5: Distinguish the The Consequences Of Advanced Kidney Disease

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	H	H	H	L	L	H	H	H	-	H	H	M
CO2	H	H	H	H	L	L	H	H	H	M	M	H	H
CO3	H	M	-	M	M	H	H	M	M	M	M	H	M
CO4	M	M	M	L	M	H	H	M	M	M	H	H	M
CO5	H	M	M	M	H	M	H	M	M	M	H	H	H

Text Books:

1. Diseases of kidney and urinary tract Schrier andGottschalk
2. Heptinstall's Pathology of the kidney J CharlesJennets
3. Hand book of dialysisDaugirdas

Reference Books:

1. Oxford Text Book of Nephrology Alex davision, Stewart Cameron etal
2. Massry and Glassock's Text Book of Nephrology Saul G Massry andRJ Glassock
3. The Kidney: Physiology and Pathophysiology DW Seldin and G Giebisch

Respiratory

Semester VI **Hours of Instruction/week: 3+3**

22BPAC34 **No of Credits: 4**

Objectives:

- To develop an understanding in the evaluation and management of various groups of respiratory system diseases.
- To acquire knowledge of the appropriate use of diagnostic tests and interpretation of results and use of medications.
- To learn the respiratoruy complications and management of both acute and longterm rehabilitation in post surgical patients.

UNIT I Introduction and Review of Respiratory Anatomy and Physiology **18**

Basics – Upper respiratory tract,Lower respiratory tract – Trachea, Bronchial tree, Bronchopulmonary segments,Respiratory unit, hilum of lung.Muscles of respiration,Pleura, intra pleural space, intra pleuralpressure,surfactant,Mechanics of respiration – Chest wall movements, lung & chest wall compliance,V/Q relationship, airway resistance,Respiratory centre, Neural & chemical regulation of respiration,Lung volumes and lung capacities, Pulmonary circulation, Lungsounds, cough reflex.

UNIT II Assessment , diagnostic measures and techniques used in Respiratory system disorders **18**

Auscultation of lung sounds,24 hour ambulatory BP monitoring,physical assessment,blood analysis,Basic principles and concepts of thoracic imaging,Pulmonary function tests, Echocardiogram, CT scan and MRI,Ultrasound,Pulmonary function test,Spirometry,Sputum examination,Pulmonary and bronchial angiography,Arterial blood gas analysis,Broncoscopy,Thoracocentesis.

UNIT III Respiratory tract diseases And Chest wall diseases **18**

Define, etiology, pathogenesis, clinical features, complications, Conservative and surgicalmanagement of the following conditions:COPD – chronic bronchitis and Emphysema, Bronchial asthma,Suppurative disease- Bronchiectasis, Lung abscess,Common infectious disease-Pulmonary TB, Pneumonia,Interstitial lung disease,Occupational lung disease,Pulmonary vascular disease-pulmonary HT, pulmonary thromboembolism,Cancer lung,Aspergillosis,Cystic fibrosis,Disease of pleura- Pneumothorax, hydropneumothorax, pleural effusion,Empyema.Chest wall injuries:Fracturerib,Flailchest,Lung contusion

UNIT IV Medical and ICU Management of Respiratory diseases **18**

Respiratory:Betaadrenergicagonists,Anticholinergic,Corticosteroids,Broncodialators, Leukotriene modifiers,Methylxanthines,Expectorants,Mucolytics,Respiratory stimulants,Antitussives,Drug Therapy of Bronchial asthma: Pharmacotherapy of cough: Antitubercular drugs,Aerosol therapy, **Intensive care unit**(cardiac)Types of ICU, Oxygen therapy,Equipment used in adult and pediatric ICU,Suctioning,Ventilators.

UNIT V Surgical Management and Rehabilitation for Respiratory system and Chest wall diseases **18**

Intercostal drainage Thoracotomy – Median Sternotomy,Heart lung machine,Thoracotomy,Lobectomy,Pneumonectomy,Decortication,Thoracocentesis,Video assisted thoracic surgery,wedge resection,Bronchoalveolar lavage,Tracheotomy.Pulmonary Rehabilitation:Physiotherapy,Phases , contraindication, benefits,Education,Pre and post-operative care and rehabilitation programme. Importance of life style modification measures.

Total Hours : 90

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of anatomy and physiology of respiratory system,thoracic cavity, body fluids ,blood.

CO2: Know the importance of assessment and diagnostic procedures,invasive techniques in respiratory system.

CO3: Understand the respiratory diseases and chest wall diseases.

CO4: Provide students insight into drug and intensive care management of respiratory system.

CO5: Aware of various surgical proceduresand post operative rehabilitative management of respiratory system.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	H	M	M	H	L	M	M	-	-	H	H	M
CO2	H	H	M	-	H	-	H	H	H	M	M	H	H
CO3	H	M	L	-	H	-	H	H	-	M	M	H	M
CO4	M	M	M	L	M	H	H	M	H	H	H	H	M
CO5	H	M	M	M	H	M	H	M	H	L	H	H	H

Text Book:

1. **Sembulingam.K, PremaSembulingam Essentials of Medical Physiology(1999, Reprint 2008)** 4th edition, Jaypee brothers Medical publishers New Delhi.
2. **Harrison's** Textbook of medicine,Mc graw and Hill,19th edition,volume I & II.
3. **Brawnwald's** Cardiology, **Braunwald's Heart Disease , 3rd Edition,** George L. BakrisMatthew Sorrentino , Elsevier
4. **API's** Text book of Medicine (2 Volume),RK Singal,Pritam Gupta,Jaypee brothers.

Reference Books:

1. **Christopher Haslett, Sir Stanley Davidson, Davidsion's Principles and Practice of Medicine,(2009).**18th edition, Livingstone publications.
2. **Parveen Kumar, Michael L Clark, Kumar and Clark' Clinical Medicine(2012).**12th edition, Saunders Ltd Imprint.
3. **Guyton – Medical Physiology,** 2007, Elsevier.
4. **West – Best& Taylor Physiologic Basis of Disease,** Waverly.

Gastroenterology

Semester VI **Hours of Instruction/week: 3 + 3**
22BPAC35 **No. of Credits: 4**

Objectives :

- To diagnose gastroenterological illnesses in adults and children based on the analysis of history, physical examination and investigative.
- To deliver comprehensive treatment for illness in adults using principles of rational drug therapy;
- To plan and advise measures for the prevention of gastroenterological diseases

UNIT I Anatomy and Physiology of GI Tract **18**

Layers of the wall in GI tractOral cavity – structure of tongue and hard palate, mastication, insalivation, salivary glands – parotids, Submandibular, sunlingual glands,esophagus, stomach – four regions, small intestine - duodenum, jejunum, and ileum, large intestine - appendix, cecum, ascending, transverse, descending and sigmoid colon, and the rectum, liver – lobes, production of bile and metabolism of nutrients , Gall bladder, pancreas-exocrine and endocrine function
*structures and functions of the organs

UNIT II Assessment and Diagnosis **18**

Physical examination, Stool assessment – Bristol stool chart, Colorectal screening - Digital rectal exam, Fecal occult blood test, Structural Tests - Radiography ,Ultrasonography ,Nuclear Isotope Scanning, Magnetic Resonance Imaging ,Gastrointestinal Endoscopy, Endoscopic Ultrasonography, Functional Tests - Tests for motility, 24 hour pH monitoring, Tests for acid output, Tests for malabsorption, Tests for pancreatic function, Types of Gastrointestinal Endoscopy - Esophagogastroduodenoscopy (Upper GI Endoscopy) Small Bowel Enteroscopy (Jejunoscopy) Colonoscopy (Lower GI Endoscopy) Sigmoidoscopy , Endoscopic Retrograde Cholangiopancreatogram (ERCP), Capsule endoscopy,Tests for *Helicobacter pylori*

UNIT III Diseases **18**

Dyspepsia - Ulcer disease ,Non-ulcer dyspepsia ,Helicobacter pylori, Altered Bowel Habit –(Constipation , Diarrhoea) ,Jaundice ,GI Cancer –(Oesophageal , Gastric , Colorectal, Pancreatic) ,Gastro-Oesophageal Reflux,Inflammatory Bowel Disease –(Crohns Disease , Colitis - Ulcerative , Pseudomembranous) , Diverticular Disease, Jaundice - (pre- hepatic, Intra-hepatic, post-hepatic), Hirschsprung's Disease, Stomach Disorders –(peptic ulcer disease, pyloric sternosis)

UNIT IV Therapeutic Drugs and Treatment **18**

Dyspepsia - Acid Suppressor Therapy - history of dyspepsia, diet ,H2-receptor antagonists,Proton Pump InhibitorsNon-ulcer dyspepsia - Acid Suppressor - H2RA, modify lifestyle factors.Gastro-Oesophageal Reflux - antacid, alginate, H2RA. Altered Bowel Habit - Faecal Occult Blood, Sigmoidoscopy, Barium Enema , Colonoscopy. Jaundice (intra hepatic)- hepatitis, drugs (flucloxacillin, chlorpromazine)

UNIT V Surgical Interventions **18**

Dyspepsia– (Vagotomy/Pyloroplasty), GERD- Nissen fundoplication: Performed laparoscopically or open. Other surgical procedures–(Jejunal feeding tube placement, Belsey Mark IV repair, Hill Posterior Gastropexy) ,Esophageal Cancer - esophageal replacement procedure,Endoscopic Mucosal Resection (EMR) by cautery loop technique. stomachdisorders - Vertical banded or silastic ring gastroplasties (Lap-Band™) Roux- en-Y Gastric Bypass. peptic ulcer disease - Partial gastrectomy,Antrectomy,Selective vagotomy. pyloric stenosis - vagotomy and Billroth I. pancreatic cancer - Whipple's procedure or pancreaticoduodenectomy. Gastric cancer - Total gastrectomy, anorectal Crohns – Ileostomy. Hirschsprung's Disease - Rectosigmoidectomy (Swenson's procedure), Retrorectal transanal pull-through (Duhamel's procedure), Endorectal pull-through (Soave's procedure). Inflammatory Bowel disease - Abdominal colectomy, Rectal mucosectomy, Endorectal ileoanal pull-through

Total Hours: 90

Course Outcomes :

On the successful completion of the course, students will be able to,

CO1: Review the Anatomy and Physiology of GI tract

CO2: Perform and diagnose the disease by physical examination, stool test, structural and functional tests

CO3: Gain Knowledge about gastroenterology related disease

CO4: Learn about the Therapeutic drugs and Treatment of the Gastroenterological disease

CO5: Aware of surgical interventions of Gastroenterological disease

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	H	L	M	M	M	H	H	H	-	H	H	M
CO2	M	H	M	M	H	H	L	H	H	M	M	H	H
CO3	M	H	M	M	M	H	L	M	H	M	M	H	M
CO4	M	M	M	L	M	H	H	M	H	H	H	H	M
CO5	H	M	M	M	H	M	H	M	H	L	H	H	H

Textbooks

1. Gastrointestinal and Liver Disease- Sleisenger & Fordtran
2. Diseases of the Liver - Eugene R. Schiff
3. Diseases of the Liver & Biliary System- Sheila Sherlock

Reference Books:

1. Yamada textbook of Gastroenterology-YAMADA
2. Sivag's textbook of GI Endoscopy- SIVAG
3. Gastro-intestinal Endoscopy- P. Cotton

Fundamentals of Research

Semester II
21BAFU01

Hours of instruction/week: 2
No. of credits: 2

Objectives

- To introduce the importance ofresearch.
- To impart knowledge on the methods of data collection andanalysis
- To give basic foundation ofstatistics.
- To introduce the skill of report writing

UNIT I Introduction to Research

5

Definition – Significance of Research – Types of Research – Scope of Research – Defining the research problem – Steps in Research – importance of research problem – Research Objectives – Research Protocol – outcomes of research – Understanding concepts, constructs, variables.

UNIT II Tools for Collectionof Data

6

Methods of data collection – Primary and Secondary data collection methods, qualitative methods of data collection and survey methods of data collection-Most popular methods: Direct observation, Experiments and Survey-Population and sampling – Types ofsampling.

UNIT III Statistical Methods

5

Basics of data analysis - Measurement Scales, Sources of error in measurement.Measures of central tendency (Mean, Median, Mode), Measures of dispersion (Range, Mean Deviation, Standard Deviation) - Diagrammatic and Graphical representation of Data.

UNIT IV Inferentialstatistics

5

Types of hypothesis- Testing of Hypothesis - Type I and Type II error- Testing the difference between means (Z & t-test), ANOVA and Chi square test (basics only)

UNIT V Report Writing

6

Report generation –Report writing - Bibliography – Importance of Research Ethics and Integrity-Misconduct in research and consequences of misconduct

Practical session

3

Identifying a problem and using appropriate statistical tools

Text Book:

Total Hours: 30

1. Kothari C. R (2016)., Research Methodology, Sultan Chand publications, New Delhi.

Reference Books:

1. Krishnaswami O.R, Ranganatham M (2016), Methodology of Research in Social science, Himalaya Publishing House,Delhi.
2. Paneerselvam. R (2016), Research methodology, PHI learning, NewDelhi.
3. Deepak Chawla and NeenaSodhi (2016), Research Methodology, Vikas Publishing House, NewDelhi.
4. Gupta, S.P. (2007), Statistical Methods, Sultan Chand & Son Publications, NewDelhi.

Department of Physician Assistant
First Aid Practicum
(Value Added Course)

Semester III
22BPAV01

Hours of Instruction: 40
No of Credits: 2

Objectives:

- To enable the students describe the rules of first aid and demonstrate skill in rendering first aid during emergencies.
- To enable the students to perform emergency cardiac arrest care and managing external injuries and burns

UNIT I Introduction Importance of first aid and rules of first aid, Concept of emergency and assessment, Immediate actions and the priorities within first aid, Principles and practice of first aid, Structure and function of the human body. First aid kits-equipment and content.	2
UNIT II External Injuries First aid infire, burns, scalds, fractures, accidents, poisoning, drowning, haemorrhages, insect bites, foreign bodies, unconsciousness, injuries to muscles and joints, immersion, cold shock exposure, hypothermia/hyperthermia and dehydration.	3
UNIT III Emergency Conditions Failure of the circulation : shock, blood loss and the control of bleeding, recognition of internal bleeding, angina and heart attack, diabetic emergency, seizures ,Heat exhaustion, Heat stroke,miscellaneous condition.	2
UNIT IV Cardio Pulmonary Resuscitation CPR including an awareness of AEDs. Transportation of the injured, Triage, Bandaging and splinting,	1
UNIT V First Aid In Community Emergencies Bomb explosions, floods, earthquakes, famines, need for rehabilitation. Community resources- police assistance, ambulance services and their functions in relation to emergencies.	2
Hours	10

Practical **Hours 30**

List of Experiments

1. First Aid, good samaritan laws, EMS system, standards of care, recognizing and responding to emergencies, avoiding infectious diseases
2. Bleeding & wound care, shock, burns, head, spinal, chest, & abdominal injuries, bone, joint & muscle injuries, sudden illness.
3. Cardiac, stroke, respiratory, seizures, diabetes ,poisonings, bites & stings
4. Basic life support: rescue breathing, choking, CPR, AED
5. Heat, cold, & environmental emergencies, rescuing & moving victims, hands-on exercises.

Total Hours 40

Course outcomes:

On the successful completion of the course, students will be able to

CO1: Understand the basics of anatomy and physiology of major body systems.
CO2: Know the importance of gain knowledge about basics of first aid.
CO3: Aware of various management procedures of emergency outcomes.
CO4: Understand the basic practice CPR independently.
CO5: Identify and assist community emergencies.

CO/ PO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PSO 1	PSO 2
CO1	H	L	M		M	H	M	L	H		H	M	H
CO2	H		M	L		M	H	M	H		H	M	H
CO3	H	M	L		M	L	M		H	L	H	M	H
CO4	H		M	L		M	M	L	H		H	H	M
CO5	H				M	M		M	H		H	H	H