

B.Sc Physician Assistant

Curriculum and Syllabus 2023

Based on Choice Based Credit System
(CBCS) and Outcome Based Education (OBE)
Effective from the Academic year2023-2024

School of Allied Health Sciences

1. SHORT TITLE AND COMMENCEMENT:

These regulations shall be called "Specific Regulations for the B.Sc. Physician Assistant course of Vels Institute of Science Technology and Advanced Studies,Deemed to be University u/s3 of UGC act 1956. These Regulations are applicable to the students who are admitted to the B.Sc. Physician Assistant in this University.

As per the decision of the Academic Council of this University, these regulations have beenprepared by adopting the regulations of the VISTAS.

2. AIMS

The aim of the undergraduate Physician Assistant program is to prepare graduates to provide diagnostic, therapeutic and preventive healthcare services, under the supervision of a qualified and licensed Physician or Surgeon.

OBJECTIVES

On completion ofthe four years B.Sc. Physician Assistant Programme the graduates will be:

- preparing patient.
- arranging for hospital admission and lab services.
- taking down a patient medical history or list of symptoms.
- assisting doctors with patient examination.
- assisting Medical Practioners during examination.
- preparing patient for x rays or other tests, explain procedures, handling basic wound care.
- completes records by recording patient's examination, treatment and test results
- manage electronic health records.
- updating medical records, answering phones, and sterilizing medical equipment.
- maintain patient confidentiality and patient advocacy in a trust-based environment.
- maintain hospital and clinical safety regulation and standards.
- providing patient and family education and counselling.
- Providing patient instruction about special diet and medication.
- demonstrate skills in teaching individuals and groups in clinical/community settings.
- practice within the code of ethics, professional conduct, and acceptable standards of Physician Assistant practice within the legal boundaries.

3. ELIGIBILITY FOR ADMISSION

1. The minimum age for admission shall be 17 years on or before 31st December of the year in which admission is sought.

2. A Candidate desiring to join the B.Sc. Physician Assistant course should have passed the HSC/CBSE/ISC or other equivalent examination with one of the following subject combinations:

   i) Physics, Chemistry, Biology & Mathematics

   ii) Physics, Chemistry, Botany & Zoology.

3. A candidate is required to obtain 50% in the Entrance exam conducted by the VISTAS

4. DURATIONOF THE COURSE:

The duration of the B.Sc. Physician Assistant Degree course shall be 4 Years full-time programme comprising 8 Semesters including internship (Three Year Curriculum + One Year Internship) under Choice based Credit System.

5. MEDIUM OF INSTRUCTION:

English shall be the medium of instruction for all subjects of study and examinations will be conducted only in English.

6. COMMENCEMENT OF THE COURSE:

The course shall commence on August of the academic year.

7. WORKING DAYS IN A SEMESTER:

Each semester shall consist of not less than 100 working days and each academic year shall have a total of 200 working days

8. REGISTRATION

A Candidate admitted to the course shall be registered by remitting the prescribed fees along with the Application form for registration duly filled with in the stipulated dates.

9. COMMENCEMENT OF THE EXAMINATIONS:

Regular Semester Examinations will commence from last week of November and last week of April

If the date of commencement of the examination falls on Saturday, Sunday or declared Public Holidays, the examination shall begin on the next working day.

COURSE INSTRUCTION & SCHEME OF EXAMINATION

SEMESTER 1

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical	Theory	Practical	Total
1.1	Program Core	General Anatomy	45	3	30	1	60	2	6	25	50	75	50	200
1.2	Program Core	General Physiology	45	3	30	1	60	2	6	25	50	75	50	200
1.3	Program Core	General Biochemistry	45	3	30	1	60	2	6	25	50	75	50	200
1.4	Program Elective	Medical Law and Ethics*	30	2	-	-	-	-	2	100	-	-	-	100
1.5	Program Elective	Communication And Soft Skills*	30	2	-	-	-	-	2	100	-	-	-	100
Total									**22**	**Total**				**800**

SEMESTER 2

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical	Theory	Practical	Total
2.1	Program Core	General Pathology	45	3	30	1	60	2	6	25	50	75	50	200
2.2	Program Core	General Microbiology	45	3	30	1	60	2	6	25	50	75	50	200
2.3	Program Core	General Pharmacology	45	3	30	1	60	2	6	25	50	75	50	200
2.4	Program Elective	Medical Terminology*	30	2	-	-	-	-	2	100	-	-	-	100
2.5	Program Elective	Basic Computers & Information Science*	30	2	-	-	-	-	2	100	-	-	-	100
Total									**22**	**Total**				**800**

SEMESTER 3

Sl.No.	Category		Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical	Theory	Practical	
3.1	Program Core	General Medicine & Geriatrics	45	3	30	1	60	2	6	25	50	75	50	200
3.2	Program Core	Gastroenterology & Orthopedics	45	3	30	1	60	2	6	25	50	75	50	200
3.3	Program Elective	Psychology*	30	2	-	-	-	-	2	100	-	-	-	100
3.4	Program Elective	First Aid*	15	1	30	1	-	-	2	100	-	-	-	100
3.5	Program Core	PA Directed Clinical Education	-	-	-	-	120	4	4	50	50	-	-	100
									20	**Total**				**700**

SEMESTER 4

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical	Theory	Practical	
4.1	Program Core	Surgery& Anesthesiology	45	3	30	1	60	2	6	25	50	75	50	200
4.2	Program Core	Pediatrics	45	3	30	1	60	2	6	25	50	75	50	200
4.3	Program Elective	Ethical and Legal Issues*	30	2	-	-	-	-	2	100	-	-	-	100
4.4	Program Elective	Community Medicine & EVS*	30	2	-	-	-	-	2	100	-	-	-	100
4.5	Program Core	PA Directed Clinical Education	-	-	-	-	120	4	4	50	50	-	-	100
Total									20	Total				700

SEMESTER 5

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits	Credits	Theory	Practical	Theory	Practical	
5.1	Program Core	Cardiology & Cardiac surgery	45	3	30	1	60	2	6	25	50	75	50	200
5.2	Program Core	Neurology	45	3	30	1	60	2	6	25	50	75	50	200
5.3	Program Elective	Sociology*	30	2	-	-	-	-	2	100	-	-	-	100
5.4	Program Elective	Physician's office management*	30	2	-	-	-	-	2	100	-	-	-	100
5.5	Program Core	PA Directed Clinical Education	-	-	-	-	120	4	4	50	50	-	-	100
Total									20	Total				700

SEMESTER 6

Sl.No.	Category	Course Titles	Hours/Credits							Maximum Marks				
			Lecture		Tutorial		Practical		Total Credits	IA		UA		Total
			Hours	Credits	Hours	Credits	Hours	Credits		Theory	Practical	Theory	Practical	
6.1	Program Core	Obstetrics & Gynecology	45	3	30	1	60	2	6	25	50	75	50	200
6.2	Program Core	Nephrology & Pulmonology	45	3	30	1	60	2	6	25	50	75	50	200
6.3	Program Elective	Health and Basic Principles*	30	2	-	-	-	-	2	100	-	-	-	100
6.4	Program Elective	Bio-Statistics and Research Methodology *	30	2	-	-	-	-	2	100	-	-	-	100
6.5	Program Core	PA Directed Clinical Education	-	-	-	-	120	4	4	50	50	-	-	-
Total									20	Total				600

SEMESTER 7 & 8

Sl. No.	Category	Course Titles	Hours/Credits				Maximum Marks				Total
							IA		UA		
			Theory	Tutorial	Practical	Total	Theory	Practical	Theory	Practical /Viva	
7.1	Project	Project	-	2	-	2	-	100	-	-	100
7.2	Internship	Internship	-	38	-	38	-	100	-	-	100
Total						40	Total				200

10. SUBMISSION OF LABORATORY RECORD NOTE BOOKS

At the time of practical examination, each candidate shall submit to the examiners his / her laboratory note books duly certified by the Head of the Department as a bonafide record of the work done by the candidate

11. INTERNALASSESSMENT:

a) A minimum of two written internal assessment examinations shall be conducted in each subject during a semester and the Best / Average marks of two examinations shall be taken into consideration for the award of internal marks.

b) A model practical examinations shall be conducted in each subject (wherever practical have been included in the curriculum) shall be taken into consideration for award of internal marks in practical.

c) Tests will be conducted giving sufficient time for preparation.

d) No repeat, reschedule and postponement of the assessment date is permitted .Students shall compulsorily attend any three continuous assessments

12. ATTENDANCE REQUIRED FOR ADMISSION TO EXAMINATIONS:

a) No candidate shall be permitted to appear for the University examinations, unless he/she attends the course for the prescribed period.

b) Every candidate is required to put in a minimum of 80% of attendance both in theory and practical separately in each subject for admission to the examination.

c) A candidate lacking in the prescribed attendance in any subject in theory and /or practical shall not be admitted to the entire examination.

13. CONDONING LACK OF ATTENDANCE

Condoning of shortage of attendance up to a maximum of 10% in the prescribed eligible attendance for admission to year end examination rests with the discretionary power of the Vice Chancellor. A Candidate lacking in attendance should submit an application in the prescribed form and remit the stipulated fee, 15days prior to the commencement of the theory examination,The Head of

the Department should satisfy himself on the reasonableness of the candidate's request while forwarding the application of the candidate to the Controller of Examinations, who would obtain the Vice – Chancellor's approval for admission to the examination. No application would be accepted if it is not forwarded through proper channel.

1. Condoning lack of attendance should be taken up for consideration under the following circumstances:-

a) Any illness affecting the candidate – Candidates should submit a medical certificate from registered medical practitioners.

b) Any unforeseen tragedy in the family. The parents/ guardian should give in writing about what had happened.

c). Participation in National Service Scheme and other co-curricular activities representing the University.

14. RE-ADMISSION AFTER BREAK OFSTUDY:

A separate regulation is available for all the UG/PG courses of this university for there admission of candidates after a break of study.

15. INTERNSHIP

- Internship means 8 hours of integrated clinical duties
- Internship should be carried out as 8 Hours per day @ 48 hours per week
- Students will be supervised by the Faculties & well Trained Professionals during Internship.
- Internship will be started after passing in the third year Examination.

16. YEAR END EXAMINATIONS

- Commencement of the Examination will be in November /April
- If the date of commencement falls on Saturdays, Sundays or declared public holidays, the examination shall begin on the next working day.
- The duration of the examination of each subject is 3hours.
- Minimum pass marks shall be 50 % in each of the theory and practical papers separately except in Internal papers.
- Minimum Pass marks in Internal papers Shall be 50%.

Carryover of failed subjects:

- A candidate has to pass in theory and practical examinations separately in each of the subject.
- If a candidate fails in either theory or practical of the subjects, he/she has to reappear for both the Theory and Practical.
- The candidate if fails can be permitted for admission to next year.
- d.)The candidate shall have to clear all the previous examination before appearing for the Sixth Semester examination.

17. REVALUATION / RETOTALLING OFANSWER PAPERS:

There is provision for revaluation of the answer papers of failed candidates in any examination. However, the failed candidates cannot apply for retotaling.

18. CREDITS

Credits will be assigned on the basis of the lectures (L) /tutorials (T) Clinical Training (CR) /laboratory work (P) /Research Project (RP) and other form of learning in a 15-20week schedule.

- L- One credit for one hour lecture per week (1 credit = 15 hours)
- P/T – One credit for every two hours of laboratory or practical (1 credit = 30hours)
- CR – One credit for every two hours of Clinical Training/Clinical Rotation/Posing (1 credit = 30 hours)
- RP – One credit for every two hours of Research Project per week – Max Credit20-25 (1 credit =30 hours)

19. GRADING SYSTEM

Based on the performance, each student shall be awarded a final grade at the end of the semester for each course. Absolute grading is used by converting the marks to grade, based on pre-determined class intervals. UGC 10-point grading system is used with pass grade modified.

Letter Grade	**Grade Point**	**Range of Marks***
O (Outstanding)	10	85% & above
A+ (Excellent)	9	80-84.99%
A (Very Good)	8	75-79.99%
B+ (Good)	7	65-74.99%
B (Above Average)	6	60-64.99%
C (Average)	5	50-59.99%
P(Pass)	-	>50%
F (Fail) / RA (Reappear)	0	<50%
AB (Absent)	0	0

1. A candidate is declared to have pass in a course if he /she secures a minimum 50% marks the university theory & practical Examinations separately & 50% in aggregate of university theory/practical & Internal assessment put together

Computation of Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):
SPGA is the weighted average of the grade points obtained in all courses by the student during the

semester

SGPA Computation:

$$SGPA = \frac{\sum_i^n (C_i \times (GP)_i}{\sum^n C_i}$$

Where C_i - credits for the course, $(GP)_i$ - the grade point obtained for the i^{th} course , n – total number of courses and the sum is over all the courses taken in that semester, including those in which the students has secured "F" and "Ab" grades.

CGPA Computation:

Computation of CGPA:

CGPA is calculated with SGPA of all semesters to two decimal points and is indicated in final grade in mark card/transcript showing grades of all 8 semesters and their courses/subjects.

$$CGPA = \frac{\sum_i^r Si \times (SGPA)_i}{\sum_i^r S_i}$$

where:-S_i- sum of credits in i^{th} semester , $(SGPA)_i$- semester grade point average earned in i^{th} semester and r- number of semester and the sum is over all the semesters under consideration. The cumulative grade point average (CGPA) is calculated by consideration all the courses taken from the first semester onwards for regular students and from third semester onwards taken for lateral entry students.

20. CLASSIFICATION OF SUCCESSFUL CANDIDATES:

The CGPA arrived at the completion of the course shall be the criteria for the classification of successful candidates as below:

Cumulative Grades and Grade Points

Letter Grade	Grade Point	Range of Marks*
O (Outstanding)	10	85% & above
A+ (Excellent)	9	80-84.99%
A (Very Good)	8	75-79.99%
B+ (Good)	7	65-74.99%
B (Above Average)	6	60-64.99%
C (Average)	5	50-59.99%
P(Pass)	-	>50%
F (Fail) / RA (Reappear)	0	<50%
AB (Absent)	0	0

a) Successful candidates who secure 75% marks and above as a course aggregate in the first appearance taking University theory, practical, project / dissertation evaluation and viva shall alone be awarded Distinction. This will also apply for award of University rank.

b) Successful candidates who secure 60% marks and above as a course aggregate in the University theory, practical, project / dissertation evaluation and viva shall be awarded First Class.

c) All others who secure 50-59% in gross percentage will be classified to have passed in Second Class.

21. PATTERN OF QUESTION PAPER FOR UNIVERSITYEXAMINATION:

EXAMINATION QUESTION PAPER PATTERN

Essay	**2 x 15**	**= 30 Marks**
Short Notes	**7 x 5**	**= 35 Marks**
Short Answers	**5 x 2**	**= 10 Marks**
Total		**75 Marks**

Internal Split up – Theory

1. Continuous Assessment: 10 Marks

S.no	Continuous Assessment	Marks
1	Attendance	5
2	Assignment	5

2. Internal Assessment: 15 marks

Two Sessional Exams per Course

Internal Split up – Practical

1. Continuous Assessment: 20 Marks

S.no	Continuous Assessment	Marks
1	Seminar	10
2	Record note Book	10

2. Model Practical Examination: 30 Marks

22. GRACE MARKS

Maximum of 8 grace marks for each subject is permitted, and grace marks should notexceed 8 marks in each paper.

23. MARKS QUALIFING FOR PASS

A candidate is declared to have passed in a course if he/she secures a minimum of 50% marks in university theory and practical examinations separately and 50% in aggregate of University theory /practical and internal assessment put together.

B.Sc. PHYSICIAN ASSISTANT

FIRST SEMESTER

GENERAL ANATOMY

Course objectives:

- Describe the structure and functions of the organ systems of the human body.
- Describe how the organ systems function and interrelate.
- Learn basic technical terminology and language associated with anatomy.
- Develop a self-identity of what it means to be "human".

Unit I: Organization of the Human Body

Introduction to the human body - Definition and subdivisions of anatomy- Anatomical position and terminology Regions and Systems of the body -Cavities of the body and their contents - Levels of organization of the body. Cell – Definition of a cell, shapes and sizes of cells - Parts of a cell – cell membranes cytoplasm, subcellular organelles and their main functions. Cell Division – Definition and main events that occur in different stages of mitosis and meiosis. Tissues – Tissues of the body - Definition and types of basic tissues - Characteristics, functions and locations of different types of tissues.

Unit II: Systems of Support and Movement

1. **Skeletal system** Skeleton – Definition, axial and appendicular skeleton with names and number of bones, Types of bones. Parts of bones. Functions of bones. Name location and general features of the bones of the body. Joints – Definition and types of joints with examples. Axes and kind of movements possible. Name, location, type, bones forming, movements possible.
2. **Muscular system** Parts of the skeletal muscle. Definition of origin and insertion. Name and location of the skeletal muscles of the body. Origin, insertion, nerve supply and action of large muscles like sternocleidomastoid, pectoralis major, deltoid, Biceps brachii, Triceps brachii, gluteus, gastrocnemius and diaphragm.

Unit III: Control Systems of the Body

1. **Nervous system** Sub-divisions of the nervous system , Spinal cord – Location, extent, spinal segments, external features and internal structure. Brain – Sub-divisions, location external features of medulla oblongata, pons, mid-brain, cerebellum and cerebrum. Meninges and spaces around them. Name and location of ventricles of brain and circulation of cerebrospinal fluid. Blood supply of the brain and spinal cord. Cranial nerves - Name, number, location and general distribution. Spinal nerves - Typical spinal nerve groups and number of spinal nerves. Name and location of cervical plexus and brachial plexus. Location and general distribution of

the branches. Autonomic Nervous system – definition and functions.

2. **Sense organs** Location and featuresof the nose, tongue, eye, ear and skin
3. **Endocrine system** Names of the endocrine glands. Location and features of pituitary, thyroid, parathyroid, suprarenal, pancreas, ovaries and testes. Names of hormones produced by each gland.

Unit IV: Maintenance of the Human Body

1. **Cardio-vascular system:** Types and general structure of blood vessels. Structure and types of arteries and veins. Structure of capillaries. Shape, size, location, coverings, external and internal features of heart. Structure of heart wall, conducting system of the heart. Blood supply of the heart. The systemic arteries and veins. Name, location, branches and main-distribution of principal arteries and veins.
2. **Lymphatic system** Lymph, lymphatic vessels, name, location and features of the lymphatic organs.
3. **Respiratory system:** Names of organs of respiration, Location and features of nose, pharynx, larynx, trachea, bronchi, lungs and pleura.

Unit V: Excretion of the Human Body

1. **Digestive system:** Names of organs of digestion. Parts of alimentary canal and accessory organs. Location and features of mouth, pharynx, esophagus, stomach, small and large intestines. Location and features of salivary glands, pancreas, liver and gall bladder.
2. **Urinary system:** Names of urinary organs, location and features of kidney, ureter, urinary bladder and urethra

Unit VI: Reproduction Function of the Human Body

1. Reproductive system Names of male and female organs of reproduction. Location and features of scrotum, testis, epididymis, vas deferens, seminal vesicle, ejaculatory duct, prostate gland, penis and spermatic cord. Location and features of uterus and its supports, uterine tube, ovary vagina vulva and breast.

Anatomical Regions Simple ideas about scalp, triangles of neck, axilla, cubital fossa, mediastinum, inguinal canal, femoral triangle, popliteal fossa.

Practicals and Demonstrations:

1. Identification of the parts of the microscope.
2. Identification of the epithelium in a given histological slide.
3. Demonstrate the parts of the long bone.
4. Identification of the bones and joint of the bodywith the articular surfaces (skeleton or X-rays)
5. Identification of the important muscles in upper limb, lower limb and head and neck.

6. Identification of the parts of the brain (cerebrum, cerebellum, brainstem, spinal cord)
7. Identification of the cardiac chambers in a specimen.
8. Identification of the major vessels of heart – aorta and pulmonary trunk.
9. Identification of the cardiac field in chest X-ray.
10. Identification of the nasal cavity, naso pharynx, trachea, lung and pleura in a given specimen.
11. Identification of the lung shadow, costophrenic angle in a chest X-ray.
12. Identification of the stomach, pancreas, liver, small intestine and large intestine specimens.
13. Identification of the stomach, intestinal shadows in plain or contrast abdomen X – ray.
14. Identification of the kidney, Ureter and urinary bladder in specimen.
15. Identification of the renal pelvis, Ureter and urinary bladder in intravenous pyelogram
16. Identification of the thyroid gland in cadaveric specimen

Recommended books:

1. MARIANO S.H. DIFIORE: Atlas of Human Histology, 5th Ed. 1981, Lea andFeliger
2. B.D. CHAURASIA: Handbook of General Anatomy, 2nd Ed., CBS Publishersand Distributors, New Delhi - 110 032.

B.Sc.PHYSICIAN ASSISTANT

GENERAL PHYSIOLOGY

Course Objectives:

- Comprehend basic terminologies used in the field ofHuman Physiology
- Define and describe basic Physiological Processes governing the normal functioning of the human body
- Applythis knowledge in their Allied Health Science practice

UNIT I: GENERAL PHYSIOLOGY

Concept of Homeostasis - Cell structure and functions -Transport across membranes

Nerve structure, classification of nerve fibres, Muscles- classification, structure, Neuro-Muscular junction (NMJ), Muscle contraction – mechanism, types.

Body fluid volumes, compartments, and composition - Blood composition and functions - Plasma proteins – Erythrocytes – Morphology and functions , Leucocytes – Morphology and functions, Platelets- Morphology and functions Blood groups.

UNIT II: DIGESTIVE SYSTEM, SKIN & EXCRETORY SYSTEM

Salivary glands- Nerve supply, functions of saliva, Gastric juice- composition & functions of gastric juice. Pancreatic juice – composition, functions and regulation of Pancreatic juice, Bile – composition, functions of bile & bile salts. Succusentericus and small intestinal movements, Deglutition, vomiting, functions of large intestine

Structureofsweat glands; temperature regulation

Structure of Nephron and its blood supply, Juxta Glomerular Apparatus (JGA) Formation of urine- Filtration, Reabsorption & Secretion, Counter-Current mechanism, Micturition.

UNITIII: ENDOCRINE SYSTEM & REPRODUCTION

Hypothalamohypophyseal inter relationship - Anterior pituitary hormones and their functions - Posterior pituitary hormones and their actions - Thyroid hormones, biosynthesis and functions - Parathyroid hormones, functions Insulin, Glucagon, actions and Diabetes mellitus - Adrenal cortex hormones and their functions. Adrenal medullary hormones and their actions

Male reproductive organs - Spermatogenesis and Testosterone actions, Female reproductive organs - Menstrual cycle

UNIT IV: RESPIRATORY SYSTEM

Structureofupper and lower respiratorytract. Muscles ofrespiration and Mechanism of respiration. Lung volumes and capacities – definitions, normal values, intra pulmonary and intra pleural pressures, surfactant Oxygen transport, Carbon-dioxide transport - Neural and chemical regulation of respiration - Hypoxia, cyanosis

UNIT V: CARDIOVASCULAR SYSTEM

Cardiac muscle, action potential &conducting system of the heart, Cardiac cycle, ECG, heart sounds Cardiac output-Definition, factors regulating cardiac output and measurement of cardiac output. Blood pressure – Definition, measurement, factors maintaining B.P, Regulation of B.P, Regional circulation – Coronary and Cerebral

UNIT VI: NERVOUS SYSTEM & SPECIAL SENSES

Structure & Properties of Neuron - Nerve – Classification, injury -Types and properties of Receptors Synapse and synaptic transmission, Reflex and its properties ,Spinal cord – Ascending & Descending tracts Thalamus, Basal ganglia, Cerebellum, Cerebral cortex, Hypothalamus & Cerebrospinal fluid - Autonomic nervous system.

Vision, Audition, Olfaction, Gustation

Practical:

1. Recording of Arterial Blood Pressure (BP)

Practical Demonstration:

1. Determination ofRBC count
2. Determination ofWBC count
3. Differential leucocyte count (DLC)
4. Determination ofHb, PCV & ESR.
5. Determination ofBlood groups, Bleeding and clotting time.
6. Charts & Instruments – Spotters

Recommended Book

Basics ofMedical Physiology(Third edition) byD. Venkatesh/ H.H. Sudhakar

GENERAL BIOCHEMISTRY

Course Objectives:

To have a knowledge about the chemistry and metabolismof various macromolecules-carbohydrate, protein and lipids

- To learn about enzymes, vitamins, minerals and nutrition
- To know the structure and function of Hemoglobin, Nucleic acids.
- To learnabout the organ function tests like Liver Function Tests and Renal Function Tests.

Unit – I: Carbohydrates

Classification of carbohydrates and their biological importance, reducing property of sugars.

Metabolism of Carbohydrates : Digestion and Absorption of carbohydrates, steps of Glycolysis and energetics, steps of TCA cycle and energetics, steps of Glycogen synthesis and breakdown, significance of HMP shunt pathway, definition and steps of Gluconeogenesis, Galactose metabolism , Diabetes mellitus , Galactosemia.

Bioenergetics: Importance of ATP, outline of respiratorychain

Unit – II: Lipids

Classification of lipids, essential fatty acids, functions of cholesterol, triglycerides, and phospholipids

Metabolism of Lipids : Digestion and Absorption of lipids, steps ofβ oxidation of fatty acids, types and functions of lipoprotein, Lipid profile, hyper cholesterolemia

Haemoglobin: Structure and functions of Haemoglobin.

Unit – III: Proteins

–Classification of amino acids, structureof proteins, plasma proteins, immunoglobulins.

Metabolism of Proteins: Digestion and absorption of proteins, transamination, deamination, steps of urea cycle, Phenylketonuria, Alkaptonuria, Transmethylation, products derived from Glycine and tyrosine

Nucleic acids: Structure and function ofDNA & RNA, Types ofRNA

Unit – IV: **Enzymes**

Definition, classification, coenzymes, factors affecting enzyme activity, Types and examples of enzyme inhibition.

Function Tests: Liver function tests, Renal function tests

Vitamins : Classification, Fat soluble vitamins: Functions, source, deficiency manifestations of vitamin A, D E and K, Functions and deficiency manifestations of vitamin C, co-enzymic forms and deficiency manifestations of B-complex vitamins.

Unit – V: Nutrition & Minerals

Basal metabolic rate (BMR), Specific Dynamic Action (SDA), Glycemic index,Dietary fiber, Balanced diet, Protein Energy Malnutrition (PEM).

Calcium, Phosphorus, Iron, iodine. Outline ofPH homeostasis

BIOCHEMISTRY SYLLABUS FOR PRACTICALS – (UNDER – GRADUATES)

1. SPOTTERS

Text books Recommended:

1. Textbook of Biochemistry for Paramedical Students by Dr.P.Ramamoorthy
2. Essentials of Biochemistry by U.Sathyanarayana

MEDICAL LAW AND ETHICS

Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. Advances in medical sciences, growing sophistication of the modern society's legal framework, increasing awareness of human rights and changing moral principles of the community at large, now result in frequent occurrences of healthcare professionals being caught in dilemmas over aspects arising from daily practice.

Medical ethics has developed into a well based discipline which acts as a "bridge" between theoretical bioethics and the bedside. The goal is "to improve the quality of patient care by identifying, analyzing, and attempting to resolve the ethical

Problems that arise in practice". Doctors are bound by, not just moral obligations, but also by laws and official regulations that form the legal framework to regulate medical practice. Hence, it is now a universal consensus that legal and ethical considerations are inherent and inseparable parts of good medical practice across the whole spectrum.

Few ofthe important and relevant topics that need to focus on are as follows:

1. Medicalethics - Definition - Goal- Scope , Introduction to Code of conduct
2. Basic principles of medical ethics
3. Confidentiality
4. Malpractice and negligence
5. Rationaland irrationaldrug therapy
6. Autonomy and informed consent
7. Right of patients
8. Careof the terminally ill and Euthanasia
9. Organ transplantation
10. Sentinel events

RECOMMENDED BOOKS

Medicalethics byC.M.Francis

COMMUNICATION AND SOFT SKILLS

1. Basic Language Skills: Grammar and Usage.
2. Business Communication Skills. With focus on speaking - Conversations, discussions, dialogues, short presentations, pronunciation.
3. Teaching the different methods of writing like letters, E-mails, report, case study, collecting the patient data etc. Basic compositions, journals, with a focus on paragraph form and organization.
4. Basic concepts & principles of good communication
5. Special characteristics ofhealth communication
6. Types & process ofcommunication
7. Barriers of communication & how to overcome

SECOND SEMESTER

PATHOLOGY

Course objectives:

1. Describe the featuresofinflammation and cellular adaption, cell injury

2. Identify and describe the features of haemodynamic disorders and deficiency diseases

3. Understand and describe the pathogenesis and pathology of various systemic disorders

Unit I: Introduction

Concept ofdiseases, classification oflesions - Inflammation and repair
- Cellular adaption, Cell injury, necrosis and gangrene Haemodynamic disorders including hemorrhage, shock, embolism and thrombosis.

Unit II: Infections

Tuberculosis - Leprosyand Typhoid.

Unit III: Deficiency diseases

Anaemias

Unit IV: Tumor Pathology

Tumors – Terminologies, Nomenclature. Differences between benign and Malignant tumors, Tumors – Etiology, pathogenesis and spread oftumors.

Unit V: Systemic Disorders

Heart: Coronary Heart Disease (Ischemic Heart Disease) including atherosclerosis Congenital and Valvular Heart Diseases

Respiratory System- Bronchial Asthma, Emphysema, Bronchiectasis

Bone and Joints – Autoimmune diseases, septic arthritis, osteomyelitis, rheumatoid arthritis

Diseases of the Kidney - Diseases ofother partsofthe UrinarySystem

Central Nervous System CNS infections

Muscle - Diseases of muscle including poliomyelitis, myopathies

Gastrointestinal System Diseases ofEsophagus, Stomach and Intestine, Diseases of Liver and Pancreas.

Reproductive system-Diseases ofuterus, cervix, ovaries and testis.

Recommended Textbook:

Textbook ofPathology, Harsh Mohan, 3rd edition

Pathology Lab

Learning Objective:

The Gross specimens and instruments relevant to the disease processes and diseases taught will be shown and explained.

Unit I: Gross Specimens

1. Gangrene Bowel

2. Tuberculosis of Lung
3. Lipoma
4. Squamous cell Carcinoma of Foot
5. Infective Endocarditis
6. Left Ventricular Hypertrophy
7. Osteoclastoma
8. Osteogenic Sarcoma
9. Osteomyelitis
10. Chronic Pyelonephritis-Kidney

Unit II: Haematology Instruments:

1. Sahli`s Haemoglobinometer
2. Sahli`s pipette
3. Westergren`s tube
4. Wintrobe`s tube
5. Neubauer`s Chamber
6. RBC pipette
7. WBC pipette

MICROBIOLOGY

Course Objective:

At the end of the semester the students should be able to,

1. Know the concepts of sterilization and disinfection procedures and their applications.
2. Understand the basic principles of immunology.
3. Understand the basic fundamental aspects of bacteria, virus, fungus and parasites, and study the common disease caused by them.

Unit I: Introduction

History and introduction to microbiology, study the morphology of bacterial cell and their functions.

Unit II: Basic concepts about infection

Source, portal of entry & spread of immunity, biomedical waste management and standard precautions

Unit III: Sterilization

Sterilization and disinfection procedures and their application.

Unit IV: Infections

Common bacterial, viral, fungaland parasitic pathogens and the diseases caused by them with preventive and treatment measures.

Unit V: Applied microbiology

Sexually transmitted diseases, hospital acquired infections, urinary tractinfections, skin and soft tissue infections and anaerobic infections.

Recommended books

1. ProfC P Baveja - Text bookofMicrobiology.
2. Satish Gupte- Text BookofMicrobiology

Microbiology Lab

Learning Objective:

This module aims at providing practicalknowledge inthe recognition ofcommon pathogenicorganisms, infectious diseases and their lab diagnosis.

1. Spotters:

a) Disposable syringe

b) Sterile cotton swab

c) Bacterial filters

d) Anaerobic jars

e) Gramstained smears showing grampositive cocciand gram negative bacilli

f) Gramstained smears showing Candida

g) Culture growthof Aspergillus and dermatophytes

h) Bacterialculture media plates (Blood agar, chocolate agar and MacConkey's agar)

i) Antibiotic susceptibilitytest

j) Ascaris lumbricoides

k) Taenia

2. Clinical case discussion with charts:

a) Skinand soft tissue infections

b) Clostridia infections

c) Ring worm/ Tinea infections

d) Food poisoning

e) Gastroenteritis

Learning outcomes:

At the end ofthe module, the student must be able to have briefpracticalknowledge on infectious disorders.

Recommended reading

PracticalMicrobiology- Prof. C.P.Baveja

PHARMACOLOGY

Course Objectives:

1. To understand the terminologies and basic principles of pharmacokinetic and pharmacodynamics involved in the use of drugs.
2. To understand the pharmacological action and mechanism ofaction ofcommon drugs used for different disease conditions.
3. To know the therapeutic uses and adverse effects of common drugs used for different disease conditions

Unit 1: General Pharmacology

- Absorption, distribution, metabolism and elimination of drugs, routes of drug administration.
- Basic principles of drug action.
- Adverse reactions to drugs.
- Factors modifying drug response.

Unit 2: Autonomic nervous system & Peripheral nervous system

- Neurohumoral transmission
- Sympathetic nervous system - sympathomimetics,sympatholytics
- Parasympathetic - Cholinergics, Anticholinergics, Ganglionstimulants and blockers
- Skeletal muscle relaxants
- Local anesthetics

Unit 3: Central nervous system

- General principles - neurotransmitters, definition and common transmitters
- Drug therapy of various CNS disorders like epilepsy, depression, Parkinson's disease, schizophrenia, neuro-degeneration etc.
- Pharmacotherapy of pain
- General anesthetics
- Drugs for arthritis & gout

Unit 4: Autacoids

- Histamine and antihistaminics
- Prostaglandins, leukotrienes, thromboxane and PAF
- Substance P, bradykinin

Unit 5: Cardiovascular system

- Drug therapy of hypertension, shock, angina, cardiacarrhythmias
- Renin angiotensin system
- Diuretics
- Coagulants and anticoagulants, antiplatelet drugs

- Hypo-lipidemics

Unit 6: Gastrointestinal and respiratory system

- Emetics and antiemetics
- Drugs for constipation and diarrhoea
- Drug treatment of peptic ulcer
- Drug therapy of bronchial asthma
- Pharmacotherapy of cough

Unit 7: Hormones

- Drug therapy of Diabetes
- Thyroid hormones
- Pituitary-hypothalamic axis
- Corticosteroids
- Oxytocin and drugs acting on uterus
- Drugs affecting calcium balance

Unit 8: Chemotherapy

General principles of antimicrobial chemotherapy, rational use of antibiotics
Chemotherapeutic agents - b- Lactam Antibiotics, fluoroquinolones, macrolides, aminoglycoside, tetracyclines, chloramphericol and polypeptide antibiotics.
Chemotherapy of tuberculosis,
Cancer Chemotherapy

Unit 9: Miscellaneous

- Immunomodulators
- Drug therapy of glaucoma and cataract
- Treatment of poisoning

Recommended books:

1. Prep Manual for Undergraduates in Pharmacology by Tara V Shanbag, 2nd edition
2. Sharma.H.L & Sharma.K.K, Principles of Pharmacology, Paras Medical, 3rd Edi, 2017.
3. Tripathi.KD, Essentials of Medical Pharmacology, Jaypee Brothers, 8th Edition, 2018.

Pharmacology Lab

Learning Objective:

This module is intended to discuss the various modalities ofdrug deliveryand instruments relevant to it.

Instruments:

Needles Intravenous, Intrathecal, Spinal, Intra arterial

Students Discussion: Syringes, Tuberculin, Insulin, I.V cannula, Scalp. Veinset

Students Discussion: Enema can, Inhalers, Spacers, and Nebulizers

Students Discussion: Tablets – Enteric coated, Sustained release, Sub-lingual

Students Discussion: Capsules, Spansules, Pessary, Suppository

Students Discussion: Topical Preparation, Ointment, Lotion, Powder, Drops – eye / ear

Charts: Mechanismofaction ofdrugs, adverse effects, toxicology

Spotters: drugs

Text books suggested forreading:

1. Text book of pharmacology for Dental &Allied Health Science 2rd edition PadmajaUdaykumar
2. Pharmacology for dentalstudents Tara V Shanbhag, SmitaShenoy, VeenaNayak
3. Principles ofpharmacology2rd edition H.L.Sharma& KK Sharma

MEDICAL TERMINOLOGIES AND RECORD KEEPING

This course introduces the elements of medical terminology. Emphasis is placed on building familiarity with medical words through knowledge of roots, prefixes, and suffixes. Topics include: origin, word building, abbreviations and symbols, terminology related to the human anatomy, reading medical or dread reports, and terminology specific to the student's field of study. Spelling is critical and will be counted when grading tests.

Topics to be covered under the subject are as follows:

1. Derivationof medicalterms.
2. Definewordroots, prefixes, and suffixes.
3. Conventions for combined morphemes and the formationofplurals
4. Formmedicaltermsutilizing roots, suffixes, prefixes, and combining roots.
5. Interpret basic medicalabbreviations/symbols.
6. Utilize diagnostic, surgical, and procedural terms and abbreviations related to the integumentary system, musculoskeletal system, respiratory system, cardiovascular system, nervous system, and endocrine system.
7. Interpret medicalorders/reports.
8. Dataentryand management onelectronic healthrecord system.

BASIC COMPUTERS AND INFORMATION SCIENCE

The students will be able to appreciate the role of computer technology. The course has focus on computer organization, computer operating system and software, and MS windows, Word processing, Excel data work sheet and PowerPoint presentation. Topics to be covered under the subject areas follows:

1. Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages.
2. Input output devices: Input devices(keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision- input devices),output devices(monitors, pointers, plotters, screen image projector, voice response systems).
3. Processorand memory: TheCentralProcessing Unit (CPU), main memory.
4. Storage Devices: Sequential and direct access devices, magnetic tape, magnetic disk, optical disk, mass to rage devices.
5. Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing ,minimizing and maximizing, etc.).
6. Introduction to MS-Word: introduction, components of a word window, creating, opening and inserting files, editing document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing oftable, mail merge.
7. Introduction to Excel: introduction, about worksheet, entering information, saving work books and formatting, printing the worksheet, creating graphs.
8. Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.
9. Introduction of Operating System: introduction, operating system concepts, types of operating system.
10. Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network.
11. Internet and its Applications: definition, brief history, basic services (E- Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet.
12. Application ofComputers in clinicalsettings.

Practical on fundamentals of computers:

Learning to use MS office: MS word, MS Power Point, MS Excel. To install different software.

THIRD SEMSTER

PAPER I -GENERAL MEDICINE AND GERIATRICS

Pathogenesis, causes, epidemiology, clinical presentation, investigations and management of diseases of the following systems: -

Unit 1:

Introduction to medical terminology- roots, prefixes, and suffixes, Skeletal system Disorders– (Fracture & metabolic bone diseases, Arthritis (rheumatoid arthritis and Osteoarthritis) Muscular system Disorders – (SLE, Fibromyalgia, muscular dystrophy, cardio myopathy)

Unit 2:

Nervous system Disorders – (cerebro vascular accident, seizures, meningitis, spine disorders, Parkinson's disease) Endocrine system Disorders– (diabetes mellitus, disorders of thyroid, adrenal, growth hormone)

Unit 3:

Cardiovascular system Disorders– (hypertension, coronary artery disease, congenital heart disease, rheumatic fever, heart failure) Respiratory system Disorders – (bronchial Asthma, COPD, tuberculosis, pleural effusion, pneumothorax, respiratory failure)

Unit 4:

Integumentary system - skin, hair and nails - disorders.

Unit 5:

Digestive system Disorders– (hepatitis, cholecystitis,pancreatitis, inflammatory bowel disease)

Unit 6:

Urinary system Disorders – (renal calculi, renal failure) Reproductive system – male and female-disorders.

Unit 7:

Geriatrics

Physiological and psychological fundamentals of aging process. Diet for the aged and management of nutritional disorders. Disorders of major geriatric ailments and management –

Medical – infections, dehydration, acute confusional state, osteoporosis, Degenerative joint diseases, effects of immobility – prevention of contracture and bedsores. Economic and psychosocial needs of the aged. Role of various

health care provider's including family.

Reference Text Books:

1. Davidson's, Principle and Practice of medicine, Elsevier Publication, 24th edition, 2022.
2. Alagappan. R, Manual of practical medicine, Jaypee Brothers Publication, 6th edition, 2018.

PRACTICALS/ DEMONSTRATION:

- History collection
- General examination
- Recording vitals
- Phlebotomy, collection of blood sample and storage
- Urine normal and abnormal values significance
- Biochemical parameters and their normal and abnormal values /significance
- CSF / Pleural fluid /Ascitic fluid analysis and their significance
- Mantoux test and its significance
- Normal ECG recording & Interpretation
- Chest X ray interpretation
- IV Cannula
- Ryle's tube
- Foley's catheter
- Viral markers and their significance Culture methods / techniques / swab etc.

PAPER-II GASTROENTEROLOGY & ORTHOPEDICS

Unit 1:

Basics- functions and physiology of defecation
Preventive gastroenterology- obesity, GI disorders (IBS, IBD), constipation, diarrhea and dysentery
Surgical asepsis and hygienic endoscopy room - preparation of sterile field - preparation of tables, Equipments, instruments for the procedure, giving oral anaesthetic agent, transfer and positioning of the patient, care of the room before , during and after the endoscopy procedure, special precautions in handling patients with sepsis, blood borne infection - Hepatitis B, HCV, HIV etc., cleaning and disinfection, terminal disinfection.

Unit 2:

Basics- ossification of bones of the limbs for age determination, X- rays of bones
Infections - osteomyelitis, tuberculosis, mycetoma.
Metabolic diseases - rickets/osteomalacia, osteoporosis, hyperparathyroidism
Tumours- Primary (Osteosarcoma, Osteoclastoma, Ewing's sarcoma, chondrosarcoma) and Secondary tumors
Arthritis - Rheumatoid, osteo arthritis/ ankylosing spondylitis.

Unit 3:

Fracture - definition, classification, management, fracture healing, delayed union, open fractures, Management of fracture clavicle, shaft of Humerus and dislocation of shoulder.
Classification of injuries around the elbow and management of supracondylar fracture and 86 dislocation of elbow, Monteggia fracture dislocation and fracture of both bones of forearm, Volkmann's ischemic contracture, fracture lower end of radius, scaphoid and metacarpal fracture. Fracture of pelvis and dislocation of hip, fracture neck of femur, trochanter, and shaft of femur tibia, fibula and metatarsal.

Unit 4:

Internal derangementsof knee, injuriesof ankle and foot, amputations,
Congenital malformations - CTEV, torticollis, CDH, Pseudarthrosis Disorders of hip- Coxa vara, Perthes disease.

Deformities and disorders of the spine Blood transfusion

Practical's:

- History collection
- Case sheet writing
- Discharge summary
- Endoscopy
- Colonoscopy
- POP cast
- Instruments used in orthopedics
- Splints
- Traction
- Prosthesis
- Physiotherapy
- X ray, MRI, CT
- Wound care / trauma patient care
- Blood transfusions
- Fracture reduction

Reference books:

1. Natarajan's, Text Book of Orthopedics & Traumatology, Wolters Kluwer, 8th Edi, 2018.
2. Maheshwari& M.Bhaskar, Essential Orthopedics, Elsevier , 7th Edition ,2022.
3. Davidson's, Principle and Practice of medicine, Elsevier Publication, 24th edition, 2022.
4. Alagappan. R, Manual of Practical Medicine, Jaypee, 6th edition, 2018.

PAPER III-PSYCHOLOGY

UNIT 1: Basic Concepts of Psychology

Definition of Psychology, Origin of Psychology - Philosophical roots of psychology, Schools of Psychology –Structuralism – Gestalt – Functionalism – Behaviorism - Psychoanalysis – Humanistic. Fields of Psychology - Work of a psychologist – Applications of psychology.

UNIT 2: Learning principles and methods

Definition of learning, Factors In The Process of Learning Classical conditioning - Operant Conditioning – The principle of reinforcement and Punishment. Theory of learning. Cognitive learning- Latent learning, Insight learning, and Imitation.

UNIT 3: Motivation, Emotion, Memory and forgetting

Motivation - Definition of motivation – Theories of motivation - Physiological basis of motivation – Motivational factors in aggression – Self-actualization motivation. Emotion – Emotional expression –Theories of emotions. Kinds of remembering – Retrieval processes – The nature of forgetting – Two process theories of memory – Improving memory –Language and thought – Symbols and concepts – Structure – Forms of thought - Thinking and reasoning – Concept formation.

UNIT 4: Development, Sensory Processes and Perception.

Erikson's stages of psychosocial development Lawrence Kohlberg's stages of moral development Freud’s Stages of Psychosexual Development Physiological basis of behavior – The brain and nervous system –The sensory process , Some general characteristic of senses – Five senses, Perception: Organization – The role of learning in perception – Perception and attention –Perceptual process.

UNIT 5: Intelligence & Personality

Theories of intelligence – Measuring Intelligence – Kinds of intelligence tests – Ability – Formation of aptitude and attitude – Aptitude tests –Creativity and its tests. Personality – Definition of Personality – Theories of Personality – Assessment of Personality. Social Factors Influencing Personality.

UNIT 6: Social Psychology

Definition, Nature, Subject Matter and Scope Of Social Psychology-Applications and Importance of Social Psychology, Groups: Definition and Type- Primary And

Secondary Groups Social Interaction, Social and Inter-Personal Relations. Inter- personal attraction – Love and Companionship. Prosocial-behavior. Modes of empathy: self – other differentiation and development of empathy. Social influence: attitude and conformity. Definition - Characteristics and Classification of Crowd. Leadership: Definition and characteristics, Defense Mechanisms, frustration and conflict, sources of frustration and conflict, types of conflicts. Aggression and Types of aggression.

UNIT 6: Health Psychology

Definition of Health Psychology -Relating Health Psychology to other fields Clinical Health Psychology, Public Health Psychology, Community Health Psychology, Critical Health Psychology

Abnormal Psychology: Concepts of normality and abnormality, causation of mental illness, neuroses, psychoses, psychosomatic disorders, measures to promote mental health.

Stress - Definitions- Models of Stress – Theories of Stress - Stress reactions – Coping and Stress Management techniques, Pain and its management - Psychological reactions of a patient to loss – Stages of Acceptance by Kubler-Ross.

REFERENCES:

1. Clifford T. Morgan, Richard a. King, John R. Weis and John Schopler, "Introduction to Psychology" – 7th Edition. Tata McGraw Hill Book Co. New Delhi, 1993.
2. Baron, R. A., & Byrne, D (2006), "Social psychology**"**, New Delhi: Prentice hall of India private limited.
3. Elliot Aronson, Timothy D. Wilson, Robin M. Akert, Samuel R. Sommers, **"**Social psychology" 9th edition published by Pearson education, Inc.,2006
4. Shelley E. Taylor. "Health Psychology" Third Edition. McGraw Hill International Editions,1995.
5. Swaminathan, V.D, Latha Sathish, "Psychology for Effective Living**"**, Department ofPsychology, University of Madras.
6. Coleman, James. 1980. "Abnormal Psychology and modern life**"**. New Delhi: Tata McGrawHill Ltd.

PAPER IV - FIRST-AID

Introduction

- Definition of first aid, importance of first aid,
- Golden rules of the first aid
- Scope and concept of emergency

First aid in Skeletal injuries

- Definition, types of fractures of various parts of the body, causes, signs and symptoms, rules of treatment, transport of patients with fracture.
- First aid measures in dislocation of joints, treatment of muscle injuries

Respiratory emergencies

- Asphyxia – Etiology, signs and symptoms, rules of treatment
- Drowning – definition and management
- Artificial respiration – types and techniques

Shock and Unconsciousness

- Definition
- Types of shock
- Common causes of shock
- Signs and symptoms of shock (assessment of established shock)
- General and special treatment of established shock

Transportation of the injured

- Methods of transportation – single helper, hand seat, stretcher, wheeled transport (ambulance)
- Precautions taken – blanket lift, air and sea travel

Community emergencies

- Role of first aider (immediate and later) in
    - Fires
    - Explosions
    - Floods
    - Earthquakes
    - Famine

Bandages

- Bandaging
- Basic turns
- Bandaging extremities
- Triangular bandages and their application

Reference Books:

1. Sanju Sira , First Aid Manual for Nurses, CBS, 1st Edi, 2017.
2. Gupta L.C. Manual of First Aid, Jaypee, 2nd Edi, 2017.
3. Indian Red Cross Society (RRC), Indian First Aid Manual, St. John Ambulance Association, 7th Edi, 2016

FOURTH SEMESTER

SURGERY AND ANESTHESIOLOGY

Unit – 1:

History of surgery, role of surgeon, importance of team work, stresses arising during operative procedure , surgical terminology, types of incision and their indications, internal & external hemorrhage - signs and symptoms, management , Tourniquets - use and duration of application and dangers of use. Sutures and surgical instruments.

Unit – 2:

Pathogenesis, causes, epidemiology, clinicalpresentation, investigations and management of diseases of the following systems:- Skin – ulcers &wounds, burns, skin infections (boil, carbuncle, abscess)
Cysts (epidermoid, dermoid), tumors (basal cell, squamous cell carcinoma and melanoma).
Head and neck region: congenital anomalies (cleft lip, cleft palate, branchial cyst and fistula, thyroglossal cyst), parotid and submandibular glands, oral ulcers, Leukoplakia, jaw tumors, squamous carcinoma of oral cavity. Thyroid and lymph nodes swelling.
Arteries- limb ischemia, Raynaud's syndrome.
Veins - Varicose veins, deep vein thrombosis and pulmonary embolism.

Unit – 3:

Breast - mastalgia, fibro adenoma, carcinoma breast Esophagus - dysphagia, reflux, hiatus hernia. Stomach and duodenum - peptic ulcer, carcinoma, pyloric stenosis Small intestine - small bowel obstruction.
Colon and rectum - ulcerative colitis, Appendix - acute appendicitis, acute abdomen
Anus - Hemorrhoids, fissure and fistula-in-ano, anorectal abscesses Liver - trauma, abscess, cancer.
Biliary tract - gall stone disease,
Pancreas- pancreatitis, carcinoma Hernias of abdominal wall- Inguinal, femoral, umbilical
Urology- urinary calculi, urinary infection, prostatic hyperplasia, Epididymoorchitis, hydrocele.

Unit – 4:

Common Equipments /anesthesiology:

Personal cleanliness and aseptic techniques / dressing techniques / wound care Pre-operative and post-operative care of the surgical patient. Emergency procedure - endotracheal intubation, tracheotomy, Central line placement, IVcannulation, Ambu bag ventilation, CPR, Basic Life Support.

Practical's:

- History Collection
- Case Sheet Writing
- General & Local examination
- Personal protective Equipments
- Hand wash technique
- Identification of surgical instruments

- Identification of suture materials
- Dressing techniques
- Drugs used in general, spinal and local anesthesia
- Spotters (ET tube ,Tracheostomy tube ,Laryngoscope, Ambubag)
- Pre-op & Post op care
- Emergency drugs
- Sterilization techniques
- Antibiotics & Anti septics

Reference Books:

1. Rajagopal Shenoy.K, Manipal Manual of Surgery,CBS Publication, 5th Edition, 2020.
2. Sabiston, Textbook of Surgery, Elsevier Publication ,21st Edition, 2021.
3. Ajay Yadav,Short Textbook of Anesthesia, Jaypee, 6th Edition 2018.

PAEDIATRICS

Unit 1:

Definition, population, morbidity and mortality in children ,maternal , perinatal , neonatal , infant and preschool mortality rates, current National Programmes like ICDS, RCH, Vitamin A prophylaxis, UIP,IMCI, Pulse Polio, AFP,ARI. Diarrhoea control programmes.
Growth and development - anthropometry - Measurement and interpretation of weight length/height, head circumference, mid-arm circumference. Use of weighing machines, infant meter, interpretation of Growth.
Charts: Road to health card and percentile growth curves, abnormal growth patterns- failure to thrive, short stature, growth pattern of different organ systems like lymphoid, brain and sex organs, normal pattern of teeth eruption.
Important milestones in infancy and early childhood in areas of gross motor, fine motor, language and personal - social development, psychological and behavioral problems
Measurement and interpretation of sitting height, US: LS ratio and arm span Age- independent anthropometric measurement - principles and application.

Unit 2:

Nutrition - normal requirements of carbohydrates, protein, fats, minerals and vitamins for newborn, children, pregnant and lactating mother. Common food sources.
Breast feeding - colostrum and composition of breast milk, initiation and technique of feeding, hazards and demerits of prelacteal feed, top milk and bottle - feeding. Feeding of LBW babies. Infant feeding /weaning foods, methods of weaning. Assessment of nutritional status of child based on history and physical examination.
Protein energy malnutrition-definition, classification, features, causes and management.
Vitamins -etio-pathogenesis, clinical feature, biochemical and radiological findings, differential diagnosis and management of nutritional disorders.
Definition, causes and management of obesity
Immunization: - National immunization programme, vaccine preservation and cold-chain.
Vaccination types, contents, efficacy, storage, dose, site, route, contraindications and adverse reactions BCG, DPT, OPV, Measles, MMR and Typhoid.
Pulse Polio Immunization, AFP (Acute flaccid paralysis) surveillance Special vaccines - Hepatitis B, H influenza B, Pneumococcal, Hepatitis A, Chicken Pox, Meningococcal and Rabies.

Unit 3:

Disorders of respiratory system - bronchopneumonia, CROUP, tuberculosis
Gastro intestinal tract disorders - diarrhea, hepatitis, giardiasis, amoebiasis, intestinal helminthiasis
Cardiovascular system disorder - congenital heart diseases, rheumatic fever
Hematological disorder- Anemia
Nervous system disorder - meningitis, seizures
Infectious disease - epidemiology, basic pathology, symptoms, signs, complications, investigations, differential diagnosis , management and prevention of common bacterial(typhoid) , viral(dengue) and parasitic(malaria) infections, fever of unknown origin, chicken pox Pediatric emergencies- status epilepticus, status asthmatics/ acute severeasthma, shock, burns, hypertensive emergencies, gastrointestinal bleed, comatose child, congestive cardiac failure, acute renal failure
Genetics- principles of inheritance and diagnosis of genetic disorders - Down's syndrome

Practical's:

- History Collection
- Case sheet writing
- Discharge summary
- APGAR Score
- Primitive reflexes
- Anthropometry measurement
- Nebulization
- Fontanelles
- Incubator
- Phototherapy
- Identification of vaccines
- Normal nutritional requirements
- Developmental milestone assessment
- BLS (demonstration of basic life support)

Reference Books:

1. Ghai, Essentials pediatrics, CBS Publications, 9th edition, 2019.
2. Gupte Suraj, The Short Textbook of Pediatrics, Jaypee, 12th Edi, 2016

ETHICAL AND LEGAL ISSUES

UNIT I

Medicalethics Definition, Goal, Scope.

Introduction to Code ofconduct. Basic principles of medical ethics Confidentiality.

UNIT II

Malpractice and negligence Rational and irrational drug therapy Autonomy and informed consent – Right of patients

UNIT III

Care of terminally ill- Euthanasia. Organ transplantation.

UNIT IV

Medico legal aspects of medical records – Medico legal case and type- Records and document related to Medico Legal Case (MLC) - ownership of medical records - Confidentiality Privilege communication - Release of medical information – Unauthorized disclosure - retention of medical records

- Other various aspects.

UNIT V

Professional Indemnity insurance policy

Development of standardized protocol to avoid near miss or sentinel events

REFERENCE TEXT BOOK:

1. Ethical issues in health care sector in India- Chirantanchattergee

COMMUNITY MEDICINE & EVS

Unit 1:

Concept of health & disease: Concept of health, Definition of health, Philosophy of health- Dimension of health - Concept of wellbeing, Spectrum of health, Responsibility of health - Determinates of health & Indicators of health - Concepts of disease & Concepts of cessation - Natural history of disease- Iceberg phenomenon , Concepts of control - Concepts of prevention - Modes of Intervention, Changing pattern of disease

Unit 2:

Epidemiology: Definition & explanation, Aims, Epidemiologic approach, Basic measurements in epidemiology &tools of measurements - Measurements of Mortality & Morbidity, Epidemiologic methods- Descriptive epidemiology - Analytical epidemiology - case control study - Analytical epidemiology – Cohort study - Experimental epidemiology – RCT - Association & Causation Uses of epidemiology(Criteria for judging causality) - Infection disease epidemiology Definitions Dynamic of disease transmission & Modes of transmission -Disinfection – Definition Types Agents used Recommended Disinfection procedures - Investigation of an epidemic.

Unit 3:

Environment & health: Definition & components (environment sanitation environmental

sanitation)Water: Safe & Whole some water Requirements Uses source of water supply (sanitary well)-Purification (1).Large scale purification, (2).Small scale purification - Water Quality - Special treatment of water Air: Composition The air of occupied room discomfort. Air pollution & its effects. Prevention & Control of air pollution Ventilation: Definition Standards of ventilation Types of ventilation. Light, Noise & Radiation, Metrological environment, Housing, Disposal of waste Excreta disposal.

Reference Books:

1. Agarwal, R.K, Environmental Science, Krishna Prakashan Publishers, 1st Edition.2020.
2. Bharucha Erach, The Biodiversity of India, Mapin Publication, 1st edition, 2002.

FIFTH SEMESTER
CARDIOLOGY & CARDIAC SURGERY

Unit 1:
Embryology of the heart:
Basics –Anatomy of the heart (chambers, valves, great vessels, surface markings, coronary circulation), cardiac cycle, cardiac output, Action Potential

Unit 2:
Cardiovascular diseases - symptoms and signs, pulse, BP, JVP
Congenital heart disease –cyanotic (TOF, TGA) and acyanotic (ASD, VSD, PDA) heart diseases
Hypertension- essential, malignant,
Arterial diseases - atherosclerosis - risk factors, Coronary artery disease, Rheumatic heart disease, heart failure, cardiac arrhythmias, cardiomyopathies, Peripheral vascular disease, pulmonary thromboembolism, infective endocarditis, diseases of aorta.
Systemic diseases affecting the heart, pregnancy and heart disease, pericardial diseases, Cardiac trauma, tumors of heart.

Unit 3:
Diagnostic tools - ECG, Chest X-ray, ECHO, TMT, Holter, 24-hour ambulatory BP monitoring, blood analysis. Etc.,
Cardiac catheterization and coronary angiography- preparation of patient physically and mentally. Pre and post-operative care and rehabilitation programme. PPI
Importance of life style modification measures.

Unit 4:
Cardiac surgery;- Basics - Cardiopulmonary bypass - closed and open heart operation, PDA ligation, closed mitral valvotomy, pulmonary artery banding
, block trussing shunt, Pericardiectomy, shunt operations, ASD and VSD closure, Tetralogy of Fallot correction, valvular disease surgeries, surgery for transpositions, other corrective surgeries and coronary
surgeries.

Practicals:

- History collection
- Case sheet writing
- Discharge summary preparation
- Cardiovascular examination
- Pulse, JVP, BP, Arterial line, CVP
- Cardiac bio marker
- Loading dose of MI
- ECG- Interpretation, basics, ischemia, infarction, heart block,arrhythmias
- Echo-basics, stress
- TMT, Holter, X-ray
- Cardiac catheterization
- Pacemaker
- Pulmonary artery catheter
- ACT
- CPB basics
- IABP
- Prosthetic valves

Reference Books:

1. Davidson's, Principle and Practice of medicine, Elsevier, 24th edi, 2022.
2. Alagappan. R, Manual of practical medicine, Jaypee, 6th edi, 2018.

NEUROLOGY

Unit 1:

- Nervous system – Review of anatomy and physiology,
- Neurotransmitters general principles and common transmitters
- Action potential and salutatory conduction, properties of nerve- fibers.
- Neuromuscular junction, Excitation- contraction coupling, Reflexes

Unit 2:

- Sensory system -Functional organization of sensory system, perception of touch, physiology of pain.
- Motor System - Functional organization of motor system, proprioception
- Basal ganglia and Cerebellum in maintenance of equilibrium and its disturbances
- Neurological disorder manifestation and localizing the level of lesion in neurological diseases
- Higher cerebral functions - learning, memory and speech.

Unit 3:

- Neuropathology - Trauma, Cerebrovascular accident
- Inflammatory and infectious disorders - Meningitis, Encephalitis, Brain abscess
- CSF and its disturbances - cerebral odema, raised intracranial pressure and tension
- Sleep and wakefulness – physiology and pathology
- Cranial, Spinal Neuropathies — Bell's palsy, trigeminal neuralgia

Unit 4:

- Neurological diseases - Clinical examination of nervous system, Investigations
- Disorders of movement, coma and brain death,
- Headaches - migraine, cluster and Epilepsy
- Cranial Neuropathies — Bell's palsy, trigeminal neuralgia
- Peripheral Neuropathies; Guillain-Barre Syndrome Myasthenia gravis Multiple sclerosis
- Parkinson's disease. Degenerative diseases Delirium - Dementia

- Alzheimer's disease
- Rehabilitative medicine in neurological diseases

Practical's:

- History collection
- Case sheet writing
- Neurological examination
- Discharge summary preparation
- Use of Glasgow coma scale and attending unconscious patients
- Introduction to diagnostic evaluation (CT, MRI, EEG, Evokedpotential, EMG)
- Protocols in meeting with emergency condition (Epilepsy,hemorrhage)
- Stroke protocol
- Introduction to rehabilitative medicine (physiotherapy , speechtherapy) Introduction to sleep medicine

Reference Books:

1. Davidson's, Principle and Practice of medicine, Elsevier, 24th edi, 2022
2. Heinrich Mattle, Marco Mumenthaler, Fundamentals of Neurology Thieme, 2nd Edi, 2016.
3. Alagappan. R, Manual of Practical Medicine, Jaypee Brothers Publication, 6th Edi, 2018

SOCIOLOGY

Unit 1:

Introduction:

Meaning - Definition and scope of sociology. Its relation to Anthropology, Psychology, Social Psychology

Methods of Sociological investigations - Case study, social survey, questionnaire, interview and opinion poll methods.

Importance of its study with special reference to health care professionals

Social Factors in Health and Disease:

Meaning of social factors

Role of social factors in health and disease

Unit 2:

Socialization:

Meaning and nature of socialization

Primary, Secondary and Anticipatory socialization Agencies of socialization

Unit 3:

Social Groups:

Concepts of social groups influence of formal and informal groups on health and sickness. The role of primary groups and secondary groups in the hospital and rehabilitation setup.

Unit 4:

Family:

The family, meaning and definitions Functions of types of family

Changing family patterns

Influence of family on individual's health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy

Unit 5:

Community:

Rural community: Meaning and features - Health hazards to rural communities, health hazards to tribal community.
Urban community - Meaning and features - Health hazards of urbanities

Unit 6:
Culture and Health:
Concept of Health
Concept of culture
Culture and Health
Culture and Health Disorders

Unit 7:
Social Change:
Meaning of social changes
Factors of social changes
Human adaptation and social change Social change and stress
Social change and deviance
Social change and health program
The role of social planning in the improvement of health and rehabilitation

Unit 8:
Social Problems of disabled:
Consequences of the following social problems in relation to sickness and disability remedies to prevent these problems Population explosion
Poverty and unemployment
Beggary
Juvenile delinquency
Prostitution Alcoholism
Problems of women in employment

Social Security:
Social Security and social legislation in relation to the disabled

Social Work:
Meaning of Social Work
The role of a Medical Social Worker

Reference Books:

1. Anthony Giddens: Sociology, Atlantic Publications & Distributors Pvt Ltd, 8th Edi, 2022.
2. Vidya Bhushan & Sachdeva, An Introduction to Sociology, Kitab Mahal, 1st Edi, 2017.
3. Ralhan.S, introduction to Sociology, Common Wealth publications, 1st Edition, 2018.
4. Shanker Rao, Sociology, S.Chand Publications, 7th edition, 2017.

PHYSICIAN'S OFFICE MANAGEMENT

Unit 1:
Outpatient Section
Registration of new cases, Registration of repeat cases, Patient record guide, Laboratory X-Ray report & reports filing, Alpha index typing
& Filing, O.P. Records coding (disease & indexing), O.P. records retrieval, O.P. Statistics. .

Unit 2:
Inpatient Section
Admitting office procedure, Inpatient record removal & forwarding, Ward Census

Unit 3:
Assembling & deficiency checks, I.P. record coding & indexing

Unit 4:
Discharge Analysis
Incomplete record control, Completed record control, Medico legal procedures & issue of Medical certification, Record retention & destruction of O.P. & I.P. records

Unit 5:
Miscellaneous
Hospital reception, Secretarial practice, Library (Medical)

Reference Books:

1. Pradeep Agarwal K, Hospital Marketing and Administration, Jaypee,13th Edi, 2013.
2. Lawrence Wolper P, Physician Practice Management: Population-centered Health Care in the Community, Elsevier, 2nd Edi.2014.

SIXTH SEMESTER

OBSTETRICS AND GYNECOLOGY

Unit 1:
Bony pelvis - important land marks of obstetrics significance, fetal skull Physiological changes in pregnancy / menopause
Conception, abortions, gestational trophoblastic diseases
Infections - STD, genital TB, HIV, TORCH, vertical transmission of HIV

Unit 2:
Obstetrics- Diagnosis of pregnancy, antenatal care and fetal surveillance, first trimester bleeding, normal and abnormal presentations and positions, dystocia due to bony pelvis, soft tissue, high risk pregnancies, IUGR, IUD, preterm labour, premature rupture of membranes, poly and oligohydramnios, postdated delivery, Prolonged labour, obstructed labour, rupture uterus, previous LSCS, third trimester bleeding, preeclampsia and eclampsia , medical disorders complicating pregnancy, surgical emergencies in obstetrics, Rh iso immunization, partogram, ultra sound in obstetrics, fetal monitoring , active management of labour
,neonatal resuscitation, analgesia and anaesthesia in obstetrics, instrumental deliveries, LSCS, third stage complications, normal and abnormal puerperium.

Unit 3:
Gynecology: - Maldevelopment, injuries, infections, cysts, tumors of female genital tract.
Vulva - inflammation, ulcers, atrophy, dystrophies, cysts, neoplasm Vagina - leucorrhoea, infections, carcinoma.
Cervix - erosion, ulcer, dysplasia, carcinoma
Uterus - prolapse, displacements (inversion and retroversion), endometriosis, and adenomyosis
Abnormal uterine bleeding / post-menopausal bleeding, endometrial hyperplasia, benign and malignant Tumours.
Primary and secondary amenorrhea, infertility, PCOD, assisted reproductive techniques

Unit 4:
Urinary system - Stress incontinence, pelvic pain, low back ache 68 Cancer screening for genital

malignancy and breast / Pap smear Radiotherapy outline and chemotherapy
Neonatology: - Neonatal resuscitation, meconium aspiration syndrome, preterm care, RDS, neonatal jaundice, congenital anomalies, birth injuries.

Practical's:

- History Collection
- Case sheet writing
- Normal delivery
- Pregnancy test
- Ultrasound
- Partogram
- Biophysical profile
- Neonatal care and resuscitation
- Obstetrics &Gynaecology instruments/ sterile techniques / instruments
- Obstetrics &Gynaecology Emergencies
- Importance of Pap smear /terminal care
- Preparing the discharge summaries
- Rh ISO Immunization
- Puerperal care
- Infertility Investigations
- Contraceptive methods
- Medical termination of Pregnancy

Reference Books:

1. Dutta.D.C, Text book of Obstetrics, Jaypee Brothers Publications, 9th Edition, 2016.
2. Mudaliar and Menons, Clinical obstetrics, University Press Pub, 12th Edition 2015.
3. Dutta.D.C, Text book Gynecology, Jaypee Brothers Publications, 8th Edition, 2020

NEPHROLOGY & PULMONOLOGY

Unit 1:
Basics-macroscopic and microscopic structure of the kidney, innervations of urinary bladder in detail, histopathology of kidney, ureters, urinary bladder and urethra. Renal hemodynamics and glomerular filtration, renal function, renal function tests, micturition

Unit 2:
Urinary tract pathology- basis of impaired renal function, urine analysis. Glomerulonephritis - classification - primary (proliferative and non- proliferative)
Secondary glomerulonephritis - (SLE, polyarteritis, amyloidosis, diabetes, lupus nephritis, Wegener's granulomatosis)
Acute renal failure, progressive renal failure and end stage renal disease Pyelonephritis, reflux nephropathy, interstitial nephritis
Tumours - renal cell carcinoma and nephroblastoma Renal vascular disorders, kidney changes in hypertension
Urinary bladder - cystitis, carcinoma, urinary tract tuberculosis, urolithiasis and obstructive uropathy.
Congenital abnormalities of kidneys and urinary system

Unit 3:
Clinical examination of kidney and genitourinary system- symptoms, signs and investigations. Major manifestations - dysuria, pyuria, urethral symptoms, Disorders of urine volume, hematuria,

proteinuria, edema, incontinence,
Renal involvement in systemic disorders, Drugs and kidney, renal replacement therapy

Unit 4:
Pathophysiology of hypoxia and hypercapnia.
Respiratory failure -acute, chronic mechanism and management, bronchial asthma, chronic obstructive lung diseases.
Restrictive /interstitial lung diseases, pulmonary tuberculosis, occupational lung diseases
Lung cancer - Primary and secondary, hemoptysis, pneumonia. Pleural diseases -Pneumothorax, Pleural effusion.
Cardiogenic and non-cardiogenic pulmonary edema, Diseases of the Diaphragm and the chest wall.

Practical's:

- History collection
- Case sheet writing
- Clinical examination of respiratory and urinary system
- Discharge summary preparation
- Renal function test
- 24 hrs. urine protein
- Intravenous pyelogram, ESWL
- Cystoscopy
- Dialysis, AV fistula
- Renal biopsy, plasmapheresis
- Renal transplant
- Chest x ray, CT
- Pulmonary function test
- Oxygen mask – nasal prongs, venture mask, CPAP, BIPAP,nebulization
- Mechanical ventilator
- Pleural tapping
- Bronchoscopy
- Anti-tuberculous treatment
- ABG

Reference Books:

1. Davidson's, Principle and Practice of medicine, Elsevier Publication, 24th edition, 2022.

HEALTH AND BASIC PRINCIPLES

Concept of Health Care and Health Policy

- Health in Medical Care
- Indigenous systems of Health Care & their relevance
- Framework for Health Policy Development

Health Organization

- Historicaldevelopment ofHealth Care System in the third world &India
- Organization & StructureofHealth Administration in India
- Type ofHealth Organization including International Organizations
- Private & Voluntary Health care provider
- DistributionofHealth Care Services
- Health Care System in Public Sector Organization
- Healthsystems ofVarious Countries

Health Policy and National Health Programme

- National Health Policy
- Drug Policy
- National Health Programs (Malaria, T.B., Blindness, AIDS etc.)
- EvaluationofHealth Programs (Developing indicators for evaluation)
- Medical Education & Health Manpower Development

Health Economics Fundamentals of Economics

- Scope & Coverage
- Demand for Health Services
- Health as an Investment
- Population, healthofEconomic Development

Methods & Techniques of Economic Evaluation of Health Program

- Cost Benefit & Cost Effective Methods

Household & Health

- Health Expenditure & Outcome
- Rationale for Government action
- Household capacity, income and schooling

Economics of Health

- Population based health services
- Economics ofCommunicable and Non Communicable diseases

Health Insurance

BIOSTATISTICS AND RESEARCHMETHODOLOGY

- **What is statistics** – Importance of statistics in behavioural sciences – Descriptive statistics and inferential statistics – Usefulness of quantification in behavioural sciences.

- **Measurements** – Scales of measurements – Nominal, Ordinal, Interval and Ratio scales.

- **Data collection** – Classification of data – Class intervals – Continuous and discrete measurements – Drawing frequency polygon – types of frequency polygon – Histogram.
- **Cumulative frequency curve** – Ogives – Drawing inference fromgraph.
- **Measures of central tendency** – Need – types: Mean, Median, Mode – Working out these measures with illustrations.
- **Measures of variability** – Need – Types: Range, Quartile deviation, Average deviation, Standard deviation, Variance – Interpretation.
- **Normal distribution** – General properties of normal distribution – Theory of probability – Illustration of normal distribution – area under the normal probability curve.
- **Variants from the normal distribution** – skewness – Quantitative measurement of skewness – kurtosis – measurement of kurtosis – factors contributing for non-normal distribution.
- **Correlation** – historical contribution – meaning of correlation – types: Product, moment, content correlation, variation of product, movement correlation, rank correlation, Regression analysis.
- **Tests of significance**- need for – significance of the mean – sampling error – significance of differences between means – interpretation of probability levels – small samples – large samples.

VII & VIII SEMESTER

1. **Project**
2. **Postings during One year Internship**

Posting	Duration
General Medicine	3 months
Surgery	3 months
O&G	1 month
ENT	1 month
Orthopeadics	1 month
Peadiatrics	1 month
ICU	1 month
Emergency	1 month