





# SECTION-ONE: REGULATIONS SECTION-TWO: SYLLABUS SECTION-THREE: CLINICAL TRANING





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## **B. Sc.Physician Assistant**

### **Duration of course:**

Duration shall be for a period of three years followed by one year of internship.

### **Medium of instruction:**

The medium of instruction and examination shall be English. Scheme of examination:

There will be three examinations one each at the end of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year.

### Attendance:

Every candidate should have attended at least 75% of total number of classes conducted in academic year from the date of commencement of the term to the last working day as notified by university in each of the subjects prescribed for that year separately in theory and practical. Only such candidates are eligible to appear for the university examinations in their first attempt.

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Subjects and number distribution in different years:

### 1<sup>ST</sup>YEAR

Paper I: Basic sciences-I Paper II: Basic Nursing & EVS Paper III: Basic Surgery Paper IV: Basic Anaesthesia& General Medicine

2<sup>ND</sup>YEAR

Paper I: Basic Science-II PaperII: Obstetrics-Gynaecology&Paediatrics PaperIII: Laboratory Science I PaperIV: CSSD-I

### 3<sup>RD</sup> YEAR

Paper I: Ophthalmology, ENT, Psychiatric, Orthopedic PaperII: Laboratory Science-II PaperIII:Community Health & Research Methodology PaperIV: Hospital Organization & Administration, Medical Ethics



1<sup>st</sup>YEAR

SUBJECT	THEORY EXAM	INTERNAL THEORY	PRACTICAL EXAM	INTERNAL PRACTICAL	TOTAL
Basic sciences-I	80	20	80	20	200
Basic Nursing &	80	20	80	20	200
EVS Basic Surgery	80	20	80	20	200
Basic Anaesthesia& General Medicine	80	20	80	20	200

### 2<sup>nd</sup>YEAR

SUBJECT	THEORY EXAM	INTERNAL THEORY	PRACTICAL EXAM	INTERNAL PRACTICAL	TOTAL
Basic sciences-II	80	20	80	20	200
Obstetrics- Gynaecology&Paediatrics	80	20	80	20	200
Laboratory Science-II	80	20	80	20	200
CSSD-I	80	20	80	20	200

### 3rd YEAR

SUBJECT	THEORY EXAM	INTERNAL THEORY	PRACTICAL EXAM	INTERNAL PRACTICAL	TOTAL
Ophthalmology, ENT, Psychiatric, Orthonedic	80	20	80	20	200
Laboratory Science-II	80	20	80	20	200
Community Health & Research Methodology	80	20	80	20	200
Hospital Organization & Administration, Medical Ethics	80	20	80	20	200

## Internal assessment:



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There will be a minimum two periodical tests preferably one in each term in theory and practical of each subject in an academic year. The average marks of the two tests will be calculated and reduced to 20. The marks of IA will be communicated to the university at least 15 days before the commencement of the university examination.

### Schedule of examination:

the university shall conduct two examinations annually at an interval of not less than 4 to 6months as notified by the university from time to time. A candidate who satisfies the requirement of attendance, progress and conduct as stipulated by the university shall be eligible to appear for the university examination. Certificate to that effect shall be produced from the head of the institution along with the application for examination and prescribed fees.

### Pass Criteria:

a candidate is declared to have passed the examination in a subject if he/she secure 50% marks in theory and 50% marks in practical separately.

### **Eligibility for the Award of Degree:**

A candidate shall have passed in all the subjects of first, second, third year and completed one year internship, to be eligible for award of degree.



<u>Sl. No.</u>	Subject	Theory	Practical	Total no.of Hours
1.	Basic sciences-I	170	30	200
2.	Basic Nursing & EVS	70	30	100
3.	Basic Surgery& Gyn	70	30	100
4.	Basic Anaesthesia& General Medicine	70	30	<u>100</u>
	<u>Total</u>	<u>380</u>	<u>120</u>	<u>500</u>

#### Paper I: Basic sciences-I

#### A. Physics & Biophysics

- i) Force & motion
- ii) Heat
- iii) Light
- iv) Sound
- v) Electricity
- vi) Basic concept of stress & strain, laws of electricity
- vii) Surface tension
- viii) Viscosity
- ix) Basic concept of Electromagnetisms
- x) Maxwell's equations
- xi) Density
- xii) Resistance
- xiii) Elasticity
- xiv) X-ray
- xv) Cathode rays
- xvi) Crystal structure

#### B. Chemistry & Biochemistry

- i) Atom & molecule
- ii) Valency& chemical bonding
- iii) Catalyst
- iv) Mechanism of organic reaction
- v) Ionic equilibrium
- vi) Electrochemistry
- vii) Polymers
- viii) Colloids
- ix) Nuclear chemistry, Thermodynamics
- x) Reaction Dynamics/ Chemical Kinetics
- xi) Water treatment
- xii) Transition metal chemistry
- xiii) Metabolism of carbohydrates, protein, fat & Biochemical estimation

#### C. Human Anatomy

- i) Gross anatomy of Human Skeleton
- ii) CNS: autonomic nervous system, Cranial nerves, Brain & Spinal cord
- iii) Heart & Circulatory System: chambers, great vessels (SVC, IVC,PA, PV, Aorta & its branches), chamber normal pressure, septum, vaslve, conducting system (SA node, AV node, Purkinjee fibers)



Respiratory System: Muscles of respiration, airway (upper & lower airway), mediastinum, lung, pleural cavity, Diaphragm, abdominal wall, peritoneum, viscera-major thoracic, abdominal and pelvic iv) viscera and their location in the body.

#### **D.** Physiology

- Respiratory System: Mechanism of breathing, respiration in the cell, transport of O2 and CO2 in the i) blood, lung volume and capacity.
- Circulatory System: Haemodynamic parameters (BP/Pulse/CO)
- ii) GI System: Digestion, nausea, vomiting iii)
- Excretory System: mention the name of excretory organ in our body
- Endocrine system: mention the name of endocrinal gland in our body iv) V)

#### E. Pharmacology

- a) General Pharmacology, drug allergy & idiosyncrasy, drug toxicity, different routes of administration.
- c) Drugs acting on CNS/PNS Anesthetics, alcohols, alkaloids, narcotics, analgesics, antipyretics, sedatives, stimulants & psychotherapeutics.
- d) Drugs acting on CVS.
- e) Drugs acting on respiratory system.
- f) Antibiotics & chemotherapeutic agents
- g) Hormones and drugs affecting endocrine function.
- h) Drugs acting on G.I. System
- i) immunonodulators
- j) vitamin D, Calcium, Iron, Blood related diseases
- k) Heavy metals & antagonists
- l) Drugs acting on Muscles, muscles relaxants.
- m) Chemical Signaling by neurotransmitters & hormones
- n) Drug abuse, dependence and addiction

### Paper II: Basic Nursing & EVS

- 1. Care of critically ill patients, unconscious patients, patients on ventilation, post-operative patients
- 2. Infection & sterility (specially hand washing)
- 3. Equipment: nasogastric tube, urinary catheter, airways (oropharyngeal/ nasopharyngeal), laryngoscopes, endotracheal tube, chest drains, abdominal drain.
- 4. Monitors: ECG, multichannel monitors, bed side monitors (BP, Pulse, temperature, urine, consciousness level, respiration)
- 5. Cleaning of instruments
- 6. AMBU bag
- 7. IV cannula, fluids, IV sets, glucometer
- 8. Cardiac arrest: definition, causes
- 9. CPR:
  - Definition, indication, types i)
  - BLS (in detail) ii)
  - Self-protection during assisted breathing iii)
  - Method of chest compression iv)
  - Assessment of result of CPR V)
- 10. Environmental Sciences

#### Paper III: Basic Surgery

- 1. Name of General Surgical Instruments & their use
- 2. Cleaning & sterilization of OT instruments
- Suture: types & uses 3.



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- 4. Diathermy : types, advantages & disadvantages
- 5. Methods of haemostasis
- 6. Layout of instruments
- 7. Various position
- 8. Counting of instruments in OT
- 9. Sterilization & draping of surgical area
- 10. Different types of abdominal incision
- 11. Surgical bleeding & methods of haemostasis
- 12. Basic general surgical procedures
- 13. Appendicectomy / hernioplasty/ hernioraphy / phimosis / cholecystectomy / abscess drain/ fistula -in-ano / fissure, features of long bones, types of fractures.
- 14. Introduction of obstetrics and gynecology- maternal and child health care / neonatal care / vaxxination / normal pregnancy, normal delivery, C/S, Hysterectomy.

#### Paper IV: Basic Anaesthesia& General Medicine

#### **Basic Anaesthesia**

- 1. General Anaesthesia: premedication, induction of GA, intubation, maintains of GA
- 2. Drugs related to GA: induction agent, muscle relaxant, analgesic, sedative, anticholinergic, reversal agent
- 3. Regional anaesthesia: spinal / epidural/ local block (upper extremity)
- 4. Drugs related to RA: local anaesthesia (LA), classification of and side effects of LA
- 5. Monitoring during GA and RA
- 6. Fasting guidelines for elective Surgery
- 7. Overview of drugs used in OT & critical care unit
- 8. Diuretics (frusemide, mannitol), inotropes, steroids, bronchodialators, antitubercular drugs, antibiotics.
- 9. Consent for surgery and anaesthesia

#### **General Medicine**

#### 1. Diseases of Respiratory System

Chronic Obstructive Pulmonary Diseases, Bronchial Asthma, Pneumonia, Lung Abscess, Bronchietasis, Pleural Effusion & Empyema Pneumothorax, Pulmonary tuberculosis, Respiratory Failure, Interstitial Lung Diseases, Pulmonary Embolism.

#### 2. Diseases of GI System & Hepato-Biliary Disorder

Peptic Ulcer, Malabsorption Syndrome, Inflammatory Bowel Diseases, Upper GIS bleed, jaundice, viral hepatitis, Cirrhosis of Liver, Acute Pancreatitis.

#### 3. Diseases of Kidney

Glomerulo Nephritis, Acute Renal Failure, Chronic Renal Failure, Dialysis, Nephrotic Syndrome, Urinary Tract Infection.

#### 4. Hematological Diseases

Approach to a patient with hematological Disease, anemia & its different types, leukemia Haemophilia, Haemoglobinopathies, Purpura, Oncology-Lymphomas, Lung Carcinoma.

#### 5. Endocrine & Metabolic Diseases

Acromegaly, gigantism & dwarfism, Diabetes Insipidus, Diabetes Mellitusus, Hyperthyroidism, Hypothyroidism, Adrenal hypo-function& hyper function, Diabetes Neuropathy, Diabetes Foot, Hypoglycemia, Vit-D, Calcium Metaboilism, Parthyroid Gland Disorder, Lipid Disorders.

#### 6. Nutritional Diseases

Obesity, Protein Energy Malnutrition, Common Vitamin Deficiencies



#### 7. Connective tissue Diseases

Rheumatic Arthritis, Gout, Vasculitides

#### 8. Infection Diseases

Malaria, Filaria, Tetanus, Kala-azar, Typhoid, AIDS, Diarrhoea

### 9. Diseases due to Environmental Factors

Heat Stroke, Radiation Injury, Snake Bite, General Principles of Management of Poisoning, Organo-Phosphorous Poisoning, Sedative and Hypnotic Poisoning

#### 10. Cardiology

Acute Rheumatic Fever, Etiology, Valvular Heart diseases like Mitral Stenosis, Mitral regurgitation, Aortic Stenosis, Aortic Regrugitation-Clinical features and Assessment, Congestive Heart Failure, Peripheral Vascular Diseases & Deewp Vein thrombosis, common Cardiac Arrhythmias

### 2<sup>nd</sup> YEAR SYALABUS

<u>Sl no</u>	<u>Subject</u>	Theory	<u>Practical</u>	<u>Total no.of</u> <u>hours</u>
1.	Basic sciences-II	<u>70</u>	<u>30</u>	<u>100</u>
2.	Obstetrics-	<u>70</u>	<u>130</u>	<u>200</u>
3	Laboratory Science-II	70	130	<u>200</u>
<u> </u>	CSSD-I	70	130	<u>200</u>
	Total	280	420	700

### Paper I: Basic Science II

#### 1. Microbiology:

- 1. General Microbiology
- 2. Infection Control: Infection, Sterilization & Disinfection, Hospital-Acquired Infection & its Control
- 3. Medical Bacteriology: Staphylococcus, Streptococcus, Vibrios, Pseudomonas
- 4. Medical Virology: General Properties of Virus, Hepatitis Virus, Tumour Virus
- 5. Medical Parasitology: Intestinal Protozoa, Blood and Tissue Protozoa
- 6. Medical Mycology: Basic Mycology
- 7. Laboratory Diagnosis of Systemic Infection: Respiratory Tract Infection, Urinary Tract Infection, Malaria, Dengue, Tetanus.

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8. Vaccines

#### 2. Haematology:

- 1. Blood cell-R.B.C, W.B.C, Platelets,
- 2. Haemoglobin
- 3. Blood transfusion,
- 4. Coagulation,
- 5. Blood group,
- 6. HaemolyticAnaemia,



- 7. Polycythaemia,
- 8. Haemological Malignancies,
- 9. Nautropenia,
- 10. Coagulopathy,
- 11. Leukocytes disorders- Leukaemia, Leukocytosis
- 12. Agranulocytosis Bleeding disorders,
- 13. Haemophilia, Neutrophilia, Eosinophilia
- 14. Bleeding time, Clotting time
- 15. Laboratory Tests

#### 3. Pathology:

- 1. Inflammation,
- 2. Abscess,
- 3. Necrosis
- 4. Gross overview of systemic pathology
- 5. Cytopathology
- 6. Histopathology-technique,
- 7. Tumour: benign &mallignent
- 8. Biopsy

### PaperII: Obstetrics-Gynaecology&Paediatrics

#### Obstetrics

- 1. Diagnosis of Pregnancy
- 2. Method of Obstetrical Examination
- 3. Antenatal Care
- 4. Preconceptional Counseling and care
- 5. Antenatal Assessment of Fetal Wall Being
- 6. Post Natal Care
- 7. Overview of Puerperium
- 8. Management of Puerporial problems
- 9. Hemorrhage in early pregnancy
- 10. Multiple pregnancy
- 11. Polyhydramnios
- 12. Oligohydramnios
- 13. Hypertensive Disorder in Pregnancy
- 14. Antepartum Hemorrhage
- 15. Medical and surgical disorders
  - i. Diabetes
  - ii. Anaemia
  - iii. Heart disease
  - iv. Acute pain in abdomen
  - v. HIV
- 16. Preterm labor PROM, IUFD
- 17. Post cesarean Pregnancy
- 18. Rh Negative Pregnancy
- 19. Family Planning
- 20. Safe motherhood
- 21. Reproductive and Child Health at MMR.

#### Gynaecology

- 1. Examination of patients
- 2. Leucorrhoea
- 3. Pruritus vulvae
- 4. Lump in abdomen
- 5. Prolapse
- 6. Menstrual disorder
- 7. Carcinoma cervix
- 8. Post menopausal bleeding
- 9. Pelvic pain and low back ache

#### Paediatrics

- 1. Growth and Development of a child from birth to 12 yrs of age indicating physical and adaptive developments.
- 2. Maternal and neonatal factors contributing to high-risk pregnancy
- 3. Neonatal and Maternal infections.
- 4. Maternal heart diseases, renal failure, tuberculosis, diabetes etc.
- 5. Community Health Program like PPP, blindness, Deafness and immunization Schedule.
- 6. Cerebral Palsy: definition, outline of etiology of parental, perinatal and postnatal causes. Classification, clinical features and assessment based on musculo skeletal system. Outline of associated defects like mental retardation, microcephaly, hearing and speech impairment, squint and convultion.
- 7. Muscuklar Dystrophy: Various forms mode of inheritance, clinical manifestations and its management physiotherapeutic ally.
- 8. Spina Bifida Meningomyelocele: outline of development clinical manifestations, bladder bowel control, hydrocephalus
- 9. Stills Disease: classification, pathology in brief, physical findings, course and prognosis. Prevention and correction of deformity.
- 10. Acute CNS infection: classification, clinical findings, sequel leading to mental retardation, blindness, deafness speech defect, motor paralysis, bladder and bowel problems, seizure disorders feeding difficulties and pressure sores.
- 11. Normal diet for newborn and child, dietary calorie, fat, protein, minerals and vitamins requirements in normal child as well as in malnutrited child.
- 12. Lung infection: outline of clinical finding complications of bronchitis's lung abscess, bronchial asthma, cystic fibrosis) primary complex in infants and children
- 13. Acute pediatric distress syndrome, neonatological& pediatric surgical care.
- 14. Neonatal and pediatric cardiovascular problems.

#### Paper III: Laboratory Science-I

#### 1. ECG

- 1. Definition
- 2. Indication
- 3. Details of ECG Machine
- 4. Monitoring
- 5. E.C.G Report Reading
- 6. Arrhythmias Cardiovascular response to anesthetic and surgical procedure
- 7. Myocardial infarction
- 8. Hypertension

#### 2.Blood transfusion



- 1. Blood grouping
- 2. Storage
- 3. Administration
- 3. Fluid & Electrolyte: Body fluids--composition

#### 4. Balance & Replacement:

- 1. Water, sodium & potassium balance
- 2. I.V. fluids--composition & administration
- 3. I.V. cannulation

#### 4. Blood Conservation:

- 1. Medical blood conservation technique
- 2. Preoperative blood conservation technique
- 3. Intraoperative blood conservation technique
- 4. Postoperative blood conservation technique

#### Paper IV: CSSD-I

#### 1.Care & maintenanceof Ventilators

- 16. Care of patient on ventilator--Ensuring proper
- 17. Placement of tube
- 18. Cuff pressure
- 19. Suctioning,
- 20. Humidification
- 21. Chest physio
- 22. Ventilator setting
- 23. Monitoring ventilator parameters

#### 2. Maintenance

- 1. Ventilators
- 2. CPAP machines
- 3. BiPAP machines
- 4. Pumps
- 5. Infusion
- 6. Syringe,
- 7. Monitors: Stand alone&multiparameter ECG Machine
- 8. ABG Machine
- 9. Defibrillator

#### 3. Suction machine

- 1. Description
- 2. Function
- 3. Utilization

#### 5. Monitoring Device

- 1. Description
- 2. Function
- 3. Utilization

#### 6. Sterilization technique and CSSD:

1. Wet heat (autoclaving, boiling)



- 2. Dry heat (flaming)
- 3. Filtration
- 4. Solvents
- 5. Radiation

### **3rd YEAR SYALABUS**

Sl no	Subject	Theory	Practical	<u>Total no.of</u> <u>hours</u>
1.	Ophthalmology, ENT, Psychiatric, Orthopedic	<u>70</u>	<u>230</u>	<u>300</u>
2.	Laboratory Science-II	<u>70</u>	<u>130</u>	200
3.	Community Health & Research Methodology	<u>70</u>	<u>130</u>	200
4.	Hospital Organization & Administration, Medical Ethics	<u>70</u>	<u>130</u>	200
	Total	<u>380</u>	<u>620</u>	900

### Paper I: Ophthalmology, ENT, Psychiatric, Orthopedic

#### Ophthalmology

- 1. Anatomy of the eye and ocular adnexa
- 2. Embryology of the eye and adnexa
- 3. The visual pathways
- 4. Motor mechanism
- 5. Physiology of vision, colour vision, accommodation
- 6. Binocular vision and its development
- 7. Maintenance of intra ocular pressure
- 8. The Neurology of vision (Visual pathway, papillary pathways and reaction) dark Adaptation.
- 9. Optics elementary Physiological optics, optics of radioscopy and other dark Room procedures and ophthalmic equipments.

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- 10. Aqueous humour and its circulation and maintenance of intraocular Pressure.
- 11. Maintenance of corneal transparency.
- 12. Tear circulation
- 13. Blood aqueous barrier.

#### ENT

- 1. Anatomy and Physiology of ear, nose and throat, trachea and esophagus.
- 2. The generation and reception of speech
- 3. Radiographic anatomy of the ear, nose, throat and imaging.
- 4. Bacteriology in relation to Otorhinolaryngology
- 5. Allergy and rhinitis
- 6. Haematology in relation to Otolaryngology
- 7. Anaesthesia for Otolaryngology
- 8. Pharmacology of drugs used in ENT
- 9. Electrolyte, fluid balance/shock conditions

- 10. Use of teaching aids
- 11. Routine blood, urine testing
- 12. Preparation of slides
- 13. Facial nerve stimulation test
- 14. Audiometric tests like pure tone Audiometry, Impedance Audiometry, Free field Audiometry, Specialized tests of hearing including SISI, Tone decay, ABLB, Speech discrimination score etc.
- 15. Vestibular tests like caloric testing (Water and Air) stopping test, Fukuda's test,
- 16. Evoked response audiometry.

#### Psychiatric

- 1. The method of taking a psychiatric history, and conducting a mental state examination
- 2. The nature and prevalence occurring in primary care of psychoneuroses, including anxiety disorders and mood disorders. This should include an awareness of the many presentations including somatic presentations of these disorders in the primary care setting
- 3. The manifestations of the major functional psychoses, especially schizophrenia and the affective psychoses
- 4. The main features of substance-related disorders. Special emphasis is placed on the recognition of hidden alcoholism in general practice together with strategies for successful intervention and the main treatment methods used
- 5. The management of psychiatric emergencies as they present in the community
- 6. The assessment of suicidal risk and the management of the suicidal patient
- 7. The psychiatric disorders of pregnancy and the puerperium
- 8. The diagnosis and management of normal and abnormal grief reactions
- 9. The assessment of sexual dysfunction and its appropriate management
- 10. The principal manifestations and management of psychological dysfunction in children and adolescents.
- 11. Knowledge of the procedures to be adopted relating to sexual abuse.
- 12. The recognition and treatment of functional disorder in the elderly.
- 13. Familiarity with the management approaches to dementia in primary care
- 14. Some knowledge of forensic psychiatry especially as it pertains to committal of patients to hospital
- 15. The development of personality and its disorders
- 16. The therapeutic potential of the doctor-patient relationship and the main elements of psychotherapy including psychodynamic psychotherapy, behaviour therapy and cognitive therapy
- 17. The appropriate referral of patients for specialist psychiatric opinion and their appropriate referral to counselling and support groups, voluntary organisation and statutory agencies in the community
- 18. The psychopharmacology of those psychotropic agents commonly used in primary care

#### Orthopedic

**1. Introduction to Orthopaedics:** Introduction to orthopaedic terminology. Types of pathology commonly dealt with, clinical examination, common investigations X- rays & imaging techniques and outline of non - operative management.

 Sprains and Muscle Strains: List common sites of sprains and muscle strains and describe the clinical manifestations and treatment, viz. Tennis Elbow, Golfer's Elbow, Dequervain's disease, Tenovaginitis, Trigger finger, Carpal Tunnel Syndrome and Plantar Fascitis etc.

#### 3. Fractures and Dislocations: General Principles, outline the following:

- a. Types of Fractures including patterns. Open and closed fractures and fracture dislocations
- b. Differences between dislocation & subluxation.
- c. General & Local signs & symptoms of fractures & dislocation.
- d. Principle of management of fractures & dislocations.



- e. Prevention & treatment of complications including: Fracture disease, Volkmann's Ischeamic Contracture, Sudeck's Atrophy, Carpal Tunnel Syndrome. Myositis Ossificans and Shoulder- Hand syndrome
- f. Fracture healing.

### 4. Upper Limb Fractures & Dislocations

- a. Enumerate major long bone fractures and joint injuries.
- b. Briefly describe their clinical features, principles of management and complications.

#### 5.Lower Limb Fractures & Dislocations

- a. Enumerate major long bone fractures and joint injuries.
- b. Briefly describe their clinical features, principles of management and complication.

**6.Spinal Fractures and Dislocations:** Outline the mechanism, clinical features, principles of management and complications of spinal injuries.

#### 7.Amputations

- a. Classify amputations. List indication for surgery,
- b. Outline pre-operative, operative and prosthetic management.
- c. Outline prevention and treatment of complications.

**8.Bone& Joint Infections:** Outline the etiology, clinical features, management and complications of septic arthritis osteomyelitis, Tuberculosis (including spinal T.B.).

**9. Bone Joint Tumors:** Classify and outline the clinical features, management and complications of following (benign / malignant bone and joint tumors, Osteomas, Osteosarcomas, Osteoclastomas, Ewing's sarcoma, Multiplemyeloma)

10.Chronic Arthritis: Outline of pathology: clinical features, mechanism of deformities, management and complications of: Rheumatoid arthritis. Osteoarthritis of major joints and spine, Ankylosing spondylitis.

**11.Congenital Deformities:** Outline the clinical features and management of Congenital TelepusEquinoVarus (CTEV) Congenital Dislocation of the Hip, Flat foot, vertical talus, limb deficiency (radial club hand and femoral, tibial and fibula deficiencies) meningomyelocoele, Arthrogrypbosis**multiplex** congenita and Osteogenesis imperfecta.

12.Peripheral Nerve Injuries: Outline the clinical features and management, including reconstructive surgery of:

- a. Radial, median and ulnar nerve lesions.
- b. Sciatic and lateral popliteal lesions.
- c. Brachial Plexus injuries including Erbs, Klumpke's and crutch palsy, Claw Hand

13.Poliomyelitis: Describe the pathology, microbiology, prevention, management and complicate polio. Outline the treatment of residual paralysis including use of orthosis, Principles of muscle transt and corrective surgery.

14.Leprosy: Outline of clinical features, management and complications of neuritis, muscle paralysis tropic ulceration and hand & feet deformities.

#### PaperII: Laboratory Science-II



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#### 1. Investigations

Collection of specimens & Culture: FNAC, HPE specimen, Urine for culture and sensitivity test, Stool examination, Skin test, LFT, RFT, GTT, Fungal, AFB, Gram-ve&+ve, Pleural fluid, Ascitic fluid,

#### 1. Blood

Coagulation disorder (Prothombin time), importance of determination of red cell indices, Haematocrit, Polycythemia, Hyper natrimia, Hypocalcimia, Hyperkalemia, Blood urea & creatinine, Blood protein

#### 2. Diseases: Diagnosis & Management

Typhoid, UTI, Tuberculosis, Obstructive jaundice Haematomesis, Haematuria, Diabetes (Hypoglycemia), Septic shock

4.Basics of Imaging: Techniques & Equipments

- a) X-ray: definition, Types of Xray, Preparation of Pt for X-ray, Method of X-Ray, Handling of X-ray machine, Different parts of X-ray machin(Fix RAD system, Mobile X-ray system), X-ray of abdomen, chest, lower & upper GI tract, bones, Barium swallow X-ray
- b) USG: definition, diagnostic applications (system/speciality) from sound to image, sound in the Body, modes of Sonography.
- c) Expansion :Droppler ultrasonography, Contrast ultrasosnography, Molecular ultrasonography, Elastrography, Compression ultrasonography), Attributes (strength, weaknesses), Risk & side effects, Safety of USG. USG in obstretics (society & culture), Regulation
- d) Piezoelectric crystals, Gadolinium, Fluroscopy, CAD
- e) Echocardiogram, Ultrasound, Droppler study (Echo Droppler), Hydatid cyst, CT Scan, PET Scan, MRI, Angiography (Peripheral), Echocardiography.

#### PaperIII: Community Health & Research Methodology

#### **Community Health**

- a. Concept of dimension of health. Concept of community health. Concept of disease and control of disease.
- b. Determinants of health, responsibility of health.
- c. Community health indicators. Health care of pregnant and lactating mother and infant in India.
- d. Primary idea about present community health care ecosystem.
- e. Primary health care in India mother-child health care system -village level, sub centre level, primary health centre, community health centres.
- f. Sources of health information system.
- g. Non- Governmental agencies in community health care system.
- h. System of health care awareness in community in rural and urban areas. Community nutrition programmes for community health care.
- i. National strategies for community health up gradation.
- Emotional problems of daily living. j.
- Family planning, impact of ethnicity, gender and sexual orientation on the community and health care. k.
- Cultural background of patients and their community and public health needs. 1

#### **Research Methodology**

#### 1.Introduction to Research:

Nature of Research - meaning, Purpose, Characteristics - types of research - Process of research - Selection and specification of research problem - Preparation of research design - Types of designs - difficulties in health care

research

#### 2. Methods of Research :

Survey, experimental, case study, observational, historical and comparative methods - their nature, merits and limitations.

### **3.Data Collection and Presentation :**

Nature of data, kinds of data and limitations of data.Methods of collecting data - census vs sampling. Methods of sampling and sampling designs.

Techniques of data collection: Questionnaire, schedule, interview - Measurement and scaling techniques - rating scales - attitude scales.

Presentation of data - Editing, coding, classification, Tabulation, graphic and diagrammatic presentation of data.

## PaperIV: Hospital Organization & Administration, Medical Ethics

### **Hospital Organization & Administration**

### 1.Introduction to Hospital Administration

- a. Who's Who in hospital Key administrators and their functions, overview of medical and para-medical specialities, main service departments:
- b. Overview of health services government services: private & not for profit: primary; secondary & tertiary health care: types of hospital: community, super - speciality etc.

#### 2. Principles of Organizational Management

- a. Culture, Values and Mission
- b. Organizational Structure
- c. Planning and Controlling
- d. Hospital Organizational Structures Government, Private and Not for Profit

#### **3.**Clinical Services

- a. Overview of clinical departments and services OPD, In-patients, ICU, Surgical, Emergency, community/family Health, Paramedical & Rehabilitation
- b. Types of doctors, their training, roles and responsibilities
- c. The role & responsibilities of the HOD
- d. Medical Audit
- e. Medical Negligence & Litigation

#### 4.Patient Services (non medical)

- a. Reception, Welcome / Help Desk
- b. Patient facilities, wheelchairs, Ambulances
- c. Public Retation- objectives, functions, policies, different media, methodologies, networking

#### **5.Managining Support Services**

- a. Overview of functions of all support services including Laundry, Catering, Cleaning, CSSD, Transport, Security, materials (Purchase & Store) etc.
- b. Function of GS Office

#### 6. Hospital Information Systems

a. Analyzing information requirements

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- b. Reporting systems
- c. Early warning systems
- d. Computerized systems

#### **Medical Ethics& Consumer Protection Act**

Laws relating to Hospital Administration:

#### 1. Structure of Indian Judicial System

Subordinate courts- various Tribunals- high court and Supreme court- their working relationships and effect of orders.

#### 2. Medico-Legal cases

IPC- Medicals Termination of Pregnancy Act 1971, transplantation of Human Organs Act.

#### 3. Law of Contract

Patients as consumer- Law of Tort- Composition of D.C.D.R.F., S.C.D.R.C and N.C.D.R.C- Powers, Terms, and Jurisdiction, Enforcement of orders.

#### 4. Medical Negligence

Medical Negligence- Gross Negligence-Criminal Negligence-Onus of Proof- Prevention of such Negligence.

#### 5. Liabilities and Compensation

Vicarious Liabilities- Liability of Medical Professionals and Paramedical Staff- Quantum of Compensation-Applicability of provisions of Consumer Protection Act for various institutions.

#### 6. Consumer Protection Act 1986

Various provisions- structure, powers and jurisdiction of various forums constituted in C.P. Act-orders-how enforced.

#### 7. Consent

Definition, various types of Consent: consent forms-"informed Consent" in clinical trials- Consent as a processfull proof methods for proper Consent- various defects in obtaining Consent.

#### 8. Important Case Studies

District Forums, State Consumer Disputes Redressal Commission-National Consumer Disputes Redressal Commission Case Study as how cases were decided







## CLINICAL TRAINING

### **Content and purpose**

The clinical component has been designed to complement the academic program and runs throughout the course.



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The placement has to be designed so that the students will be able to observe the practical application of the academic course wherever possible. Content can be tailored to meet either National or Local needs as is deemed to be most appropriate.

### 1st Year:Introduction to the Hospital Setting

The purpose of this phase is :

- i. For the students to become familiar with some of the practical applications of the academic course
- ii. To introduce the wider hospital setting
- iii. To help the students to identify the various disciplines within a hospital, their role and theimportance of cooperation.
- iv. Tointroducepatientsinaclinicalsettingandbegintoacquirebasiccommunicationskills.

### 2nd Year: Skills Necessary to work in a Hospital

To be completed very early in the training. The following procedures will be demonstrated to the students who will be expected to observe or participate as appropriate.

### General procedures to be observed when patients attend for appointment

- Lifting and moving techniques. .
- Administration of bedpans, vomit bowls, etc.
- Care and management of drugs in the hospital setting.
- Correct procedures when dealing with patients with infectious diseases
- University precautions.

### Correct procedures when dealing with immuno-compromised patients:

- Hygiene practices
- Simple dressings
- Sterile procedures
- Oxygen administration

#### Care of patients with:

- Breathing difficulties
- Terminal illness
- Mental impairment
- Physical disability
- Special care of the geriatric and pediatric patient
- Stoma care
- Handling of patients with bone metastases
- · Care of the patient following an anaesthetic
- Care of lines in the incubated patient .
- Communication skills with patients and relatives
- Terminally ill and Hospice2nd & 3rd year : Skills Related to working in a department

#### Introduction to the department

Time will be spent on each unit within the department. The purpose of this phase is to :In the department .

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- Familiarize the students with the different units within the department and the procedures carried out on each unit.
- Enable the student to recognize and relate to the basic terminology introduced in the academic program.
- Help to establish a sense of identity within the student group and to understand the role of the Technology in the management of various cases.
- Introducethestudentstothestaffofthedepartment.
- Help the student to understand team roles.
- FamiliarizethestudentswithwrittenQAprogramswithinthedepartment.

#### **Equipment's and Integration:**

- Begin to become competent in the manipulation of the equipment.
- · Be able to communicate effectively with patients.
- Begintointegrateintothedepartmentaspartinspecificandmultidisciplinaryteams.
- Begintoempathizewithpatientsandtoappreciatetheirownfeelingsintheclinicalsituation.
- · Being able to handle and achieve proficiency in mould room techniques.

#### Safety & Precautions in Practice:

- Identifying the functions of various equipment and safe handling.
- Identifying the functions on a control panel, indicating their purpose and safely using these when appropriate. Safelyusing the accessory equipment in the correct context.
- Correctlyandsafelyusingequipmentrelatedtopatientimmobilization.
- Demonstrating the correct procedure for various techniques

#### To Achieve Clinical CompetenceThe purpose of this phase is for the students to :

- Demonstrate competence in the manipulation of equipment.
- Demonstrate an ability to anticipate the physical and psychological needs of the patient andrespond to them.
- Increasinglyparticipateasateammemberinallaspectsofthepatient'smanagement.
- Demonstrate competence in simulator procedures.
- Acquirebasiccomputerskills.
- · Participate in the development / revision of formal written quality assurance procedures / programme.
- Set up a patient on their first visit.

#### To achieve final competency substantial time will be spent:

- Setting up multi field techniques under supervision.
- Participating in the quality control procedures in the department in accordance with the protocols.
- Simulatingandlocalizingatargetvolume.
- Discussingtheroleoflocalrulesandoutlinethoseinplaceinthedifferentdepartments.

#### Graded Responsibility (structured training schedule)

I year : Theory classes, observation in treatment planning and treatment execution.

II year : Theory classes, participation in OPD, mould room techniques, treatment planning, treatment execution under the supervision of consultant, senior technologist, project work.

III year : Theory classes, participation in OPD, Treatment planning and execution under supervision of consultant & Senior Technologist. Submission of Project Work, Mould Room Techniques, Quality Assurance.







#### **Rotation posting**

Students may be posted to other relevant departments or other centers with better and latest equipment's for a minimum period of 1 to 2 months, for completion of training in recent advance in the specialty. The student on completion of the training shall submit a report duly signed by the concerned department to the HOD.

#### **Monitoring Learning Progress**

It is essential to monitor the learning progress of each candidate through continuous appraisal and

**RegularAssessment:** It not only also helps teachers to evaluate students but also students to evaluate themselves. The monitoring be done by the staff of the department based on participation of students in various teaching / learning activities. It may be structured and assessment be done using sample checklist provided (Assessment forms).

The learning out comes to be assessed should include:

- i. Personal Attitudes
- ii. Acquisition of knowledge
- iii. Clinicalandoperativeskills
- iv. Teachingskills

Candidate should be encouraged to participate in teaching activities, seminars and literature reviews.

1. Periodictests:

The departments may conduct periodic tests (Internal Assessment), the tests may include written papers, practical with viva voce.

#### Work diary / Log, Personal Attitudes.

The essential items are:

- · Caring attitudes
- Initiative
- Organizational ability
- · Potential to cope with stressful situations and undertake responsibility
- · Trust worthiness and reliability
- · To understand and communicate intelligibly with patients and other
- · To behave in manner which establishes professional relationships with patients and colleagues
- · Ability to work in team

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 A critical enquiring approach to the acquisition of knowledge the methods used mainly consist of observation. It is appreciated that these items require a degree subjective assessment by the guide, supervisors and peers.
3. AcquisitionofKnowledge: The methods used comprise of 'Log Book' which records participation in various teaching / learning activities by the students. The number of activities attended and the number in which presentations are made are to be recorded. The log book should periodically be validated by the supervisors, some of the activities are listed. The list is not complete. Institutions may include additional activities, if so, desired.
4. TechnicalskillsDay to day work : Skills on the machines should be assessed periodically. The assessment should include the candidates' sincerity and punctuality, analytical ability and communication skills.

**Clinical and procedural skills:** The candidate should be given graded responsibility to enable learning by apprenticeship. The performance is assessed by the guide by direct observation. Particulars are recorded by the student in the log book.

#### 5. TeachingSkills:

Every candidate shall maintain a work diary and record his / her participation in the training programs conducted by the department such as practical, literature reviews, seminars, etc. Special mention may be made of the presentations, by the candidate as well as details of practical or laboratory procedures, if any conducted by the candidate.

#### 6. Records:

Records, log books, project report and marks obtained in tests will be maintained by the Head of the Department and will be made available to the University as indicated. The record books maintained by the student should be submitted to the Head of the Department 6 months prior to completion of the course and the head of the department makes a certification of the of the academic progress an assessment of student performance through out the said course shall be made by the HOD.

The log book is a record of the important activities of the candidates during his training internal assessment should be based on the evaluation of the log book collectively, log books are a tool for the evaluation of the training programme of the institution by external agencies. The record includes academic activities as well as the presentations and procedures carried out by the candidate.



