# SYLLABUS FOR MD PEDIATRICS

## 1. Goal

The Goal of M.D. (Pediatrics) Program is to provide training in Pediatrics and Neonatology to produce competent specialists who are able to provide basic and specialty care of the highest order to neonates, infants, children and adolescents at the community level and at primary, secondary and tertiary levels of health care, and to act as future trainers, teachers, and researchers in the field of Pediatrics and Neonatology.

## 2. Course Description

MD (Pediatrics)

Duration: 3 years

Eligibility: MBBS

## 3. Intramural and Extramural Rotation

MD (Pediatrics):

- At least 4 and not more that 8 months in Neonatology.
- At least 3 and not more than 6 months in sub-specialty areas: Intensive Pediatric Care Unit (IPCU), Genetic Clinic, Thalassemia Care Centre, Emergency Pediatric Services.
- At least nil and maximum 6 months in Allied areas: Hematology, Infectious Diseases,

**Dermatology, Cardiology, Nephrology, Chest Medicine, Gastroenterology.**

The Department of Pediatrics will decide the posting of students in Neonatology and Allied Branches and Sub- specialty areas.

**SYLLABUS**

**1) KNOWLEDGE**

| Sl. No. | Knowledge, Must know | Knowledge, Desirable to Know |
|---|---|---|
| | **The Field of Pediatrics** | |
| 1 | Evaluating Medical Literature and Critical appraisal of Journal articles | History of Pediatrics |
| 2 | Overview of Child Health | Traditions and Cultural Issues pertaining to Child Care |
| 3 | The Normal Child | |
| 4 | Preventive and Social Pediatrics | |
| 5 | Epidemiology, statistics and Research Methodology including Dissertation | |
| 6 | Ethical Issues in Pediatrics | |
| | **Growth and Development** | |
| 1 | Models of Development | IQ assessment |
| 2 | Fetal growth and development | |
| 3 | The newborn growth and development | |
| 4 | Infant, Preschool, Early School, and Adolescent growth and development | |
| 5 | Assessment of Growth | |
| 6 | Developmental Assessment | |
| 7 | Standards / Nomograms (including Indian) | |
| 8 | Approach to Short stature | |
| 9 | Approach to Obesity | |
| 10 | Approach to under nutrition | |
| | **Psychological Disorders** | |
| 1 | Assessment and Interviewing | Psychiatric considerations of CNS injury |
| 2 | Vegetative Disorders-Rumination, Pica, Enuresis, Encopresis | |
| 3 | Sleep disorders | |
| 4 | Habit Disorders | 2 Mood Disorders |
| 5 | Anxiety Disorders | 3. Disruptive Behavioral disorders |
| 6 | Suicide | 4. Sexual behavior and its variations |

| | | |
|---|---|---|
| 7 | Attention deficit and hyperactivity disorders | 5. Pervasive developmental disorders and childhood psychosis |
| 8 | Autism | 6. Psychological treatment |
| 9 | Poor scholastic performance in school age child | 7. Neurodevelopment dysfunction |
| 10 | Psychosomatic Illness | 8. Learning disorders |
| | **Social Issues** | |
| 1 | Adoption | Effects of a mobile society |
| 2 | Street Child | Impact of Violence |
| 3 | Child Care | |
| 4 | Separation, death | Single parent child |
| 5 | Child rights and protection<br>Media (TV, Movies) and its effect on the child | Foster care |
| 6 | Child Labor | |
| 7 | Media (TV, Movies) and its effect on the child | |
| | **Children with special Needs** | |
| 1 | Failure to thrive- Problems, Approach and Evaluation | Children in Poverty |
| 2 | Developmental disabilities, Chronic Illness | Homeless children |
| 3 | Mental Retardation- Problems, Approach and Evaluation | Foster Children |
| 4 | Care of Child with fatal illnesses | Runaway children |
| | **Nutrition** | |
| 1 | Nutritional Requirements- Water, Energy proteins, carbohydrate ,Fats, Minerals, Vitamins | |
| 2 | Diet and Nutritional Evaluation | |
| 3 | Diet for later childhood and adolescent | |
| 4 | Infant and Child Feeding | |
| 5 | Breast Milk Feeding, Human Lactation Management, BFHI | |
| 6 | Nutrition Values of Indian Foods, Recipes. | |

| | | |
|---|---|---|
| 7 | Weaning foods | |
| 8 | Feeding through 1st and 2nd Years | |
| 9 | Nutritional disorders Including Obesity | |
| 10 | Protein energy Malnutrition | |
| 11 | Vitamin Deficiencies and Excess | |
| 12 | Micro nutrient Malnutrition | |
| 13 | Nutrition in Special situations- LBW and Premature babies, Inborn errors of Metabolism, Chronic Illness, Surgery, Critically ill child | |
| 14 | TPN | |
| | **Patho-physiology of Body Fluids and Fluid therapy (Approach and management)** | |
| 1 | Physiology of Fluids, electrolytes and Acid Bases | |
| 2 | Dehydration and fluid management | |
| 3 | Electrolyte disorders | |
| 4 | Acid Base Disorders | |
| 5 | Special Situations – Pyloric stenosis, CNS disorders, Burns, Peri-operative, endocrine disorders, Renal Failure and others | |
| | **Acutely Ill Child** | |
| 1 | Evaluation in Emergency situations | 1. Pediatric Anesthesia |
| 2 | Injury control | |
| 3 | Emergency Medical Services | 2. Organization of a PICU/NICU |
| 5 | Pediatric Critical Care Respiratory Failure<br>and Ventilation, Circulatory Failure and Shock, Acute Neurological Dysfunction,<br>Resuscitation – Basic and Advanced, NALS/PALS,<br>Post resuscitation stabilization,<br>Cold / Heat Injury | 3. Equipments for Intensive Care |
| 6 | Transportation of Sick child / Neonate | |
| 7 | Post-operative supportive care. | |

| | **Emergencies / Critical Care Pediatrics** | |
|---|---|---|
| 1 | Fluid abnormalities | |
| 2 | Electrolyte abnormalities | |
| 3 | Thermoregulation problems | |
| 4 | Acute Renal Failure | |
| 5 | Hypertensive crisis | |
| 6 | Congestive Cardiac failure | |
| 7 | Cardiogenic shock | |
| 8 | Pericardial tamponade | |
| 9 | Cyanotic spells | |
| 10 | Unstable and stable arrythmias | |
| 11 | Vomiting and Diarrhea | |
| 12 | GI Bleeds – Hematemesis, Melena, Hematochezia | |
| 13 | Adrenal Crisis | |
| 14 | Metabolic problems – hyperammonemia, lactic acidosis, acid base abnormalities, Hypoglycemia | |
| 15 | Septicemic shock, viral infections and shock | |
| 16 | Pneumothorax, empyema, pleural effusion, massive ascities | |
| 17 | Severe Anemia, Bleeding child, Neutropenia | |
| 18 | Pain management and Drug therapy | |
| 19 | ARDS | |
| 20 | Respiratory Failure | |
| 21 | Burns / electrocution | |
| 22 | Animal Bites | |
| 23 | Preanesthetic check up ( PAC) | |
| 24 | Sickle cell crisis, severe complicated malaria | |
| 25 | Acute severe asthma, Bronchiolitis | |
| 26 | Status epilepticus | |
| 27 | Febrile seizure | |

| | | |
|---|---|---|
| 28 | Coma, Increased intra-cranial pressure | |
| 29 | Cardiopulmonary resuscitation | |
| 30 | Shock | |
| 31 | Upper airway obstruction | |
| 32 | Near drowning | |
| 33 | Poisoning | |
| 34 | Snake bite | |
| 35 | Scorpion sting | |
| 36 | Physical abuse | |
| 37 | Sexual abuse | |
| | **Human Genetics** | |
| 1 | Molecular Basis of Genetic Disorders | |
| 2 | Molecular Diagnosis | 1. Human Genome Project |
| 3 | Patterns of inheritance | |
| 4 | Chromosomal clinical abnormalities | |
| 5 | Genetic Counseling | |
| 6 | Dysmorphism | |
| 7 | Gene therapy | |
| | **Metabolic Disorders** | |
| 1 | Approach to Inborn Errors of Metabolism(IEMs) | 1. Disorders of Purine and pyrimidine metabolism |
| 2 | Common defects in metabolism of amino acids | |
| 3 | The Porphyrias | 2. Rare defects in metabolism of amino acids |
| 4 | Common defects in Lipid Metabolism | 3. Rare defects in Lipid Metabolism |
| 5 | Common defects in carbohydrate metabolism | 4. Rare defects in carbohydrate metabolism |
| 6 | Hypoglycemia | 5. Mucopolysaccharidoses |
| | **Fetus and Newborn** | |
| 1 | Mortality and morbidity | |
| 2 | Newborn-history, examination, routine delivery care, nursery care, infant-mother bonding | |
| 3 | High risk pregnancies | |

| | | |
|---|---|---|
| 4 | Dysmorphology | |
| 5 | Fetus:<br>Growth and Maturity<br>Fetal distress<br>Maternal diseases and fetus<br>Maternal medications and toxin exposure on fetus<br>Detection, treatment and prevention of fetal disease<br>Antenatal diagnosis<br>Fetal therapy<br>Antenatal therapy<br>Counselling<br>Teratogens and radiation | |
| 6 | High risk infant:<br>Multiple pregnancies<br>Prematurity and Intrauterine Growth Retardation<br>Low Birth Weight infants<br>Post- term infants<br>Large for gestational age | |
| 7 | Congenital anomalies/malformations | |
| 8 | Birth injuries | |
| 9 | CNS disorders | |
| 10 | Organization and levels of newborn care | |
| 11 | Normal Newborn | |
| 12 | Common problems in a normal newborn | |
| 13 | Delivery room emergencies | |
| 14 | Respiratory disorders | |
| 15 | Oxygen therapy, toxicity | |
| 16 | Ventilation | |
| 17 | Hyperbilirubinemia | |
| 18 | Cardiac problems | |
| 19 | Persistent Pulmonary Hypertension of Newborn | |

| | | |
|---|---|---|
| 20 | Blood disorders<br>Polycythemia<br>Anaemia<br>Hemorrhagic disease of newborn<br>Hemolytic disease of newborn | |
| 21 | Hemorrhage in newborn infant | |
| 22 | Metabolic disorders | |
| 23 | Endocrine disorders – Infant of Diabetic Mother, | |
| 24 | Ambiguous genitalia and Congenital Adrenal Hyperplasia | |
| 25 | Fluid and electrolytes in Newborn care | |
| 26 | Nutrition and feeding the newborn – term/preterm LBW,IUGR | |
| 27 | Neonatal transport | |
| 28 | Surgical problems<br>Tracheo-esophageal Fistula with esophageal atresia<br>Anorectal malformations<br>diaphragmatic Hernia / Eventeration<br>Hirschsprung's disease<br>Urogenital anomalies<br>NEC<br>Congenital Lobar emphysema<br>Volvulus | |
| 29 | Thermoregulation | |
| 30 | Neonatal follow up | |
| | **Neonatal Infections** | |
| 1 | Epidemiology | |
| 2 | Intrauterine infections | |
| 3 | Viral infections | |
| 4 | Neonatal sepsis / meningitis | |
| 5 | Pneumonia | |
| 6 | UTI | |
| 7 | Osteomyelitis and septic arthritis | |
| 8 | Hepatitis | |

| | | |
|---|---|---|
| 9 | Nosocomial infections | |
| 10 | Universal precautions | |
| 11 | Prevention of infections | |
| 12 | Therapy – antimicrobials, adjuvants | |
| | **Adolescent Health** | |
| 1 | Epidemiology | 1. Depression |
| 2 | Growth and development | |
| 3 | Sexual development and SMR stages | 2. Suicide |
| 4 | Delivery of health care | |
| 5 | Pregnancy | |
| 6 | Contraception | |
| 7 | STD | 3. Substance abuse |
| 8 | Nutritional disorders | 4. Sleep disorders |
| | | 5. Skin, Orthopedics |
| | **Immunological system** | |
| 1 | Basics of Immunology | |
| 2 | Approach to immunodeficiency | |
| 3 | HIV | |
| 4 | Bone marrow transplantation | |
| 5 | Primary B cell diseases | |
| 6 | Primary T cell diseases | |
| 7 | Complement and phagocytic diseases | |
| 8 | Chronic granulomatous disease | |
| 9 | Chediak Higashi Disease | |
| 10 | Neutrophil abnormalities | |
| 11 | Adhesion disorders | |
| | **Allergic disorders** | |
| 1 | Allergy and Immunological basis of atopic diseases | |
| 2 | Diagnosis | |
| 3 | Adverse reaction to food | |
| 4 | Therapy – Principles | |
| 5 | Allergic Rhinitis | |
| 6 | Asthma | |

| | | |
|---|---|---|
| 7 | Atopic dermatitis | |
| 8 | Urticaria, Angioederma | |
| 9 | Anaphylaxis | |
| 10 | Serum sickness | |
| 11 | Insect allergy | |
| 12 | Ocular allergy | |
| 13 | Adverse drug reactions | |
| | **Rheumatology** | |
| 1 | Autoimmunity | 1 Ankylosing spondylitis |
| 2 | Laboratory evaluation | 2 Neonatal Lupus |
| 3 | JRA | 3 Scleroderma |
| 4 | SLE | 4 Mixed connective Tissue Disease |
| 5 | Vasculitis syndromes | |
| 6 | Dermatomyositis | |
| 7 | Erythema Nodosum | |
| 8 | Postinfectious arthritis | 5 Behcet syndrome |
| 9 | Kawasaki Disease | 6 Sjogren syndrome |
| | | 7 Non rheumatic conditions |
| | | 8 Pain syndromes, panniculitis<br>Polychondritis<br>Amyloidosis |
| | **Infectious diseases** | |
| 1 | Fever | |
| 2 | Clinical use of Micro Lab | |
| 3 | Fever without a focus | |
| 4 | Sepsis and Shock | |
| 5 | CNS Infections | |
| 6 | Pneumonia | |
| 7 | Gastroenteritis | |
| 8 | Osteomyelitis, Septic arthritis | |
| 9 | Compromised host infections | |
| 10 | Bacterial Infections | |
| 11 | Anaerobic infections | |
| 12 | Viral infections | |

| | | |
|---|---|---|
| 13 | Mycotic infections<br>Candidiasis<br>Aspergillosis | |
| 14 | Parastitic infections<br>Helminthiasis | |
| 15 | Protozoal infections<br>Malaria<br>Kala azar<br>Rickettsia<br>Giardia<br>Amoeba | |
| 16 | Antiparastitic drugs | |
| 17 | Antimicrobials | |
| 18 | Antivirals drugs, interferon | |
| 19 | Preventive measures<br>Health advice for travellers<br>Infection control | |
| 20 | Immunization<br>Principles<br>Schedules<br>Controversies<br>Standard and Optional Vaccines<br>Recent advances in Vaccines | |
| 21 | Emerging infections | |
| | **Digestive system** | |
| 1 | Normal alimentary tract<br>Physiology, Anatomy, Development | Food Allergy |
| 2 | Clinical features of alimentary Disorders, | |
| 3 | Oral Cavity | |
| 3 | Disorders of Esophagus | |
| 4 | Disorders of Stomach | |
| 5 | Disorders of Intestines except Food allergy | |
| 6 | Disorders of Pancreas | |
| 7 | Disorders of Liver and biliary system<br>Acute Hepatitis, Chronic Hepatitis, | |

| | | |
|---|---|---|
| | Cirrhosis, Metabolic Liver Diseases, Cholestatic Liver Disease, Drug and toxin induced liver injury, Neonatal Hepatitis, Complications of Liver disease – Portal Hypertension, Encephalopathy, Coagulopathy | |
| 8 | Disorders of Peritoneum | |
| 9 | GI function tests | |
| 10 | Approach to Malabsorption | |
| | **Respiratory system** | |
| 1 | Development and function | 1 Congenital disorders of nose |
| 2 | Disorders of Upper Respiratory tract | |
| 3 | Disorders of Lower Respiratory Tract | 2 Hypoventilation |
| 4 | Pleural disorders | |
| 5 | Chronic Respiratory disease<br>Interstitial fibrosis, ILD, empyema,lung abscess, bronchiectasis | 3 Hypostatic pneumonia |
| | | 4 Kyphoscoliosis |
| 6 | Recurrent respiratory Diseases | |
| 7 | Ventilation | 5. Obesity |
| 8 | Pulmonary function tests | |
| 9 | Cystic Fibrosis | |
| 10 | Obstructive sleep apnea | |
| 11 | Pulmonary Hemosiderosis | |
| 12 | Neuromuscular/ skeletal disorders affecting pulmonary function | 6. Cough Syncope |
| 13 | Bronchial Asthma | |
| | **Cardiovascular system** | |
| 1 | Investigations – Lab, ECG,CXR,ECHO,Cardiac Catheterisation | |
| 2 | Physiology and Pathophysiology of Transitional Circulation<br>Embryology<br>Evaluation of CVS | 1. Sick Sinus syndrome<br>2. Tumors of Heart |
| 3 | Congenital Heart Disease<br>Epidemiology and Approach<br>Cyanotic | 3. Heart Lung Transplantation |

| | | |
|---|---|---|
| | Acyanotic | |
| | | 4. Aneurysms and fistulae |
| 4 | Cardiac Arrhythmia | |
| 5 | Acquired heart disease, Acute Rheumatic Fever<br>Infective Endocarditis<br>Rheumatic Heart Disease | |
| 6 | Diseases of the Myocardium – Myocarditis, Cardiomyopathy, Diseases of pericardium<br>Systemic hypertension, Pulmonary Hypertension | |
| 7 | Cardiac Therapeutics | 5 Interventional Cardiology |
| | **Blood** | |
| 1 | Development of Hematopoietic system | 1. Elliptocytosis |
| 2 | Anaemias:<br>Inadequate Production<br>Nutrition – Iron,Folate,B12<br>Bone Marrow Failure<br>Hemolytic<br>Congenital and Acquired | 2. Stomatocytosis<br><br>3. Other membrane defects |
| 3 | Pancytopenia | |
| 4 | Polycythemia | |
| 5 | Granulocyte transfusions | |
| 6 | Blood and component therapy | |
| 7 | Thrombotic disorders | |
| 8 | Hemorrhagic disorders – acquired and congenital<br>Physiology<br>Bleeding disorders<br>Coagulation disorders | |
| 9 | Hyposplenism,splenic trauma, splenectomy | 4. Lymphatic vessels disorders |
| 10 | Physiology and Disorders of the spleen | |
| 11 | Lymphatic system | |
| | **Neopalsms** | |
| 1 | Principles of diagnosis | 1 Epidemiology |

| | | |
|---|---|---|
| 2 | Principles of treatment | 2 Molecular pathogenesis |
| 3 | Leukemia | 3 Soft tissue sarcomas |
| 4 | Lymphomas | 4 Gonadal, germ cell tumours |
| 5 | Brain tumors | |
| 5 | Neuroblastomas | |
| 6 | Liver neoplasm | 5 GI Neoplasm |
| 7 | Kidney tumors | 6 Carcinomas |
| 8 | Bone Neoplasms | 7 Skin Cancer |
| 9 | Retinoblastoma | 8. Benign tumours |
| | **Nephrology** | |
| 1 | Structure and function of kidney | |
| 2 | Hematuria | 1 Membranous GN |
| 3 | Proteinuria | 2 Lupus nephritis |
| 4 | Evaluation | 3. Membrano Proliferative GN |
| 5 | HUS | |
| 6 | Nephrotic syndrome | |
| 7 | Acute glomerulonephritis | |
| 8 | Tubular disorders<br>Function<br>RTA<br>Diabetes insipidus | |
| 9 | Renal Failure | |
| 10 | RPGN | |
| 11 | Renal Replacement therapy | |
| 12 | Renal transplantation | |
| 13 | Bartter syndrome | 4. Interstitital nephritis |
| 14 | Investigations | 5. Cortical necrosis |
| 15 | Toxic nephropathy | |
| | **Urological disorders** | |
| 1 | UTI | |
| 2 | Congenital anomalies & dysgenesis of the kidney | |
| 3 | Vesicoureteral reflux | |
| 4 | Bladder anomalies | |

| | | |
|---|---|---|
| 5 | Obstructions | |
| 6 | Penis, urethra anomalies | |
| 7 | Voiding dysfunction | |
| 8 | Scrotal anomalies | |
| 9 | Genitourinary trauma | |
| 10 | Urinary lithiasis | |
| 11 | Investigations – imaging renal function tests | |
| 12 | Neurogenic bladder | |
| | **Gynaecological problems** | |
| 1 | Menstrual problems | 1 Neoplasms |
| 2 | Vulvovaginitis | 2 Breast Disorders |
| 3 | Developmental anomalies | 3 Hirsuitism, polycystic ovaries |
| 4 | A Child with special gynecological needs | 4 Gynecological imaging |
| | | 5 Athletic problems |
| | **Endocrine** | |
| 1 | Hypothalamus and pituitary<br>Hypopituitarism, Growth Hormone deficiency,<br>Diabetes insipidus<br>ADH<br>Physiology of Puberty<br>Disorders of Puberty<br>Precious Puberty<br>Delayed Puberty | 1. Carcinoma of thyroid |
| 2 | Thyroid<br>Thyroid studies<br>Hypothyrodism<br>Goitre<br>Hyperthyoidism | 2 Tumours of testis/ovary<br>3. Multiple endocrine Disorders |
| 3 | Parathyroid physiology and disorders | |
| 4 | Diabetes mellitus & Diabetic Ketoacidosis | |
| 5 | Adrenal disorders<br>CAH | |

| | | |
|---|---|---|
| | Cushing syndrome<br>Addisons disease<br>Excess mineralocorticoids<br>Feminizing adrenal tumours<br>Pheochromocytoma<br>Adrenal masses | |
| | **CNS** | |
| 1 | Examination, Localization of lesions | |
| 2 | Congenital anomalies | |
| 3 | Seizures and conditions mimicking seizures | |
| 4 | Headaches | |
| 5 | Neurocutaneous disorders | |
| 6 | Coma | |
| 7 | Brain death | |
| 8 | Movement disorders | |
| 9 | Head Injury | |
| 10 | Neurodegenerative disorders – Approach Grey/white | |
| 11 | Acute Stroke | |
| 12 | Hydrocephalus, Pseudotumor cerebri and microcephaly | |
| 13 | Brain abscess | |
| 14 | Tumors | |
| 15 | Spinal cord disorders | |
| 16 | Investigations | |
| 17 | Antiepileptic drugs | |
| 18 | SSPE | |
| 19 | Acute flaccid paralysis | |
| 20 | Acute Demyelinating Encephalomyelitis | |
| 21 | Approach,Investigations and management of UMN,LMN,Extrapyramidal, and Cerebellar lesions | |
| 22 | Cerebral Palsy | |

| | | |
|---|---|---|
| 23 | Neuroinfections | |
| 24 | Encephalopathies | |

| | | |
|---|---|---|
| | **Neuromuscular** | |
| 1 | Evaluation, Investigations | 1 Developmental disorders of muscle |
| 2 | Muscular Dystrophies, Congenital Myopathy, Myositis, Endocrine and metabolic myopathy | |
| 3 | Neuromuscular transmission and motor neuron abnormalities | |
| 4 | GB Syndrome | 3 Motor sensory neuropathy |
| 5 | Bell's palsy | 4 Autonomic neuropathies |
| 6 | Floppy Infant | |
| 7 | Myaesthenia Gravis | |
| | **EYES** | |
| 1 | Examination of eye | 1 Refraction, accommodation |
| 2 | Diseases of Eye movement and alignment disorders | 2 Vision |
| 3 | Diseases of conjunctiva – Conunctivitis | |
| 4 | Diseases of Lens – Cataracts | |
| 5 | Pupils and iris | 3 Lids |
| 6 | Diseases of Optic nerve – Papillitis Neuritis, Papilledema | |
| 7 | Diseases of cornea – Clouding | 4 Uveal tract |
| 8 | Vitamin A Deficiency | 5 Retina and vitreous |
| 9 | Lacrimal problems – Dacrocystitis | 6 Glaucoma |
| | | 7 Orbital abnormalities |
| 10 | Retinopathy of Prematurity | |
| 11 | VER | |
| 12 | Injuries to eye | |

| | | |
|---|---|---|
| | **EAR** | |
| 1 | Clinical manifestations | Congenital malformations |
| 2 | Hearing loss | Inner ear diseases |
| 3 | External Otitis | Trauma |
| 4 | Otitis Media | Tumors |
| 5 | BAER | |

| | | |
|---|---|---|
| | **SKIN** | |
| 1. | Morphology | Cutaneous defects |
| 2. | Evaluation | Photosensitivity |
| 3. | Cutaneous manifestations of systemic diseases | |
| 4. | Principles of therapy | Epidermis disorders |
| 5. | Diseases of the neonate | Keratinozation disorder |
| 6. | Ectodermal dysplasias | Dermis disorders |
| 7. | Vascular disorders | Subcutaneous disorders |
| 8. | Cutaneous nevi | Sweat glands |
| 9. | Pigment Disorders<br>Hyperpigmentation<br>Hypopigementation | <br>Hair<br>Nails |
| 10. | Vesiculobullous disorders | Mucous membranes |
| 11. | Eczema | Tumors |
| 12. | Cutaneous Infections – Bacterial, viral,Fungal. | |
| 13. | Arthropod bites and infections | |
| 14. | Acne | |
| 15. | Nutritional diseases | |
| 16. | Drug Reactions | |
| | **Bone / Joint** | |
| 1 | Evaluation | 1 Sports medicine |
| 2 | Diseases of Foot and toes | 2 Pseudoachondroplasia |

| | | |
|---|---|---|
| 3 | Torsional & Angular deformities | 3 Diagnosis, assessment of genetic skeletal disorders |
| 4 | Leg length discrepancy | 4 Dysplasias |
| 5 | Diseases of knee | 5 Ellis van Creveld syndrome |
| 6 | Diseases of Hip | 6 Osteochondrodysplasia |
| 7 | Diseases of spine | 7 Inherited osteoporosis |
| 8 | Diseases of Neck | |
| 9 | Upper limb | 8 Hypophosphatasia |
| 10 | Arthrogryposis | 9 Primary Chondrodystrophy |
| 11 | Common Fractures | 10 Idiopathic hypercalcemia |
| 12 | Arthritis – approach investigations, Management | 11 Hyperphosphatasia |
| 13 | Congenital Dislocation if Hip | |
| 14 | Septic arthritis and osteomyetitis | |
| | **Genetic skeleton** | |
| 1 | Lethal and nonlethal skeletal dysplasias | |
| 2 | Achondroplasia | |
| 3 | Osteopetrosis | |
| 4 | Marfans | |
| 5 | Osteogenesis imperfecta | |

| | | |
|---|---|---|
| | **Metabolic Bone Disease** | |
| 1 | Bone and vitamin D | |
| 2 | Familial Hypophosphatemia | |
| 3 | Rickets – Nutritional and non nutritional | |
| | **Unclassified diseases** | |
| 1 | SIDS | 1 Sacroidosis |
| 2 | Histiocytosis | 2 Progeria |
| 3 | Cystic fibrosis | 3 Chronic fatigue syndrome |
| | | |

| | | |
|---|---|---|
| | **Environmental** | |
| 1 | Lead poisoning | |
| 2 | Envenomation | |
| 3 | Chemical Pollutants | |
| 4 | Mamalian bites | 1 Heavy metal intoxication |
| 5 | Common poisonings – OP,Kerosene, Phenobarbitone,Iron etc., | 2 Biological & chemical terrorism<br>3 Non bacterial food poisoning |
| 6 | Radiation | |

**Note : Student should refer to the most recent editions of recommended books and Journals**

**PEDAGOGY**

Principles of learning, objectives, teaching learning methods

**HEALTH STATISTICS and NATIONAL PROGRAMS**

**ORGANISATION OF OFFICE PRACTICE**

Equipment, Documentation,Records,Space and functioning

**RECENT ADVANCES IN PEDIATRICS**

Duration Last 5 Years.

**ALLIED SUBJECTS**

**Anatomy**

Applied Embryology, Development of major organs systems

**Physiology**

Applied Physiology with regard to major organ systems

**Biochemistry**

Biochemical basis of diseases in children – Nutritional and metabolic

**Pathology**

Pathophysiology of diseases in children, Pathogenesis, Basic Histo-pathology

**Microbiology**

Clinical Microbiology applied to investigations for diseases in childhood serology staining, culture

**Pharmacology**

Clinical pharmacology, Therapeutics of childhood diseases, drug interactions, Rational drug therapy, Adverse Drug Reactions,

**Community Medicine**

Health Care Systems – structure and function, Health Statistics, National programs.

**Pediatric Surgery**

Recognition and referral of surgical conditions in children

**Radiology**

Clinical Indications and Interpretations of X-ray, Ultrasound, CT, MRI

CLINICAL EPIDEMIOLOGY

ETHICS IN PEDIATRICS AND CHILD CARE

DEVELOPMENT OF DIAGNOSTIC APPROACH FOR INTERPRETATION OF SYMPTOMS AND SIGNS IN INFANTS , CHILDREN AND ADOLOSCENTS

BASICS OF RESEACH METHODOLOGIES AND ETHICAL ASPECTS OF CLINICAL RESEARCH

**List of skills**

1. Elicitation of history from parents, guardians, relatives and patients regarding complaints previous diseases and therapy, events around birth, prenatal period, growth and development, diet and immunization, socio-educational and economic background and other relevant aspects.
2. Conduct physical examination of well and sick newborn babies, infants, children, adolescents and adults.
3. Accurately measure length or height, weight, head circumference and plot the data on an appropriate chart.
4. Accurately measure mid-arm circumference of children aged 1-5 years.
5. Identify abnormal growth patterns.
6. Interpret data obtained by anthropometric measurement and developmental assessment.
7. Assess nutritional status and determine if the child is getting adequate nutrition.

8. Provide nutritional advice for newborn babies, infants, children and adolescents.
9. Provide advice regarding breast-feeding, weaning and balanced diet.
10. Provide advice regarding healthy & hygienic practices with a view to prevent diseases, disorders, injuries, accidents and poisoning.
11. Develop a diagnostic approach for clinical problems in newborns, infants, children and adolescents.
12. Discuss the characteristics of the patient and of the illness that must be considered when making the decision to manage the patient in the outpatient setting or admit to hospital.
13. Discuss the differential diagnosis of symptoms, signs and presentations in neonates, infants, children and adolescents.
14. Undertake relevant investigations for diagnostic and prognostic evaluation taking into consideration the risks, benefits and costs involved.
15. Convince parents and guardians regarding undertaking investigations and obtain their co-operation and valid legal consent.
16. Interpretation of laboratory Reports.
17. Counseling parents regarding the child's health status, health needs, illness & Disabilities

**SKILL**

Please note code:

PI – Perform Independently

PA – Perform with assistance

O – Observer

(Number at end of item indicates minimum number of supervised and documented skills)

List of PI Skills

Psychomotor Skills

1) ALL PI

| | |
|---|---|
| Clinical History and Physical examination | All cases |
| Human Lactation management (counseling and practical skills) | 20 |
| Neonatal resuscitation | 30 |
| Pediatric resuscitation | 30 |
| Arterial blood sampling | 10 |
| Intravenous injections | 50 |

| | |
|---|---|
| Intravenous cannulation | 50 |
| Venesection | 02 |
| Surgical dressing | 10 |
| Lumbar puncture | 50 |
| Test dose | 10 |
| Intravenous Infusions | 50 |
| Blood transfusions | 50 |
| Neonatal Exchange transfusions | 05 |
| Mechanical ventilation | 05 |
| Phototherapy | 20 |
| Universal precautions and infection control | 20 |
| Kangaroo Mother Care | 10 |
| Arterial Blood Gas (ABG) interpretation | 50 |
| Central Venous Pressure (CVP )measurement | 05 |
| Intraosseous line | 05 |
| Bone marrow aspiration, trephine biopsy | 05 |
| Pleural tap | 10 |
| Paracentesis – diagnostic and therapeutic | 10 |
| Mantoux test | 20 |
| DPT,OPV,Measles vaccination | 20 |
| Sampling for Fluid cultures | 20 |
| Liver biopsy | 05 |
| Neonatal, Pediatric Partial exchange | 05 |
| **Respiratory Management (All PI)** | |
| Nebulization | 50 |
| Inhaler therapy | 10 |
| Oxygen delivery | 100 |
| **Critically ill child (All PI)** | |
| Monitoring a sick child | 50 |
| Pulse oximetry | 50 |
| Infant feeding tube / Ryles tube, stomach wash | 50 |
| Urinary catheterization | 20 |
| Restraining a child for a procedure | 50 |
| ORS and ORT | 50 |

| | |
|---|---|
| Prognostication | 30 |
| **Laboratory – Diagnostic (All PI)** | |
| Urine Protein, sugar, Microscopy | 10 |
| Peripheral blood smear | 10 |
| Malarial smear | 10 |
| Ziehl Nielson staining – sputum, gastric aspirate | 10 |
| Grams staining – CSF, pus | 10 |
| Stool pH, reducing substances, microscopy | 10 |
| KOH smear | 2 |
| **Neonatal tests (All PI)** | |
| Apt test | 5 |
| Shake test | 5 |
| **Clinical Assessment skills (All PI)** | |
| **Clinical History and Physical examination** | |
| Anthropometry | 100 |
| Dietary recall, calories and protein estimation | 100 |
| Nutritional advice | 100 |
| Gestational assessment | 50 |
| Neurological examination of newborn | 50 |
| Primitive reflexes | 10 |
| Fundoscopy | 20 |
| Otoscopy | 10 |

| | |
|---|---|
| Examination of external genitalia – male and female | 10 |
| Tanner's SMR scales | 10 |
| DDST, BDST, TDST | 20 |
| Pre-operative assessment | 5 |
| Per rectal examination | 2 |
| **Interpretation (All PI)** | |
| Clinical History and Physical examination | |
| Blood, Urine, CSF and Fluid investigations – hematology | 50 |
| Biochemistry | 50 |

| | |
|---|---|
| Chest X-ray | 50 |
| ECG | 20 |
| Arterial Blood Gas | 50 |
| Abdominal X-ray | 20 |
| Bone and joint X-ray | 20 |
| CT scan Brain and MRI Brain | 10 |
| Barium studies | 05 |
| IVP,VUR studies | 05 |
| Ultrasound abdomen | 10 |
| ECHO | 05 |
| Neurosonogram | 10 |
| **Communication skills (All PI)** | |
| Clinical History and Physical examination | |
| Communicating health disease | |
| Communicating about a seriously ill or mentally abnormal child | |
| Communicating death | |
| Informed consent | |
| Empathy with a family | |
| Referral letters, replies | |
| Discharge summaries | |
| Death Certificates | |
| Pre counseling HIV | |
| Post counseling for HIV | |
| Basic Pedagogy sessions – teaching students, adults | |
| Lectures, bedside clinics, discussions | |
| Medline search, internet, Computer usage | |
| **List of Observations** | |
| Genetic counselling | 2 |
| Classification of diseases | 2 |

| | |
|---|---|
| BCG Vaccinations | 10 |
| **List of PA Skills** | |
| Sedation | 10 |
| Analgesia | 10 |
| Diagnosis of brain death | 10 |
| Intercostal tube placement with underwater seal | 5 |
| Peritoneal dialysis | 2 |
| Subdural/ Ventricular tap | 5 |
| Total / partial Parenteral Nutrition | 01 |

**6. Teaching/Learning Activities and Opportunities**

| | |
|---|---|
| 1. Presentation of cases on Clinical Rounds | Daily |
| 2. Topic presentation. | 1 per week |
| 3. Case discussions. | 1 per week |
| 4. Clinicopathological conferences. | 1 per month |
| 5. Clinicoradiological conferences. | 1 per month |
| 6. Mortality Review Meetings | 1 per month |
| 7. Journal Club | 1 per week |
| 8. Guest Lectures | 1 per 2 months |
| 9. In-house lectures | 1 in 2 months |
| 10. Conferences, | 1 national and 2 state levels |
| 11. Seminars. | 1 per week |
| 12. CME sessions | 1 per month |
| 13. Participation in Workshops | 2 |
| 14. Presentation of Papers | 1 |
| 15. Teaching Undergraduate students. | |
| 16.Writing articles and publication in journals | |

**MAINTAINANCE OF LOG BOOK**

Work done by student in the department should be entered in the log book regularly.The log book shall be checked by the pg guide at regular intervals .The log book shall be reviewed at the time of viva voce at the time of final university examination.

**7. Research**

All the postgraduate students will be exposed to Research Methodologies through their participation in the Journal Club.

A candidate registered for M.D. (Pediatrics) will be submitting a dissertation to the university.

This will be a pre-requisite for appearing for the MD examination. The dissertation will be done under the guidance and full satisfaction of the post-graduate teacher under whom the candidate is registered.

**8. Reference Books and Suggested Reading**

**(A) Books & Textbooks**

**i) General Medicine & Pediatrics**

- Nelson Textbook of Pediatrics (Behrman)
- Forfar Textbook of Pediatrics (Campbell).
- Rudolph's Pediatrics (Rudolph).
- Pediatric Medicine (Avery).
- Textbook of Pediatrics (Udani).
- Manual of Pediatric therapeutics (Graef).
- Manual of Neonatal Care (Cloherty)
- Common symptoms ( Illingworth).
- Pediatric diagnosis (Green).
- Signs and symptoms in Pediatrics (Tunnessen).
- Harrison's Principles of Internal Medicine.
- Mcleod's clinical methods.
- IAP Textbook of Pediatrics
- Harriet Lane Handbook (Barone).
- Handbook of Pediatric Physical diagnosis (Barness)
- Text book of paediatrics by OP GHAI
- Achar´s text book of paediatrics PEM by Allen´s Clinical methods in pediatrics

**(II) Super-speciality Reference Books**

*Neurology :* Pediatric Neurology : Principles and Practice(Swaiman)

Clinical Pediatric Neurology :A Signs and symptoms approach (Fenichel)

*Nephrology:* Pediatric kidney diseases (Edelmann).

Pediatric Nephrology (Holliday).

Clinical Pediatric Nephrology (Kher & Makker).

*Cardiology:* Nada's Pediatric Cardiology (Fyker).

Heart Disease in Infants, children and Adolescents (Adams-Moss's).

Rheumatic fever (Markowitz).

Peroiff - Pediatric Cardiology for Practitioner's ( Myung Park).

How to read Pediatric ECGs (Park).

*Hematology:* Clinical hematology in medical practice (de Gruchy's).

Blood diseases of infancy and childhood (Miller).

Nathan & Oski's Hematology of Infancy and childhood (Nathan).

Living with Thalassemia (Aggarwal)

*Gastroenterology:* Pediatric Gastroenterology (Sheila Sherlock)

Liver disorders in childhood (Mowat)

Paediatric Gastroenterology (Anderson).

*Respiratory:* Kendig's disorders of the respiratory tract in children (Chernick).

*Infectious Diseases & Parasitology:*

Poliomyelitis (Huckstep).

Tuberculosis in Children. (Miller)

Essentials of Tuberculosis in children. (Vimlesh Sheth)

Parasitology (Charterjee)

Textbook of Pediatric Infections diseases (Fegin & Cherry)

*Growth & Development :*

The Development of the Infant and Young Child –

Normal & Abnormal (Illingworth)

The Normal Child (Illingworth).

*Miscellaneous :* Protein Energy Malnutrition

a) Alleyne

b) Waterlow

Essentials of Human Genetics (Kothari & Mehta )

Genetics in Medicine (Thomson & Thomson).

Birth Defects encyclopedia (Buyses).

Smith's Recognizable Patterns of Human Malformation (Jones).

Breastfeeding – A Guide for the medical profession (Lawrence)

Medical Embryology (Langman).

Frontiers in social Pediatrics (Patwari)

Medical emergencies in children (Singh)

*Immunization :* Immunization in Practice (Mittal)

Immunization update (Mittal)

**(B) Journals in Pediatrics & Other Periodicals**

Year Book of Pediatrics – Stockman III

Indian Pediatrics

Indian Journal of Pediatrics

Pediatrics Today.

Archives of Diseases in Childhood

Pediatrics

Journal of Pediatrics

Drugs.

State of the World's Children (UNICEF)

Perinatology Clinics of North America

Recent Advances in Pediatrics

Advances in Pediatrics

Recent Advances in Pediatrics – Suraj Gupte (Ed.)

**(C) Sub-speciality Journals**

Pediatric Nephrology

Pediatric Cardiology

Pediatric Neurology

Pediatric Radiology

Pediatric Neurosurgery

Journal of Infection

**9. Evaluation Form**

**(A) Postgraduate Seminars**

Name: Date:
Seminar Topic:
Evaluation Points:
1. Presentation:
2. Completeness of Preparation:
3. Cogency of presentation:
4. Use of audiovisual aids.
5. Understanding of subjects:
6. Ability to answer questions:
7. Time scheduling:
8. Consulted all relevant literature:
9. Overall performance.

**Guidance for Scoring 0 1 2 3 4**

---

**Poor Below average Average Above average Very Good**

Faculty members:

1.

2.

3.

Mean Score:

**Evaluation Form**

**(B) Case Presentation**

Name: Date:

Case Title:

1. Logical order in presentation:
2. Cogency of presentation:
3. Complete /Relevant history:
4. Accuracy of General Physical Examination:

All signs elicited correctly.

5. Accuracy of Systemic Examination:
6. Diagnosis – Logical flow based on History & findings:
7. Order of differential diagnosis (logical):
8. Investigations required:

   (Complete list, Relevant order, Interpretation of investigations,
   Unnecessarily investigations asked)

9. Treatment: Principles & details
10. Patient/Relatives communication

    (Diagnosis & Management
    Health education)

**Overall:**

1. Abilities to react to questioning:
2. Abilities to defend diagnosis:
3. Ability to justify differential diagnosis:
4. Acceptability of plan of management
5. Confidence

| **Score** | **0** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|---|
| | **Poor** | **Below average** | **Average** | **Above average** | **Very Good** |

Faculty members:

1.
2.
3.

Mean Score:

**Evaluation Sheet**

**(C) Journal Club**

Name: Date:

Points for consideration: Score

1. Choice of article relevant:
2. Cogency of presentation:
3. Whether understood and conveyed the purpose of the article:
4. How did he defend article:
5. Whether cross references have seen consulted:
6. Understood explained basics of statistic in article:
7. Whether relevant information mentioned from other similar articles.
8. Use of audio visual aids:
9. Presentation:
10. Response to questioning:

| **Score** | **0** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|---|
| | **Poor** | **Below average** | **Average** | **Above average** | **Very Good** |

Faculty members:

1.
2.
3.

Mean Score:

**Evaluation Form**

**(D) Clinical Work**

Name: Date:

Points to be considered:

1. Punctuality:
2. Regularity of attendance:
3. Quality of ward work (procedures):
4. Maintenance of case records:
5. Presentation of cases during rounds (approach):
6. Investigation work up:
7. Bedside manners:
8. Rapport with patients:
9. Rapport with colleagues:
10. Motivation for blood donation:
11. UG teaching (if applicable):
12. Counseling patient's relatives:
13. Management of emergencies:
14. Knowledge of Pediatrics as a subject:

| **Score** | **0** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|---|
| | **Poor** | **Below average** | **Average** | **Above average** | **Very Good** |

Faculty members:

1.
2.
3.

Mean Score

**UNIVERSITY EXAMINATION AFTER COMPLETION OF 3 YEARS OF RESIDENCY**

4 Theory papers 100 marks each – duration 3 hours

Minimum passing marks in each head 40% and aggregate: 50% in all papers

| Paper | marks |
|---|---|
| **Paper 1** | Total 10 Questions of each 10 marks |
| **Paper 2** | Total 10 Questions of each 10 marks |
| **Paper 3** | Total 10 Questions of each 10 marks |
| **Paper4** | Total 10 Questions of each 10 marks |
| **TOTAL** | 400 Marks |

| | |
|---|---|
| **PAPER 1** | BASIC SCIENCES GENARAL PEDIATRICS 1 .FETUS , NEW BORN |
| **PAPER 2** | GENERAL PEDIATRICS 2 , RESPIRATORY, HEMATOLOGY, NUTRITION, GROWTH AND DEVELOPMENT , ONCOLOGY , METABOLIC,ALLERGY,IMMUNOLOGY , PSYCHATRY |
| **PAPER 3** | GENERAL PEDIATRICS 3 , INFECTIONS , GASTRO ENTEROLOGY, HEPATOLOGY , RENAL SURGICAL, COLLAGEN VASCULAR DISEASE, MISC. |
| **PAPER 4** | RECENT ADVANCES IN PEDIATRICS, PREVENTIVE PEDIATRICS PEDIATRIC AND CRITICAL CARE ,CVS ,CNS, ENDOCRINE SYSTEM |

***NOTE:THE DISTRIBUTION OF TOPICS IN PAPERS ARE SUGGESTIVE ONLY AND MAY OVERLAP AND CHANGE***

**PRACTICAL EXAMINATION**

Total Marks 400

1.) Long Case - 100 Marks

2.) Short Cases (2) - 50 Marks Each – 100 Marks

3.) Viva Voce (4 –Tables) - 25 Marks Each - 100 Marks

4.) OSCE (10 spots -10 Marks Each)- 100 Marks

**Total - 400 Marks**

Minimum Passing Marks -50% Separate In Clinics, Viva and OSCE