PACIFIC MEDICAL UNIVERSITY, UDAIPUR

Ph.D. Entrance Syllabus –Pediatrics

Basic Sciences Applied to Pediatrics

Foundational understanding of pediatric-specific basic sciences:

- **Growth & Development**
  - Normal growth patterns
  - Developmental milestones
  - Growth disorders and failure to thrive
- **Developmental Anatomy & Physiology**
  - Fetal and neonatal physiology
  - Cardiovascular, respiratory, renal, and CNS maturation
  - Thermoregulation in neonates
- **Genetics & Inborn Errors**
  - Chromosomal abnormalities
  - Single-gene disorders
  - Inborn errors of metabolism
  - Genetic counseling principles
- **Immunology**
  - Development of immune system
  - Primary immunodeficiency disorders
  - Vaccination principles and immunization schedules
- **Pediatric Pharmacology**
  - Drug pharmacokinetics in neonates & children
  - Pediatric dosing principles
  - Adverse drug reactions
- **Nutrition**
  - Breastfeeding and complementary feeding
  - Protein-energy malnutrition
  - Micronutrient deficiencies
  - Parenteral and enteral nutrition

Neonatology

- Care of normal and high-risk newborn
- Neonatal resuscitation
- Prematurity and low birth weight
- Respiratory distress syndrome
- Neonatal sepsis
- Neonatal jaundice
- Birth asphyxia
- Congenital anomalies in newborns
- Neonatal screening programs

System-wise Clinical Pediatrics

Cardiology

- Congenital heart diseases
- Heart failure in children
- Rheumatic heart disease
- Pediatric arrhythmias

Respiratory System

- Pneumonia
- Bronchiolitis
- Childhood asthma
- Tuberculosis
- Chronic lung diseases

Gastroenterology & Hepatology

- Acute and chronic diarrhea
- Malabsorption syndromes
- Hepatitis
- Chronic liver disease
- Pediatric GI bleeding

Neurology

- Seizure disorders
- Cerebral palsy
- Neurodevelopmental delay
- CNS infections

Nephrology

- Acute kidney injury
- Nephrotic syndrome
- Glomerulonephritis
- Urinary tract infections

Endocrinology

- Diabetes mellitus
- Growth hormone disorders
- Thyroid disorders
- Disorders of puberty

Hematology & Oncology

- Anemias
- Bleeding disorders
- Leukemias
- Pediatric solid tumors

Pediatric Infectious Diseases

- Common bacterial, viral, and parasitic infections
- Tuberculosis in children
- HIV in pediatrics
- Tropical infections (malaria, dengue, enteric fever)
- Antibiotic stewardship
- Immunization-preventable diseases

Emergency & Critical Care Pediatrics

- Pediatric Advanced Life Support (PALS)
- Shock (septic, hypovolemic, cardiogenic)
- Pediatric trauma
- Fluid and electrolyte management
- Acid–base disorders
- Mechanical ventilation basics
- Pediatric ICU principles

Community Pediatrics & Preventive Pediatrics

- National health programs (RMNCH+A, IMNCI)
- Child mortality indicators
- Growth monitoring
- School health programs
- Nutrition and vaccination programs
- Adolescent health

Behavioral & Developmental Pediatrics

- Autism spectrum disorders
- ADHD
- Learning disabilities
- Child mental health
- Adolescent medicine

Research Methodology & Biostatistics *(Compulsory in most Ph.D. entrances)*

- Research design and study types
- Sampling methods
- Biostatistics basics
    - Mean, median, SD
    - p-value, confidence intervals
- Literature review

- Research ethics
- Good Clinical Practice (GCP)
- Evidence-based medicine
- Thesis and protocol writing

Recent Advances in Pediatrics

- New vaccines
- Advances in neonatal care
- Pediatric critical care innovations
- Precision medicine and genetics
- Current pediatric guidelines