

PACIFIC MEDICAL UNIVERSITY, UDAIPUR

Ph.D. Entrance Syllabus –Pediatric Surgery

1. Basic Sciences Applied to Pediatric Surgery

Foundational understanding of:

- Medical genetics relevant to congenital anomalies
- Antenatal diagnosis and fetal intervention
- Developmental anatomy and embryology
- Neonatal physiology and metabolic considerations
- Pediatric pharmacology & drug administration
- Imaging principles in children (radiology / nuclear medicine)
- Nutrition in surgical pediatric care
- Neonatal sepsis and critical care principles
- Pediatric immunology & infection response
(Core topics derived from postgraduate/super-speciality curricula that inform Ph.D. preparation)

2. Pediatric Surgical Conditions & Clinical Knowledge

Understanding of:

- Common congenital malformations
- Neonatal surgical conditions
- Pediatric trauma including burns and envenomation
- Tumours in childhood (Wilms' tumour, neuroblastoma, germ cell tumours, retinoblastoma, bone & soft tissue tumours)
- Head & neck anomalies (e.g., cleft lip/palate)
- Thoracic abnormalities (diaphragmatic hernia, airway anomalies)
- Abdominal disorders (intestinal atresias, malrotation, obstruction)
- Genitourinary disorders (renal dysplasia, reflux, urolithiasis)
(Structured from pediatric surgery postgraduate syllabi used across Indian institutions)

3. Surgical Techniques & Procedures

Focus on:

- Neonatal and pediatric operative techniques
- Minimal access surgery (laparoscopy, thoracoscopy, endoscopy)
- Vascular access and invasive procedural skills
- Robotic surgery principles in pediatric cases
- Pediatric urology and reconstructive techniques
(Topics adapted from super-speciality training but relevant for advanced research understanding)

4. Perioperative Care & Specialized Clinical Management

Includes:

- Pediatric intensive care unit (PICU / NICU) principles
- Anesthesia specific to infants and children
- Pain management and analgesia in pediatric patients
- Child abuse recognition and medico-legal aspects
(Clinically relevant knowledge often tested at advanced examination levels)

5. Pediatric Oncology & Transplantation

Key topics:

- Pediatric oncology fundamentals
- Chemotherapy and radiotherapy basics in children
- Transplantation principles (kidney, liver) in pediatric practice
(Relevant for research focus areas within pediatric surgery)

6. Research Methodology & Biostatistics

Common requirement in Ph.D. entrances:

- Research design and scientific methods
- Biomedical statistics fundamentals
- Literature review and research ethics
- Protocol preparation, data interpretation
- Evidence-based practice principles
(General research component required in most Ph.D. entrances; syllabus not discipline-specific but essential)