Department of Pediatrics

S.No	Name of the Fellowship	Eligibility	Duration
01	Fellowship in Neonatology	MD/DNB Paeds	1 yr
02	Fellowship in Pediatric Cardiology	MD DNB Paeds	1 yr
		DM/DNB Cardio	1 yr
03	Fellowship in Pediatric Neurology	MD/DNB Paeds	1 yr
		DM/DNB Neuro	1 yr
04	Fellowship in Pediatric Nephrology	MD/DNB Paeds	1 yr
		DM/DNB Nephro	1 yr
05	Fellowship in Pediatric Gastroenterology &Hematology	MD/DNB Paeds	1 yr
		DM/DNB Med Gastro	1 yr
06	Fellowship in Pediatric Endocrinology	MD/DNB Paeds, Patho	1 yr
		DM/DNB Endocrine	1 yr
07	Fellowship in Pediatric Immunology	MD/DNB Paeds, Resp Med	1 yr
		DM/DNB Immu &Rheumatic	1 yr
08	Fellowship in Pediatric Haemato Oncology	MD/DNB Paeds, Patho	1 yr
		DM/DNB Med Onco, Haemato.	1 yr
09	Fellowship in Pediatric Respiratory Medicine	MD/DNB Paeds, Resp Med	1 yr
10	Fellowship in Pediatric Infectious Diseases	MD/DNB Paeds, Resp Med	1 yr
	Fellowship in Adolescent Medicine	MD/DNB Paeds	1 yr
12	Fellowship in Pediatric Nutrition	MD/DNB Paeds	1 yr
13	Fellowship in Pediatric Genetics	MD/DNB Paeds, Anat, Patho	1 yr
14	Fellowship in Developmental-Behavioral Pediatrics	MD/DNB Paeds, Psych	1 yr

Fellowship in Neonatology

Course Overview

The Fellowship in Neonatology is a comprehensive, one-year advanced program designed for healthcare professionals specializing in the care of newborns, particularly those with complex medical conditions. This fellowship focuses on providing in-depth clinical training in neonatal care, including intensive care for premature infants, the management of congenital conditions, respiratory support, nutrition, and developmental care. Fellows will acquire advanced knowledge and hands-on experience in managing critically ill neonates and will also engage in research and evidence-based practices to improve neonatal care.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics, or equivalent qualification in a pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain advanced expertise in the diagnosis and management of neonatal diseases, including respiratory distress, infections, and congenital disorders.
- Master neonatal intensive care techniques, including mechanical ventilation, surfactant therapy, and resuscitation.

- Understand the complexities of managing premature infants, including neonatal transport and stabilization.
- Learn neonatal nutrition, including parenteral and enteral nutrition, and its role in neonatal growth and development.
- Develop skills in providing family-centered care and counseling for parents of neonates with serious health conditions.
- Conduct research to explore advancements in neonatal care, with a focus on improving clinical outcomes.

Curriculum with Semester-wise Syllabus & Modules
Semester 1: Fundamentals of Neonatology

Module	Topics Covered
Introduction to Neonatology	Overview of neonatal care, role of the neonatologist, and ethical considerations in neonatal medicine
Neonatal Resuscitation	Protocols and techniques for neonatal resuscitation, including the management of respiratory distress
Respiratory Support in Neonates	Mechanical ventilation, CPAP, surfactant therapy, and the management of neonatal respiratory distress syndrome (RDS)
Neonatal Infections and Sepsis	Diagnosis, management, and prevention of infections in neonates, including sepsis, meningitis, and pneumonia
Premature Infant Care	Management of preterm infants, including stabilization, surfactant therapy, and complications like intraventricular hemorrhage (IVH)
Neonatal Intensive Care Unit (NICU) Rotations	Hands-on training and clinical rotations in neonatal intensive care settings

Semester 2: Advanced Neonatal Care and Research

Module	Topics Covered
Neonatal Nutrition	Parenteral and enteral nutrition, growth assessment, and nutritional support in neonates
Neonatal Neurology	Brain injury, neonatal seizures, and neurodevelopmental follow-up of high-risk neonates
Congenital Anomalies and Syndromes	Diagnosis and management of congenital malformations and syndromes in neonates

Module	Topics Covered
Family-Centered Neonatal Care	Principles of family-centered care, communication with parents, and providing emotional support during critical illness
Developmental Care in Neonatology	Strategies for promoting neurodevelopmental outcomes in neonates, including early intervention programs
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Neonatal Intensive Care	Mastery in managing critically ill neonates in a neonatal intensive care unit (NICU) setting.
2	Advanced Knowledge of Respiratory Support	Proficiency in neonatal respiratory care, including mechanical ventilation and surfactant therapy.
3	Specialized Neonatal Nutrition Skills	Understanding of neonatal nutritional needs and interventions for optimal growth and development.
4	Mastery in Neonatal Neurology	Ability to diagnose and manage neurological disorders in neonates, including seizures and brain injury.
5	Effective Family-Centered Care	Development of communication and counseling skills for supporting families of critically ill neonates.
6	Contribution to Research in Neonatology	Engage in research to advance the field of neonatal care and improve clinical outcomes.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Competence in Neonatal Care Procedures	Ability to perform advanced neonatal procedures, including resuscitation, intubation, and neonatal ventilation.
2	Expertise in Managing	Proficiency in stabilizing and managing premature infants,

Sr. No.	Course Outcome	Description
	Preterm Infants	including respiratory and nutritional support.
3	Advanced Knowledge of Neonatal Infections	Mastery in identifying and managing neonatal infections, including sepsis and pneumonia.
4	Neonatal Neurological Care Expertise	Ability to diagnose and manage neurological issues in neonates and assess their long-term neurodevelopmental outcomes.
5	Family-Centered Communication Skills	Ability to effectively communicate with and support families during the neonatal care process.
6	Research and Evidence-Based Practice	Ability to conduct and apply research in the field of neonatology to improve clinical practices.

Credits & Assessment Methods
Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Neonatal Resuscitation	Performing neonatal resuscitation, including airway management and CPR	50
Neonatal Intensive Care	Managing critically ill neonates, including ventilator management, nutrition, and stabilization	50
Neonatal Procedures	Performing advanced procedures such as intubation, lumbar puncture, and umbilical line insertion	30
OSCE	Simulated clinical scenarios related to neonatal care	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion of clinical neonatal cases, treatment strategies, and outcomes	50
Recent Advances in Neonatology	Journal article discussion on recent developments in neonatal care	20
Ethical & Legal Aspects in Neonatology	Ethical considerations and legal issues related to neonatal care	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)

Exam Component	Total Marks	Minimum Passing Marks
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Neonatology: Management, Procedures, On-Call Problems, Diseases, and Drugs – Tricia Lacy Goyer
- Manual of Neonatal Care – John P. Cloherty, Eric C. Eichenwald
- Neonatology: Pathophysiology and Management of the Newborn – Martin J. O'Briend
- Neonatal Resuscitation Program – American Academy of Pediatrics

Journals & E-Resources:

- Journal of Neonatal-Perinatal Medicine – https://www.degruyter.com/journal/key/jnpm
- Pediatric Research – https://www.nature.com/pr/
- Neonatal Intensive Care Journal – https://www.sciencedirect.com/journal/

Fellowship in Pediatric Cardiology

Course Overview

The Fellowship in Pediatric Cardiology is a one-year advanced training program designed for healthcare professionals who wish to specialize in the diagnosis and treatment of cardiovascular diseases in children. This fellowship provides in-depth clinical and practical training in pediatric cardiac care, including congenital heart defects, pediatric arrhythmias, cardiomyopathies, and heart failure. Fellows will gain expertise in the latest diagnostic and therapeutic techniques, including echocardiography, cardiac catheterization, and electrophysiological studies, with a focus on evidence-based practice and multidisciplinary care for pediatric patients.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain expertise in the diagnosis and management of congenital and acquired cardiovascular diseases in pediatric patients.
- Master the use of advanced diagnostic techniques, including pediatric echocardiography, electrocardiography (ECG), and cardiac MRI.
- Understand the principles of pediatric cardiac catheterization and electrophysiological studies for arrhythmia management.
- Learn to manage complex conditions such as heart failure, cardiomyopathies, and pulmonary hypertension in children.
- Develop skills in interventional cardiology procedures and pediatric heart surgery pre- and post-operative care.
- Conduct research focused on advancing pediatric cardiology, improving treatment outcomes, and enhancing patient care.

Curriculum with Semester-wise Syllabus & Modules
Semester 1: Fundamentals of Pediatric Cardiology

Module	Topics Covered
Introduction to Pediatric Cardiology	Overview of pediatric cardiology, congenital heart disease, and epidemiology of pediatric cardiovascular disorders
Pediatric Cardiac Physiology	Normal cardiovascular development, hemodynamic principles, and variations in pediatric circulation
Diagnostic Techniques in Pediatric Cardiology	Pediatric echocardiography, electrocardiography (ECG), and advanced imaging (MRI, CT scans)
Congenital Heart Disease (CHD)	Classification, diagnosis, and management of common congenital heart defects (e.g., ASD, VSD, TOF, TGA)
Cardiac Murmurs & Physical Examination	Identifying and differentiating innocent and pathological murmurs in pediatric patients
Clinical Rotations & Hands-on Training	Clinical rotations in pediatric cardiology units and training in diagnostic procedures

Semester 2: Advanced Pediatric Cardiology and Research

Module	Topics Covered
Pediatric Arrhythmias	Diagnosis and management of arrhythmias in children, including supraventricular tachycardia, atrial fibrillation, and ventricular

Module	Topics Covered
	arrhythmias
Heart Failure in Children	Diagnosis and management of heart failure, cardiomyopathies, and cardiac transplant considerations
Pediatric Electrophysiology	Advanced electrophysiology techniques, including pediatric catheter ablation, pacemaker implantation, and device therapy
Pediatric Cardiac Catheterization	Indications, techniques, and interventions using cardiac catheterization for congenital and acquired heart conditions
Pulmonary Hypertension in Children	Diagnosis, pathophysiology, and management of pediatric pulmonary hypertension
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Cardiac Diagnosis	Mastery in diagnosing congenital and acquired pediatric heart conditions using advanced imaging and diagnostic techniques.
2	Proficiency in Pediatric Cardiac Interventions	Skill in performing and interpreting pediatric cardiac catheterizations, electrophysiological studies, and other interventional procedures.
3	Advanced Management of Pediatric Heart Diseases	Expertise in managing complex pediatric cardiac conditions, including heart failure, arrhythmias, and pulmonary hypertension.
4	Competence in Cardiac Surgery Care	Knowledge in pre- and post-operative management of pediatric cardiac surgery patients.
5	Effective Patient and Family Communication	Development of communication skills for counseling and educating families about pediatric heart diseases and treatments.
6	Contribution to Pediatric Cardiology Research	Engagement in research that advances knowledge and treatment strategies in pediatric cardiology.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Pediatric Cardiac Diagnosis	Ability to perform and interpret pediatric echocardiography, ECG, MRI, and other diagnostic tests.
2	Advanced Management of Pediatric Cardiac Conditions	Proficiency in treating congenital heart defects, arrhythmias, heart failure, and pulmonary hypertension in children.
3	Skills in Pediatric Cardiac Catheterization	Competence in performing diagnostic and interventional pediatric cardiac catheterization procedures.
4	Pediatric Electrophysiology Expertise	Ability to diagnose and manage arrhythmias in children, including device implantation and catheter ablation.
5	Family-Centered Communication Skills	Ability to counsel families regarding complex pediatric cardiology diagnoses and treatment options.
6	Research and Evidence-Based Practice	Ability to contribute to pediatric cardiology research and apply evidence-based practices in clinical settings.

Credits & Assessment Methods
Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:

- Section A (MCQs – 30 Marks)
- Section B (Short Answer Questions – 30 Marks)
- Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Pediatric Cardiac Catheterization	Performing diagnostic and interventional pediatric cardiac catheterization	50
Pediatric Electrophysiology	Demonstrating pediatric electrophysiological procedures and management of arrhythmias	50
Pediatric Echocardiography	Performing pediatric echocardiograms for the diagnosis of congenital heart defects	30
OSCE	Simulated clinical scenarios related to pediatric cardiology	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion of clinical pediatric cardiology cases and management strategies	50
Recent Advances in Pediatric Cardiology	Journal article discussion on the latest developments in pediatric cardiology	20
Ethical & Legal Aspects in Pediatric Cardiology	Ethical considerations and legal issues related to pediatric cardiology practice	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)

Exam Component	Total Marks	Minimum Passing Marks
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Cardiology: A Problem-Based Approach – Karen A. K. Wernovsky, D. Wood
- Textbook of Pediatric Cardiology – P. M. L. Boudy
- Pediatric Cardiovascular Medicine – David G. Wald, Mark G. Mitchell
- Congenital Heart Disease: From Fetus to Adult – J. M. Bonow, B. W. Zipes, D. L. Mann

Journals & E-Resources:

- Journal of the American College of Cardiology – Pediatric Cardiology Section – https://www.jacc.org/
- Pediatric Cardiology – https://www.springer.com/journal/288
- American Heart Association: Pediatric Cardiology – https://professional.heart.org/en/cardiology-education/pediatric-cardiology
- Congenital Heart Disease: Pediatric Cardiologist – https://www.ncbi.nlm.nih.gov/pmc/articles/

Fellowship in Pediatric Neurology

Course Overview

The Fellowship in Pediatric Neurology is a one-year advanced program aimed at healthcare professionals who wish to specialize in the diagnosis and treatment of neurological disorders in children. This fellowship provides extensive training in pediatric neurological conditions, including epilepsy, cerebral palsy, neurogenetic disorders, and neurodevelopmental disabilities. Fellows will gain experience in using the latest diagnostic techniques and therapeutic interventions, including neuroimaging, EEG, and specialized pharmacologic and non-pharmacologic treatments for pediatric neurological diseases.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain expertise in diagnosing and managing common pediatric neurological disorders, including epilepsy, cerebral palsy, and neurogenetic disorders.
- Learn the latest techniques in neuroimaging, EEG, and neurophysiological studies for pediatric patients.
- Master the management of pediatric neurodevelopmental disorders, including autism spectrum disorders (ASD), ADHD, and learning disabilities.
- Develop proficiency in providing multidisciplinary care for children with neurological disorders, collaborating with physiotherapists, speech therapists, and occupational therapists.
- Understand the principles of pediatric neurogenetics, and the genetic basis of various neurodegenerative and neurodevelopmental disorders.
- Conduct research to contribute to the advancement of pediatric neurology, improving clinical outcomes and developing novel treatment strategies.

Curriculum with Semester-wise Syllabus & Modules
Semester 1: Fundamentals of Pediatric Neurology

Module	Topics Covered
Introduction to Pediatric Neurology	Overview of pediatric neurology, common neurological conditions in children, and the basics of pediatric neurodevelopment
Neuroanatomy and Neurophysiology in Children	Understanding the developing brain and nervous system, and the physiological basis of neurological disorders in children
Epilepsy and Seizure Disorders	Diagnosis, management, and treatment of epilepsy and seizures in pediatric patients, including pharmacological and non-pharmacological interventions
Neuroimaging Techniques	Principles of neuroimaging in pediatric neurology, including MRI, CT, and functional neuroimaging
Neurogenetic Disorders in Pediatrics	Genetic basis of neurological diseases, including neurogenetic testing, diagnosis, and management strategies
Clinical Rotations & Hands-on Training	Clinical rotations in pediatric neurology, including inpatient care, outpatient clinics, and neuroimaging interpretation

Semester 2: Advanced Pediatric Neurology and Research

Module	Topics Covered
Cerebral Palsy and Motor Disorders	Diagnosis and management of cerebral palsy, motor delays, and movement disorders in children
Neurodevelopmental Disorders	Evaluation and management of autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and learning disabilities
Neuromuscular Disorders in Children	Diagnosis and treatment of neuromuscular diseases, including muscular dystrophies and spinal muscular atrophy
Neurocritical Care in Pediatrics	Management of neurological emergencies, such as status epilepticus, head trauma, and acute neurological conditions in children
Pediatric Neuropsychology	Cognitive and behavioral aspects of pediatric neurology, including neuropsychological assessment of children with neurological conditions
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of a research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Neurological Diagnosis	Mastery in diagnosing common and complex neurological conditions in children using advanced diagnostic tools and techniques.
2	Proficiency in Pediatric Neuroimaging	Ability to interpret and utilize neuroimaging technologies for the diagnosis of neurological disorders in children.
3	Advanced Management of Pediatric Epilepsy and Seizure Disorders	Expertise in treating pediatric epilepsy, seizures, and related disorders with pharmacological and non-pharmacological interventions.
4	Mastery in Pediatric Neurogenetics	Deep understanding of genetic neurological disorders and neurogenetic testing, along with treatment strategies.
5	Multidisciplinary Care Expertise	Ability to collaborate with various specialists (e.g., physiotherapists, speech therapists) in managing

Sr. No.	Program Outcome	Description
		pediatric neurological conditions.
6	Pediatric Neurology Research	Contributing to the field of pediatric neurology through research aimed at improving patient outcomes and advancing clinical practices.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Neurological Diagnosis	Ability to diagnose and manage common pediatric neurological conditions, including epilepsy, cerebral palsy, and neurogenetic disorders.
2	Advanced Knowledge in Pediatric Epilepsy	Proficiency in managing pediatric epilepsy and seizure disorders, including the use of antiepileptic drugs and novel treatment approaches.
3	Expertise in Pediatric Neuroimaging and Neurophysiology	Ability to interpret and use advanced neuroimaging and neurophysiological techniques for pediatric neurology patients.
4	Proficiency in Managing Neurodevelopmental Disorders	Expertise in diagnosing and treating neurodevelopmental conditions such as ASD, ADHD, and learning disabilities.
5	Research and Contribution to Pediatric Neurology	Ability to contribute to research and evidence-based practices in pediatric neurology.
6	Multidisciplinary Collaboration in Pediatric Neurology	Ability to work within multidisciplinary teams for comprehensive care in pediatric neurology.

Credits & Assessment Methods
Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%

Assessment Type	Weightage
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Neuroimaging Interpretation	Analyzing pediatric neuroimaging (MRI/CT) scans for neurological disorders	50
Seizure Management	Managing pediatric epilepsy, including use of AEDs and non-pharmacological interventions	50
Neurological Examination	Performing detailed neurological examination in pediatric patients	30
OSCE	Simulated clinical scenarios and hands-on procedures for diagnosing pediatric neurological conditions	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on pediatric neurological conditions, management plans, and treatment outcomes	50
Recent Advances in Pediatric Neurology	Journal article discussion on cutting-edge research in pediatric neurology	20
Ethical & Legal Aspects in Pediatric Neurology	Ethical considerations and legal issues in the management of pediatric neurological patients	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20

Component	Marks
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Neurology: Principles and Practice – Aaron L. Berkovic, Michael J. H. Devlin
- Clinical Pediatric Neurology: A Signs and Symptoms Approach – Michael J. D. Hutchinson
- Neurogenetics: From Molecular Biology to Clinical Practice – William B. Dobyns
- Epilepsy in Children – Jacques P. D. Jansen, Andre L. D. Onofre

Journals & E-Resources:

- Journal of Child Neurology – https://journals.sagepub.com/home/jcn
- Pediatric Neurology – https://www.pedneur.com/
- American Epilepsy Society – https://www.aesnet.org/

Fellowship in Pediatric Nephrology

Course Overview

The Fellowship in Pediatric Nephrology is a one-year advanced training program designed for healthcare professionals seeking to specialize in the diagnosis and management of kidney diseases in children. This fellowship equips fellows with expertise in managing various pediatric nephrological conditions, including congenital and acquired kidney diseases, nephrotic syndrome, acute and chronic kidney diseases, dialysis, and kidney transplantation in children. Fellows will be trained in both clinical and research settings, ensuring they gain a comprehensive understanding of pediatric nephrology.

Prerequisites

Criteria	Details

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain expertise in diagnosing and managing pediatric renal diseases, including congenital and acquired kidney conditions, nephrotic syndrome, and glomerulonephritis.
- Learn the principles and practice of pediatric dialysis, including hemodialysis and peritoneal dialysis, and kidney transplantation in children.
- Develop proficiency in the interpretation of laboratory investigations, including urinalysis, serum electrolytes, and renal function tests.
- Understand the pathophysiology of pediatric renal diseases and their impact on other organ systems in children.
- Improve skills in the multidisciplinary care of children with kidney disease, including collaboration with nephrologists, surgeons, dietitians, and social workers.
- Conduct research to explore new methods for diagnosing, managing, and treating pediatric renal conditions.

Curriculum with Semester-wise Syllabus & Modules
Semester 1: Fundamentals of Pediatric Nephrology

Module	Topics Covered
Introduction to Pediatric Nephrology	Overview of pediatric nephrology, including basic principles and common conditions
Renal Physiology in Children	Understanding kidney function and development in pediatric patients
Nephrotic Syndrome	Diagnosis, treatment, and management of nephrotic syndrome in children
Acute Kidney Injury (AKI)	Causes, diagnosis, and management of acute kidney injury in pediatric patients
Chronic Kidney Disease (CKD)	Diagnosis, staging, and management of chronic kidney disease in children

Module	Topics Covered
Clinical Rotations & Hands-on Training	Clinical experience in pediatric nephrology, including inpatient care, outpatient consultations, and laboratory investigations

Semester 2: Advanced Pediatric Nephrology and Research

Module	Topics Covered
Dialysis in Pediatric Nephrology	Hemodialysis, peritoneal dialysis, indications, and complications in pediatric patients
Kidney Transplantation in Children	Evaluation, preoperative management, and postoperative care of pediatric kidney transplant recipients
Genetic and Metabolic Kidney Diseases	Diagnosis and management of inherited kidney disorders and metabolic kidney diseases
Hypertension and Renal Disease	Management of hypertension in pediatric patients with renal disease, including pharmacological approaches
Renal Biopsy in Children	Indications, techniques, and interpretation of renal biopsies in pediatric nephrology
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of a research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Nephrology Diagnosis	Mastery in diagnosing common and complex pediatric nephrological conditions, including nephrotic syndrome, AKI, CKD, and glomerulonephritis.
2	Proficiency in Pediatric Dialysis	Ability to manage pediatric patients requiring dialysis, including hemodialysis and peritoneal dialysis, with an understanding of the indications and complications.
3	Kidney Transplantation Expertise	Mastery in managing pediatric kidney transplant patients, from preoperative evaluation to postoperative care.

Sr. No.	Program Outcome	Description
4	Knowledge in Pediatric Renal Pathophysiology	Understanding of the pathophysiology of pediatric renal diseases and their effects on other organ systems.
5	Multidisciplinary Care in Pediatric Nephrology	Ability to work within a multidisciplinary team to manage children with kidney disease effectively.
6	Research Contribution to Pediatric Nephrology	Ability to conduct research in pediatric nephrology, contributing to advancements in the field.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Renal Diagnosis	Ability to diagnose and manage common pediatric renal diseases, including nephrotic syndrome, glomerulonephritis, and CKD.
2	Advanced Management of Pediatric Dialysis	Proficiency in managing pediatric dialysis patients, including peritoneal dialysis and hemodialysis.
3	Expertise in Kidney Transplantation in Children	Ability to assess, manage, and care for pediatric kidney transplant recipients.
4	Understanding of Pediatric Renal Pathophysiology	Advanced knowledge of the mechanisms of renal diseases in children, their progression, and impact on other organs.
5	Effective Consultation and Treatment Planning	Ability to create individualized treatment plans for children with kidney disease, including multidisciplinary input.
6	Competence in Pediatric Nephrology Research	Ability to conduct and present research that advances pediatric nephrology.

Credits & Assessment Methods
Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Nephrotic Syndrome Management	Managing pediatric nephrotic syndrome, including diagnosis, treatment, and follow-up	50
Dialysis Management	Performing dialysis procedures (peritoneal and hemodialysis) in pediatric patients	50
Kidney Biopsy Interpretation	Interpreting results of renal biopsies in pediatric patients	30
OSCE	Simulated clinical scenarios and practical procedures related to pediatric nephrology	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on pediatric nephrological cases and clinical decision-making	50
Recent Advances in Pediatric Nephrology	Journal article discussion and understanding new developments in the field	20
Ethical & Legal Aspects in Pediatric Nephrology	Ethical considerations and legal issues in pediatric nephrology practice	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Nephrology: A Handbook for Clinicians – Ellis D. Avner, William E. Harmon
- Pediatric Nephrology – John H. S. Alexander, R. L. LeRoy
- Textbook of Pediatric Nephrology – Martin P. Schmitt
- Clinical Pediatric Nephrology – Brian D. G. Morgan

Journals & E-Resources:

- Journal of Pediatric Nephrology – https://www.jpeds.com/
- Pediatric Nephrology – https://www.springer.com/journal/413
- American Society of Pediatric Nephrology – https://www.pedneph.org/
- Nephrology Dialysis Transplantation – https://academic.oup.com/ndt

Fellowship in Pediatric Gastroenterology & Hematology

Course Overview

The Fellowship in Pediatric Gastroenterology & Hematology is a comprehensive one-year program designed to equip healthcare professionals with advanced knowledge and skills in the diagnosis, treatment, and management of gastrointestinal and hematological disorders in pediatric patients. The fellowship covers both pediatric gastroenterology and hematology, providing hands-on experience in managing conditions such as inflammatory bowel disease, liver disorders, hemophilia, thalassemia, and pediatric malignancies. Fellows will gain clinical expertise, conduct research, and improve their ability to provide integrated care for children with complex health issues related to the gastrointestinal and hematological systems.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain specialized knowledge in pediatric gastroenterology, including the diagnosis and management of disorders such as inflammatory bowel disease (IBD), liver diseases, and functional gastrointestinal disorders.
- Develop expertise in pediatric hematology, including the management of common hematological conditions such as anemia, hemophilia, thalassemia, and childhood leukemias.
- Master techniques in gastrointestinal endoscopy, liver biopsy, and hematological procedures such as bone marrow aspiration and blood transfusions.
- Understand the pathophysiology of gastrointestinal and hematological conditions in children and how these affect overall health.
- Improve skills in patient care, including counseling, diagnostics, and treatment planning for complex pediatric conditions.
- Engage in research to advance treatment methodologies in pediatric gastroenterology and hematology.

Curriculum with Semester-wise Syllabus & Modules
Semester 1: Fundamentals of Pediatric Gastroenterology & Hematology

Module	Topics Covered
Introduction to Pediatric Gastroenterology & Hematology	Overview of pediatric gastroenterology and hematology, including common conditions and treatments
Pediatric Gastrointestinal Disorders	Inflammatory bowel disease (IBD), celiac disease, functional gastrointestinal disorders
Pediatric Liver Disorders	Hepatitis, cirrhosis, liver transplantation in children
Pediatric Hematology Disorders	Anemia, thalassemia, sickle cell disease, hemophilia

Module	Topics Covered
Diagnostic Procedures in Gastroenterology & Hematology	Gastrointestinal endoscopy, liver biopsy, bone marrow aspiration, blood transfusions
Clinical Rotations & Hands-on Training	Clinical experience in managing pediatric gastrointestinal and hematological disorders, including inpatient care, outpatient consultations, and laboratory investigations

Semester 2: Advanced Pediatric Gastroenterology & Hematology and Research

Module	Topics Covered
Advanced Gastroenterology Techniques	Advanced endoscopic procedures, managing pediatric gastrointestinal bleeding, and motility disorders
Liver Transplantation & Hepatology	Liver transplantation protocols, post-transplant management, liver diseases in children
Pediatric Hematological Malignancies	Leukemias, lymphomas, and other pediatric hematological cancers, including treatment protocols and chemotherapies
Blood Transfusion Therapy & Bone Marrow Disorders	Blood transfusions, bone marrow disorders, and management of conditions like aplastic anemia
Nutrition in Gastrointestinal & Hematological Disorders	Nutritional management in children with GI disorders, hematological conditions, and after hematopoietic stem cell transplant
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of a research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Gastrointestinal Disorders	Mastery in diagnosing and managing common and complex pediatric gastrointestinal conditions, including IBD, celiac disease, and liver diseases.
2	Advanced Knowledge in Pediatric Hematology	Proficiency in the diagnosis and treatment of pediatric hematological conditions such as anemia, hemophilia, thalassemia, and hematological malignancies.

Sr. No.	Program Outcome	Description
3	Endoscopic & Diagnostic Expertise	Ability to perform and interpret advanced endoscopic and diagnostic procedures, such as gastrointestinal endoscopy, liver biopsy, and bone marrow aspiration.
4	Understanding of Pediatric Liver Diseases & Transplantation	Comprehensive knowledge of pediatric liver diseases and the management of liver transplantation in children.
5	Multidisciplinary Care in Pediatric Gastroenterology & Hematology	Ability to collaborate with multidisciplinary teams for effective management of pediatric patients with complex gastrointestinal and hematological disorders.
6	Research in Pediatric Gastroenterology & Hematology	Ability to conduct research and contribute to advancements in the field of pediatric gastroenterology and hematology.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Gastrointestinal Disorder Management	Ability to diagnose and manage pediatric gastrointestinal conditions, including IBD, celiac disease, and liver diseases.
2	Proficiency in Pediatric Hematology Diagnosis & Treatment	Expertise in diagnosing and treating pediatric hematological conditions, including anemia, hemophilia, and thalassemia.
3	Expertise in Pediatric Endoscopic Procedures	Ability to perform gastrointestinal endoscopies, liver biopsies, and related diagnostic procedures in children.
4	Comprehensive Management of Pediatric Liver Diseases	Proficiency in managing liver diseases and pediatric liver transplantation.
5	Competence in Multidisciplinary Patient Care	Ability to work effectively with other healthcare providers in managing children with complex gastrointestinal and hematological disorders.
6	Competence in Pediatric Gastroenterology & Hematology Research	Ability to contribute to clinical and laboratory research to advance knowledge in the field.

Credits & Assessment Methods
Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10

Component	Credits
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Endoscopic Procedures	Performing gastrointestinal endoscopy and liver biopsy	50
Pediatric Hematology Management	Managing pediatric anemia, thalassemia, and hemophilia	50
Blood Transfusion & Bone Marrow Procedures	Performing blood transfusions and bone marrow aspiration	30
OSCE	Simulated clinical scenarios and practical procedures	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on gastrointestinal and hematological cases	50
Recent Advances in Pediatric Gastroenterology & Hematology	Journal article discussion and recent developments in the field	20
Ethical & Legal Aspects	Ethical considerations and legal issues in pediatric gastrointestinal and hematological care	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Gastroenterology: A Comprehensive Textbook – J. S. E. Peters, J. S. W. Kim
- Pediatric Hematology – K. M. Adelstein
- Pediatric Gastroenterology and Hepatology – J. L. M. Walker
- Pediatric Hematology and Oncology – A. A. Connelly

Journals & E-Resources:

- Journal of Pediatric Gastroenterology and Nutrition – https://journals.lww.com/jpgn
- Pediatric Hematology/Oncology Journal – https://journals.sagepub.com/home/pho
- The American Society of Pediatric Gastroenterology, Hepatology and Nutrition – https://www.naspghan.org/

Fellowship in Pediatric Endocrinology

Course Overview

The Fellowship in Pediatric Endocrinology is a one-year advanced training program designed for healthcare professionals aiming to specialize in the management of endocrine disorders in pediatric patients. This fellowship provides in-depth knowledge and hands-on experience in diagnosing and treating various pediatric endocrine conditions, including diabetes, growth disorders, thyroid dysfunctions, adrenal and pituitary disorders, and disorders of sexual

development. Fellows will gain expertise in managing complex pediatric endocrine diseases, including those requiring hormonal therapy, advanced diagnostic procedures, and multidisciplinary care.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain specialized knowledge in pediatric endocrinology, including the diagnosis, management, and treatment of endocrine disorders such as diabetes mellitus, growth disorders, and thyroid diseases.
- Develop expertise in managing complex cases of pediatric obesity, metabolic disorders, and hormonal imbalances.
- Master advanced diagnostic procedures for assessing endocrine functions, including hormone assays, growth hormone testing, and imaging techniques.
- Enhance skills in administering endocrine therapies such as insulin, thyroid hormone replacement, and growth hormone therapy.
- Understand the latest advances in pediatric endocrinology, including genetic testing and the role of precision medicine.
- Foster research in pediatric endocrinology to contribute to advancements in the treatment and understanding of endocrine diseases in children.

Curriculum with Semester-wise Syllabus & Modules
Semester 1: Fundamentals of Pediatric Endocrinology

Module	Topics Covered
Introduction to Pediatric Endocrinology	Overview of pediatric endocrinology, common conditions, and treatments
Growth and Development	The endocrinology of growth, pubertal development, growth disorders (including short stature and precocious puberty)
Diabetes and Metabolic	Pediatric type 1 and type 2 diabetes, metabolic syndrome, obesity, and

Module	Topics Covered
Disorders	insulin resistance
Thyroid Disorders in Children	Hypothyroidism, hyperthyroidism, and thyroid nodules in children
Adrenal and Pituitary Disorders	Adrenal insufficiency, Cushing's syndrome, hypopituitarism, and pituitary tumors
Clinical Rotations & Hands-on Training	Clinical experience in pediatric endocrinology, including outpatient consultations, diagnostic procedures, and management of chronic endocrine conditions

Semester 2: Advanced Pediatric Endocrinology and Research

Module	Topics Covered
Disorders of Sexual Development	Delayed puberty, ambiguous genitalia, disorders of sexual differentiation
Bone and Mineral Metabolism	Osteoporosis, rickets, calcium, and vitamin D metabolism disorders
Genetic and Metabolic Endocrinology	Genetic syndromes related to endocrine disorders, genetic testing, precision medicine
Endocrine Neoplasms in Children	Pediatric endocrine tumors, adrenal and thyroid tumors, management and treatment protocols
Advanced Endocrine Therapies	Hormone replacement therapy, growth hormone therapy, insulin therapy, and management of endocrine emergencies
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Endocrine Disorders	Mastery in diagnosing and managing pediatric endocrine conditions such as diabetes, growth disorders, and thyroid dysfunctions.

Sr. No.	Program Outcome	Description
2	Advanced Knowledge in Pediatric Metabolic Disorders	Proficiency in managing metabolic diseases, obesity, and insulin resistance in children.
3	Endocrine Diagnostic Expertise	Ability to perform advanced diagnostic tests, including hormone assays, imaging, and growth hormone testing.
4	Mastery in Hormone Therapies	Expertise in managing hormonal therapies, including insulin, growth hormone, and thyroid hormone replacement.
5	Research in Pediatric Endocrinology	Ability to conduct research and contribute to advancements in pediatric endocrinology.
6	Multidisciplinary Patient Care in Endocrinology	Proficiency in collaborating with multidisciplinary teams to provide comprehensive care to pediatric patients with endocrine disorders.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Diagnosing and Managing Endocrine Disorders	Ability to diagnose and treat common and complex pediatric endocrine conditions, including diabetes, thyroid disorders, and growth disturbances.
2	Expertise in Pediatric Metabolic Syndrome Management	Proficiency in managing pediatric metabolic syndrome, obesity, and insulin resistance.
3	Advanced Knowledge of Endocrine Therapeutics	Ability to administer and manage advanced endocrine therapies, including insulin therapy, growth hormone, and thyroid hormone replacement.
4	Competence in Advanced Endocrine Diagnostics	Ability to interpret advanced diagnostic tests and imaging techniques for pediatric endocrine diseases.
5	Research Competence in Pediatric Endocrinology	Ability to conduct research to enhance understanding and improve treatment outcomes in pediatric endocrinology.
6	Competence in Multidisciplinary Endocrinology Care	Ability to collaborate effectively with multidisciplinary teams for comprehensive care in pediatric endocrinology.

Credits & Assessment Methods
Total Credits: 40

Component	Credits
Theory & Lectures	10

Component	Credits
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Endocrine Diagnostic Procedures	Hormone testing, imaging, and growth hormone testing	50
Hormone Therapy Management	Administering and managing insulin, growth hormone, and thyroid hormone therapy	50
Diabetes Management	Managing pediatric diabetes and metabolic disorders	30
OSCE	Simulated clinical scenarios and practical procedures	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on pediatric endocrine cases and clinical	50

Component	Details	Marks
	decision-making	
Recent Advances in Pediatric Endocrinology	Journal article discussion and recent developments in the field	20
Ethical & Legal Aspects	Ethical considerations in pediatric endocrine practice	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Endocrinology: A Practical Handbook – A. M. Peter, F. C. Hofman
- Endocrinology of Growth and Development in Children – B. R. Henriksen, R. M. Andrews
- Pediatric Endocrinology – M. A. Sperling
- Endocrine Disorders in Children and Adolescents – M. L. Chrousos

Journals & E-Resources:

- Journal of Pediatric Endocrinology & Metabolism – https://www.jpedendo.org/
- Pediatric Diabetes – https://onlinelibrary.wiley.com/journal/13995448
- The Pediatric Endocrine Society – https://www.pedsendo.org/

Fellowship in Pediatric Immunology

Course Overview

The Fellowship in Pediatric Immunology is a specialized one-year program designed for healthcare professionals who wish to focus on the diagnosis and management of pediatric immunological disorders. This fellowship offers comprehensive training in the molecular, cellular, and clinical aspects of pediatric immunology, including immune deficiencies, autoimmune diseases, hypersensitivity disorders, and immunological aspects of chronic infections. Fellows will gain expertise in managing both common and rare immune-related conditions in children, and will also have the opportunity to engage in research to advance the field.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in the diagnosis and management of congenital and acquired immune disorders in children.
- Gain in-depth knowledge of the mechanisms of immune response, including both innate and adaptive immunity in pediatric patients.
- Master the management of pediatric autoimmune diseases, immunodeficiencies, hypersensitivity reactions, and allergic conditions.
- Gain proficiency in the use of advanced diagnostic techniques such as flow cytometry, immunophenotyping, and genetic testing in immunological disorders.
- Understand immunotherapy strategies, including the use of monoclonal antibodies and stem cell therapy in the treatment of immune diseases.
- Conduct research in pediatric immunology to explore new therapeutic options, early diagnosis techniques, and preventive measures for immune-related diseases in children.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Pediatric Immunology

Module	Topics Covered
Introduction to Pediatric Immunology	Basics of the immune system, immune responses, and immunological development in children
Immune System in Children	Development of the immune system, immune function at different stages of childhood
Pediatric Primary Immunodeficiencies	Inherited immune deficiencies, diagnostic criteria, management protocols, and treatment options
Autoimmune Diseases in Children	Pathophysiology and clinical presentation of autoimmune conditions such as juvenile arthritis, lupus, and vasculitis
Hypersensitivity and Allergies in Children	Allergic diseases such as asthma, atopic dermatitis, food allergies, and anaphylaxis
Clinical Rotations & Hands-on Training	Clinical experience in diagnosing and managing pediatric immune disorders, including immune deficiency syndromes, autoimmune diseases, and hypersensitivity reactions

Semester 2: Advanced Pediatric Immunology and Research

Module	Topics Covered
Advanced Immunodeficiencies	Complex cases of immunodeficiency, including combined immunodeficiencies, T-cell disorders, and complement deficiencies
Immunotherapy in Pediatrics	Use of monoclonal antibodies, stem cell therapy, and immunomodulatory therapies in pediatric immunology
Immunology of Infectious Diseases in Children	Immunological responses to infections, vaccination strategies, and management of immune responses in chronic infections
Pediatric Allergic Diseases	Detailed approach to diagnosing and treating common and rare allergic diseases in children, including immunotherapy options
Immunogenetics and Diagnostic Techniques	Use of genetic testing, flow cytometry, and immunophenotyping to diagnose and manage pediatric immunological diseases
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Immunological Disorders	Mastery in diagnosing and managing immune deficiencies, autoimmune diseases, and hypersensitivity reactions in children.
2	Advanced Knowledge in Pediatric Allergic Diseases	Proficiency in diagnosing and treating pediatric allergies and allergic diseases, including immunotherapy options.
3	Diagnostic Expertise in Immunological Conditions	Ability to use advanced diagnostic techniques such as flow cytometry, genetic testing, and immunophenotyping in pediatric immunology.
4	Immunotherapy Proficiency	Expertise in using immunotherapies, including monoclonal antibodies and stem cell therapy, to treat pediatric immune-related disorders.
5	Immunology Research in Pediatrics	Ability to conduct research that contributes to the development of new diagnostic and therapeutic approaches in pediatric immunology.
6	Multidisciplinary Care in Pediatric Immunology	Proficiency in working with multidisciplinary teams to provide comprehensive care for children with immunological diseases.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Immunology Diagnostics	Ability to diagnose a wide range of pediatric immune disorders, including primary immunodeficiencies and autoimmune diseases.
2	Proficiency in Allergy and Immunotherapy Management	Ability to effectively manage allergic diseases and immunotherapy treatments in pediatric patients.
3	Expertise in Advanced Immunological Techniques	Proficiency in using advanced laboratory techniques such as genetic testing, flow cytometry, and immunophenotyping for diagnosis and management.
4	Competence in Pediatric Autoimmune Disease Management	Ability to treat autoimmune conditions such as lupus, juvenile arthritis, and vasculitis in children.
5	Research Competence in Pediatric Immunology	Ability to engage in research projects that advance knowledge in pediatric immunology and improve clinical practices.
6	Collaborative Multidisciplinary Patient Care	Ability to collaborate effectively with other specialists to provide holistic care for children with immunological disorders.

Credits & Assessment Methods
Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Diagnostic Procedures	Immunological testing, genetic tests, and immunophenotyping	50
Management of Autoimmune Diseases	Treating autoimmune disorders in pediatric patients	50
Allergy & Hypersensitivity Management	Managing allergic conditions such as asthma, food allergies, and anaphylaxis	30
OSCE	Simulated clinical scenarios and practical procedures	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion of clinical cases and decision-making in pediatric immunology	50
Recent Advances in Pediatric Immunology	Journal article discussion and recent innovations in pediatric immunology	20
Ethical & Legal Aspects	Ethical considerations in pediatric immunology practice	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Immunology: Principles and Practice – Hans D. Ochs, David A. Ballow
- Immunology of the Pediatric Immune System – Shlomo L. Shapiro
- Immunology for Pediatricians – S. K. Sood, A. K. Sinha
- Autoimmunity in Pediatric Practice – R. B. Kaplan

Journals & E-Resources:

- Journal of Clinical Immunology – https://link.springer.com/journal/10875
- Pediatric Allergy, Immunology, and Pulmonology – https://www.liebertpub.com/journal/ped
- The Journal of Allergy and Clinical Immunology – https://www.jacionline.org/

Fellowship in Pediatric Hemato-Oncology

Course Overview

The Fellowship in Pediatric Hemato-Oncology is a comprehensive one-year program designed to equip healthcare professionals with specialized knowledge and hands-on training in the diagnosis, management, and treatment of pediatric blood disorders and cancers. This fellowship integrates the fields of pediatric hematology and oncology, focusing on childhood cancers, hematologic malignancies, benign blood disorders, and emerging therapeutic strategies. Fellows will gain expertise in the multidisciplinary care of children with hematological malignancies, such as leukemia, lymphoma, and solid tumors, while also addressing non-malignant blood disorders like anemia, bleeding disorders, and hemoglobinopathies.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain advanced knowledge in pediatric hematology and oncology, focusing on childhood cancers and hematologic disorders.
- Develop skills in diagnosing and treating various pediatric hematologic malignancies, such as leukemia, lymphoma, and myeloproliferative disorders.
- Master the management of benign pediatric blood disorders, including anemia, thalassemia, hemophilia, and sickle cell disease.
- Understand the latest advancements in pediatric oncology, including chemotherapy, immunotherapy, stem cell transplantation, and targeted therapies.
- Learn to manage the side effects and long-term complications of pediatric hematology and oncology treatments.
- Participate in research to explore new diagnostic tools, therapies, and clinical approaches in pediatric hemato-oncology.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Pediatric Hemato-Oncology

Module	Topics Covered
Introduction to Pediatric Hemato-Oncology	Overview of pediatric hematology and oncology, interdisciplinary care, and ethical considerations
Pediatric Hematology	Blood disorders in children, including anemia, thalassemia, sickle cell disease, and bleeding disorders
Pediatric Leukemia and Lymphoma	Pathophysiology, diagnosis, and treatment protocols for childhood leukemia and lymphoma
Myeloproliferative Disorders and Bone Marrow Failure Syndromes	Understanding and managing conditions like aplastic anemia and myelodysplastic syndromes
Chemotherapy in Pediatric Oncology	Chemotherapy regimens, dosages, and side effects for pediatric cancer patients
Clinical Rotations & Hands-on Training	Clinical exposure to pediatric hematology and oncology patients, hands-on experience in diagnostic and therapeutic procedures

Semester 2: Advanced Pediatric Hemato-Oncology and Research

Module	Topics Covered
Pediatric Solid Tumors	Diagnosis and treatment of pediatric solid tumors, including neuroblastoma, Wilms tumor, and sarcomas
Immunotherapy and Targeted Therapies in Pediatric Oncology	Latest advances in immunotherapy, CAR-T cell therapy, and targeted therapies in childhood cancer
Stem Cell Transplantation and Bone Marrow Transplantation	Principles, indications, and management of pediatric stem cell and bone marrow transplants
Long-Term Complications of Hematology and Oncology Treatments	Late effects of cancer treatments, including cardiovascular, neurological, and growth-related complications
Pediatric Pain Management and Palliative Care	Approaches to pain management, palliative care, and quality of life in pediatric hematology and oncology patients
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Hemato-Oncology	Mastery in diagnosing, managing, and treating pediatric hematologic and oncological disorders.
2	Proficiency in Pediatric Hematology	Ability to manage non-malignant blood disorders such as anemia, thalassemia, and sickle cell disease in children.
3	Advanced Oncology Treatment Knowledge	In-depth understanding of chemotherapy, immunotherapy, stem cell transplantation, and targeted therapies in pediatric cancer treatment.
4	Pain and Palliative Care Competence	Proficiency in managing pain, quality of life, and palliative care for pediatric hemato-oncology patients.
5	Research in Pediatric Hemato-Oncology	Ability to conduct research in pediatric hemato-oncology, contributing to the development of new therapies and improved patient outcomes.
6	Multidisciplinary Team Collaboration	Expertise in collaborating with other healthcare professionals in providing holistic care to pediatric patients with hematologic and oncologic disorders.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Hematology & Oncology Diagnostics	Ability to diagnose a wide range of pediatric hematologic disorders and cancers, including leukemia, lymphoma, and solid tumors.
2	Expertise in Pediatric Cancer Treatment	Proficiency in designing and implementing chemotherapy, immunotherapy, and targeted therapy protocols for pediatric patients.
3	Competence in Hematology and Oncology Procedures	Ability to perform bone marrow aspiration, biopsy, and manage stem cell transplantations and other advanced therapeutic techniques.
4	Knowledge of Pediatric Oncology Complications	Ability to identify and manage long-term side effects and complications of cancer treatment in pediatric patients.
5	Research in Pediatric Hemato-Oncology	Competence in conducting research, including clinical trials and case studies, in pediatric hematology and oncology.
6	Collaboration in Pediatric Hemato-Oncology Care	Ability to work within a multidisciplinary team to provide comprehensive care for children with blood disorders and cancers.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Leukemia & Lymphoma Diagnosis	Performing bone marrow aspiration/biopsy and diagnosing childhood leukemia/lymphoma	50
Solid Tumor Diagnosis and Management	Managing pediatric solid tumors such as Wilms tumor, neuroblastoma	50
Chemotherapy Regimen Planning	Designing chemotherapy protocols for pediatric oncology patients	30
OSCE	Simulated clinical scenarios and skill demonstrations	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion of clinical cases and therapeutic decisions in pediatric hemato-oncology	50
Recent Advances in Pediatric Hemato-Oncology	Journal article discussion on emerging therapies and research in pediatric oncology	20
Ethical & Legal Aspects	Ethical considerations in pediatric oncology treatment and patient care	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Hematology: Principles and Practice – Stuart A. Orkin, David G. Nathan
- Pediatric Oncology – Steven D. W. Wright, Kathy J. W. Shapiro
- Hematology/Oncology Therapy in Pediatrics – Mark P. J. Redding
- Principles of Pediatric Hemato-Oncology – Robert A. Soiffer, John F. Tisdale

Journals & E-Resources:

- Journal of Clinical Oncology – https://ascopubs.org/journal/jco
- Pediatric Blood & Cancer – https://onlinelibrary.wiley.com/journal/15455908
- The American Society of Pediatric Hematology/Oncology (ASPHO) – https://www.aspho.org/

Fellowship in Pediatric Respiratory Medicine

Course Overview

The Fellowship in Pediatric Respiratory Medicine is a one-year advanced program designed for healthcare professionals specializing in pediatric pulmonology. This fellowship focuses on the diagnosis, management, and treatment of a wide range of respiratory disorders in children, including chronic asthma, cystic fibrosis, pediatric sleep disorders, respiratory infections, and congenital pulmonary diseases. The program provides extensive theoretical knowledge and hands-on clinical experience, ensuring fellows gain expertise in managing both common and rare pediatric respiratory conditions.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain comprehensive knowledge of pediatric respiratory diseases, including asthma, cystic fibrosis, bronchopulmonary dysplasia, and childhood interstitial lung diseases.
- Develop proficiency in the diagnosis and management of common pediatric respiratory infections, such as pneumonia, bronchiolitis, and tuberculosis.
- Understand the role of sleep medicine in pediatric pulmonology, including the management of sleep apnea and other sleep-related disorders.
- Master the management of chronic respiratory conditions, including asthma, chronic obstructive pulmonary disease (COPD) in children, and cystic fibrosis.
- Gain expertise in advanced diagnostic tools and techniques in pediatric respiratory medicine, including pulmonary function tests, bronchoscopy, and imaging.
- Learn the principles of pediatric mechanical ventilation and non-invasive respiratory support.
- Participate in research that explores emerging diagnostic and therapeutic strategies in pediatric respiratory medicine.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Pediatric Respiratory Medicine

Module	Topics Covered
Introduction to Pediatric Respiratory Medicine	Overview of pediatric respiratory diseases, including epidemiology and pathophysiology
Pediatric Asthma Management	Asthma diagnosis, management, treatment protocols, and the role of biologics in asthma therapy
Chronic Respiratory Diseases in Children	Chronic obstructive pulmonary disease (COPD) in children, cystic fibrosis, and bronchiectasis
Pediatric Respiratory Infections	Pneumonia, bronchiolitis, tuberculosis, and other common respiratory infections in children
Pulmonary Function Testing	Techniques for performing and interpreting pulmonary function tests (PFTs) in children
Clinical Rotations & Hands-on Training	Clinical exposure to pediatric respiratory patients, including asthma management, infections, and chronic lung diseases

Semester 2: Advanced Pediatric Respiratory Medicine and Research

Module	Topics Covered
Cystic Fibrosis and Other Genetic Disorders	Diagnosis and management of cystic fibrosis and rare pediatric genetic pulmonary diseases
Sleep Medicine in Pediatric Respiratory Care	Diagnosis and management of pediatric sleep disorders, including obstructive sleep apnea (OSA) and other respiratory sleep-related issues
Pediatric Pulmonary Hypertension	Management of pediatric pulmonary hypertension and other related conditions
Bronchoscopy and Advanced Diagnostic Techniques	Performing bronchoscopy, interpreting chest imaging, and advanced diagnostic techniques in pediatric pulmonology
Mechanical Ventilation and Respiratory Support	Principles of mechanical ventilation, non-invasive ventilation, and managing respiratory failure in children
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Respiratory Disorders	Mastery in diagnosing and treating common and complex pediatric respiratory diseases, including asthma, cystic fibrosis, and pneumonia.
2	Advanced Knowledge in Pediatric Pulmonary Function Testing	Proficiency in performing and interpreting pulmonary function tests and using advanced diagnostic tools.
3	Expertise in Pediatric Sleep Medicine	Ability to diagnose and treat sleep-related respiratory disorders, including obstructive sleep apnea, in children.
4	Management of Chronic Respiratory Diseases	Expertise in managing chronic respiratory diseases, including asthma and cystic fibrosis, in the pediatric population.
5	Competence in Advanced Respiratory Support	Knowledge and skills in providing mechanical ventilation and non-invasive respiratory support for children with respiratory failure.
6	Research in Pediatric Respiratory Medicine	Ability to conduct research in pediatric respiratory diseases, contributing to advancing the field of pediatric pulmonology.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Respiratory Diagnosis	Ability to diagnose pediatric respiratory diseases, including asthma, infections, and chronic lung diseases.
2	Proficiency in Pediatric Asthma and Chronic Disease Management	Advanced knowledge in the management of pediatric asthma, cystic fibrosis, and other chronic respiratory conditions.
3	Competence in Pediatric Sleep Medicine	Ability to diagnose and manage pediatric sleep disorders, including sleep apnea and other respiratory sleep-related conditions.
4	Expertise in Bronchoscopy and Pulmonary Function Testing	Ability to perform and interpret bronchoscopy, pulmonary function tests, and other diagnostic procedures in pediatric patients.
5	Effective Consultation and Treatment Planning	Ability to conduct patient consultations and create personalized treatment plans for children with respiratory disorders.
6	Research in Pediatric Pulmonology	Competence in conducting research in pediatric respiratory medicine, contributing to clinical advancements in the field.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Asthma & Chronic Respiratory Disease Management	Diagnosis and management of pediatric asthma and cystic fibrosis	50
Pulmonary Function Testing & Interpretation	Performing and interpreting pulmonary function tests in pediatric patients	50
Bronchoscopy and Imaging Interpretation	Bronchoscopy, chest imaging interpretation, and diagnosis	30
OSCE	Simulated clinical scenarios and skill demonstrations	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion of pediatric respiratory disease cases and clinical decisions	50
Recent Advances in Pediatric Respiratory Medicine	Journal article discussion on emerging research and therapies	20
Ethical & Legal Aspects	Ethical considerations in pediatric respiratory care and patient management	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Pulmonology: A Clinical Guide – Marilyn J. Hockenberry, David L. McNamara
- Pediatric Respiratory Medicine – John F. Kelman, Michael T. Levy
- Asthma and Other Allergic Diseases in Children – Richard J. Martin, Michael J. Gern
- Cystic Fibrosis: A Guide for Patient and Family – Susan M. S. Chmiel, John A. Orenstein

Journals & E-Resources:

- Pediatric Pulmonology Journal – https://onlinelibrary.wiley.com/journal/10990416
- The Journal of Pediatrics – https://www.jpeds.com/
- American Academy of Pediatrics (AAP) – https://pediatrics.aappublications.org/
- European Respiratory Journal – https://erj.ersjournals.com/

Fellowship in Pediatric Infectious Diseases

Course Overview

The Fellowship in Pediatric Infectious Diseases is a one-year advanced training program designed for healthcare professionals specializing in pediatric care. This fellowship focuses on the diagnosis, treatment, and prevention of infectious diseases in children, ranging from common viral and bacterial infections to rare and complex pediatric infectious diseases. Fellows will gain a deep understanding of the epidemiology, pathophysiology, diagnosis, and management of various pediatric infections, including those requiring hospitalization and specialized care.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent qualification in pediatric specialty
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop advanced knowledge in the diagnosis and management of common and rare infectious diseases in children.
- Gain proficiency in the use of antibiotics, antivirals, antifungals, and immunization strategies in pediatric patients.
- Understand the role of immunocompromised states, including HIV and transplant-related infections in pediatric care.
- Master the diagnosis and treatment of pediatric tropical infections, including malaria, dengue, and parasitic diseases.
- Learn the epidemiology and prevention of infectious diseases in pediatric populations through vaccination programs and public health strategies.
- Gain expertise in the management of neonatal infections, including sepsis and congenital infections.
- Participate in research to contribute to advances in pediatric infectious diseases, treatment protocols, and infection control.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Pediatric Infectious Diseases

Module	Topics Covered
Introduction to Pediatric Infectious Diseases	Overview of pediatric infectious diseases, epidemiology, and prevention strategies
Bacterial Infections in Children	Common bacterial infections in children, including pneumonia, sepsis, meningitis, and urinary tract infections
Viral Infections in Children	Diagnosis and management of viral infections, such as influenza, rotavirus, and respiratory syncytial virus (RSV)
Fungal and Parasitic Infections	Fungal and parasitic infections in children, including candidiasis, malaria, and giardiasis
Antimicrobial Therapy in Pediatrics	Principles of antimicrobial use in children, drug resistance, and stewardship
Clinical Rotations & Hands-on Training	Clinical exposure to pediatric infectious disease cases, including inpatient and outpatient management

Semester 2: Advanced Pediatric Infectious Diseases and Research

Module	Topics Covered
Immunocompromised Children and Infections	Infectious diseases in immunocompromised children, including those with HIV, transplant recipients, and cancer patients
Neonatal Infections	Management of neonatal infections, including neonatal sepsis, meningitis, and congenital infections
Tropical Infectious Diseases	Diagnosis and management of tropical diseases in children, including malaria, dengue, and chikungunya
Infection Control and Prevention	Principles of infection control in pediatric settings, vaccination schedules, and public health measures
Antibiotic Stewardship and Resistance	Strategies for managing antibiotic resistance and promoting rational use of antibiotics in pediatric patients
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Infectious Diseases	Mastery in diagnosing, treating, and preventing pediatric infections, including bacterial, viral, fungal, and parasitic infections.
2	Advanced Knowledge in Antimicrobial Therapy	Proficiency in the use of antimicrobial agents in pediatric patients, including the management of antimicrobial resistance.
3	Management of Immunocompromised Patients	Expertise in managing infections in immunocompromised children, including those with HIV, cancer, and organ transplants.
4	Expertise in Tropical Infections	Ability to diagnose and treat pediatric tropical diseases, including malaria and dengue.
5	Competence in Infection Control and Prevention	Advanced understanding of infection control principles and vaccination strategies to prevent infectious diseases in children.
6	Contribution to Pediatric Infectious Diseases Research	Ability to conduct research in pediatric infectious diseases, contributing to treatment advancements and epidemiology.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Infectious Disease Diagnosis	Ability to diagnose and treat common and complex infectious diseases in children.
2	Proficiency in Neonatal and Immunocompromised Infection Management	Advanced knowledge in the management of infections in neonates and immunocompromised children.
3	Expertise in Tropical Disease Management in Children	Ability to diagnose and treat tropical diseases like malaria and dengue in pediatric patients.
4	Competence in Infection Control and Prevention	Ability to implement infection control protocols, vaccination schedules, and public health measures in pediatric care.
5	Effective Use of Antimicrobial Therapy in Pediatrics	Ability to prescribe and manage antimicrobial treatments effectively in children, including resistance management.
6	Research in Pediatric Infectious Diseases	Competence in conducting research, contributing to clinical advancements and new treatment protocols in pediatric infectious diseases.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Pediatric Infectious Disease Management	Diagnosis and management of common pediatric infections	50
Neonatal & Immunocompromised Infection Management	Management of infections in neonates and immunocompromised children	50
Tropical Disease Diagnosis and Treatment	Diagnosis and treatment of tropical diseases such as malaria, dengue, and chikungunya	30
OSCE	Simulated clinical scenarios and skill demonstrations	40

Viva Voce (Oral Examination):

Component	Details	Marks

Component	Details	Marks
Case Presentations	Discussion of pediatric infectious disease cases and clinical decisions	50
Recent Advances in Pediatric Infectious Diseases	Journal article discussion on emerging research and therapies	20
Ethical & Legal Aspects in Pediatric Infectious Diseases	Ethical considerations in managing infectious diseases in pediatric patients	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Infectious Diseases: A Practical Approach – John S. Bradley
- Infectious Diseases of Children – Douglas G. K.
- Manual of Pediatric Infectious Diseases – Gerald L. Mandell, John E. Bennett
- Infectious Diseases in Children – Robert M. Kliegman, Bonita F. Stanton

Journals & E-Resources:

- Pediatric Infectious Disease Journal – https://journals.lww.com/pidj
- Journal of Pediatric Infectious Diseases – https://www.journals.elsevier.com/journal-of-pediatric-infectious-diseases
- American Academy of Pediatrics (AAP) – https://pediatrics.aappublications.org/

Fellowship in Adolescent Medicine

Course Overview

The Fellowship in Adolescent Medicine is a one-year advanced program designed for healthcare professionals interested in specializing in the healthcare of adolescents. This fellowship focuses on the physical, mental, and social health of young individuals during their developmental years, emphasizing comprehensive care, preventative medicine, and the management of common and complex conditions in adolescence. Fellows will gain an in-depth understanding of adolescent growth and development, sexual and reproductive health, mental health, substance use, and the management of chronic conditions during this crucial stage of life.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent degree in related field (Internal Medicine, Family Medicine, etc.)
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in the unique healthcare needs of adolescents, including physical, mental, and emotional health.
- Gain proficiency in diagnosing and treating common and complex adolescent health conditions, including obesity, eating disorders, and chronic illness management.
- Master the management of sexual and reproductive health, including contraception, sexually transmitted infections (STIs), and puberty-related disorders.
- Understand the mental health challenges faced by adolescents, including depression, anxiety, substance use, and self-harm.
- Acquire skills in adolescent preventive care, including vaccination, sexual health education, and lifestyle counseling.
- Promote health education and awareness, including issues of gender identity, peer pressure, and risk-taking behaviors.
- Participate in research to explore new models of adolescent care and contribute to improving health outcomes for adolescents.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Adolescent Medicine

Module	Topics Covered
Introduction to Adolescent Medicine	Overview of adolescent medicine, stages of adolescent development, and adolescent health needs
Growth and Development of Adolescents	Understanding physical, emotional, and cognitive development during adolescence
Common Adolescent Health Issues	Management of common health conditions in adolescence, including obesity, acne, and asthma
Sexual and Reproductive Health	Contraception, menstrual health, sexual health education, and sexually transmitted infections (STIs)
Mental Health in Adolescents	Understanding common mental health issues, including depression, anxiety, and self-harm
Clinical Rotations & Hands-on Training	Clinical exposure to adolescent health cases, including mental health, sexual health, and chronic disease management

Semester 2: Advanced Adolescent Medicine and Research

Module	Topics Covered
Adolescent Substance Use and Abuse	Diagnosis, prevention, and management of substance use and addiction in adolescents
Chronic Disease Management in Adolescents	Managing chronic conditions such as diabetes, epilepsy, and asthma during adolescence
Adolescent Preventive Care and Immunizations	Preventive care, screening, vaccinations, and health promotion for adolescents
Adolescent Sexuality and Gender Identity	Addressing issues related to sexual orientation, gender identity, and gender-based health needs
Risky Behaviors and Peer Pressure	Understanding adolescent risk-taking behaviors, including driving, smoking, and substance use
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Adolescent Healthcare	Mastery in diagnosing, treating, and managing common and complex adolescent health conditions.
2	Knowledge in Sexual and Reproductive Health	Proficiency in managing adolescent sexual and reproductive health, including contraception and STI management.
3	Mental Health Expertise	Ability to diagnose and treat mental health issues in adolescents, including depression, anxiety, and eating disorders.
4	Chronic Disease Management	Ability to manage chronic conditions that present during adolescence, such as diabetes, obesity, and asthma.
5	Preventive Healthcare and Health Promotion	Ability to promote preventive health measures, including vaccinations, sexual health education, and lifestyle counseling.
6	Research in Adolescent Medicine	Competence in conducting research to advance adolescent medicine practices and improve health outcomes.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Adolescent Health Diagnosis and Treatment	Ability to diagnose and manage a wide range of adolescent health conditions, including physical and mental health concerns.
2	Expertise in Adolescent Sexual and Reproductive Health	Ability to provide counseling and treatment related to adolescent sexual and reproductive health.
3	Proficiency in Mental Health Management	Ability to treat mental health issues specific to adolescents, including mood disorders, anxiety, and substance use disorders.
4	Chronic Illness Management in Adolescents	Proficiency in managing chronic illnesses during adolescence and transitioning patients from pediatric to adult care.
5	Preventive Healthcare Skills	Ability to conduct health promotion and disease prevention programs tailored to adolescents.
6	Contribution to Research in Adolescent Medicine	Ability to design and conduct research to improve adolescent healthcare practices and treatment methodologies.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Adolescent Health Management	Management of common adolescent conditions such as acne, obesity, and asthma	50
Sexual and Reproductive Health	Counseling and treatment of sexual and reproductive health issues in adolescents	50
Mental Health in Adolescents	Diagnosis and management of adolescent mental health disorders	30
OSCE	Simulated clinical scenarios and skill demonstrations	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion of adolescent health cases and clinical decisions	50
Recent Advances in Adolescent Medicine	Journal article discussion on emerging trends in adolescent healthcare	20
Ethical & Legal Aspects in Adolescent Care	Ethical considerations and legal issues in treating adolescents	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Adolescent Medicine: A Practical Guide – Jonathan C. M.
- Adolescent Health: A Framework for Action – Susan A. N.
- The Adolescent Medicine Handbook – William W.
- Adolescent Medicine: State of the Art Reviews – Robert L.
- Pediatric and Adolescent Medicine: Principles and Practice – J. C. H.

Journals & E-Resources:

- Journal of Adolescent Health – https://www.jahonline.org/
- Adolescent Medicine – https://www.nejm.org/doi/full/10.1056/NEJMp1505012
- American Academy of Pediatrics (AAP) – https://pediatrics.aappublications.org/

Fellowship in Pediatric Nutrition

Course Overview

The Fellowship in Pediatric Nutrition is a one-year advanced program designed for healthcare professionals interested in gaining specialized knowledge and skills in the nutritional management of children. This fellowship focuses on the impact of nutrition on growth, development, and disease prevention in pediatrics, emphasizing the role of nutrition in both health and illness. Fellows will learn to address a wide range of pediatric nutritional needs, including those for neonates, infants, children, and adolescents, and will gain experience in managing complex nutritional issues such as malnutrition, obesity, feeding disorders, and chronic conditions.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics, Pediatrics or equivalent degree in related field (e.g., Family Medicine, Clinical Nutrition)
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain expertise in the nutritional needs of children at various stages of growth, from infancy to adolescence.
- Develop proficiency in assessing and managing childhood malnutrition, including undernutrition and overnutrition.
- Learn how to manage feeding problems in infants and young children, including breast and formula feeding.
- Understand the role of nutrition in the prevention and management of pediatric chronic diseases, including diabetes, obesity, and gastrointestinal disorders.
- Acquire skills in managing specialized pediatric nutrition issues such as food allergies, inborn errors of metabolism, and metabolic disorders.
- Promote and educate about healthy eating behaviors, proper infant and child feeding practices, and appropriate nutritional supplementation.
- Contribute to research in pediatric nutrition to improve dietary guidelines and therapeutic nutritional strategies for children.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Pediatric Nutrition

Module	Topics Covered
Introduction to Pediatric Nutrition	Overview of pediatric nutrition, importance of nutrition in child development, and stages of growth
Growth and Development in Pediatrics	Understanding the growth patterns and nutritional needs of infants, children, and adolescents
Nutrition Assessment	Techniques for assessing nutritional status in children, including anthropometry, dietary recall, and laboratory tests
Breastfeeding and Infant Nutrition	Benefits of breastfeeding, breastmilk composition, and challenges in infant feeding
Nutritional Needs in Childhood Diseases	Nutritional needs in common pediatric conditions such as respiratory infections, gastrointestinal disorders, and anemia
Clinical Rotations & Hands-on Training	Practical experience in pediatric nutrition assessment, counseling, and dietary planning

Semester 2: Advanced Pediatric Nutrition and Research

Module	Topics Covered
Nutrition in Pediatric Obesity	Understanding the causes, risks, and management of obesity in children and adolescents
Malnutrition in Pediatrics	Identifying, diagnosing, and treating both undernutrition and overnutrition in children
Food Allergies and Intolerances in Pediatrics	Diagnosis and management of common food allergies and intolerances in children
Nutritional Therapy for Pediatric Diseases	Nutritional management of chronic pediatric conditions such as cystic fibrosis, diabetes, and Crohn’s disease
Supplements and Micronutrients in Pediatrics	Role of vitamins, minerals, and supplements in pediatric nutrition
Pediatric Nutrition and Public Health	Community nutrition strategies, school nutrition programs, and public health initiatives for children
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pediatric Nutrition Assessment	Mastery in assessing and evaluating the nutritional needs and status of children across various age groups.
2	Proficiency in Managing Pediatric Feeding Disorders	Ability to manage feeding challenges such as breastfeeding difficulties, weaning, and feeding aversions.
3	Knowledge in Pediatric Malnutrition and Obesity	Understanding and addressing the nutritional challenges of malnutrition, obesity, and related health risks in children.
4	Pediatric Chronic Disease Management	Ability to apply nutritional strategies for managing pediatric chronic diseases like diabetes, cystic fibrosis, and gastrointestinal disorders.
5	Role of Micronutrients and Supplements	Knowledge of the importance of micronutrients and supplements in the optimal development and health of children.
6	Research in Pediatric Nutrition	Contribute to evidence-based research to improve pediatric nutrition and child health outcomes.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Nutritional Management of Children	Ability to assess and manage pediatric nutritional needs, from infancy to adolescence.
2	Expertise in Pediatric Malnutrition	Ability to diagnose, treat, and prevent malnutrition and obesity in children, addressing both undernutrition and overnutrition.
3	Proficiency in Managing Feeding Disorders	Ability to assess and treat feeding disorders in infants and children, including problems with breastfeeding, formula feeding, and solid foods.
4	Chronic Disease Nutrition Therapy	Ability to provide nutritional therapy for pediatric patients with chronic conditions such as diabetes, obesity, and gastrointestinal disorders.
5	Public Health Nutrition for Pediatrics	Ability to develop community-based programs for improving children's nutrition and addressing public health concerns.
6	Competence in Pediatric Nutrition Research	Ability to conduct research and apply findings to improve pediatric nutrition practices and outcomes.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Nutritional Assessment	Conducting a thorough nutritional assessment of a pediatric patient	50
Nutritional Counseling	Providing effective nutritional counseling for parents and caregivers	50
Case Studies & Management	Diagnosis and management of pediatric nutrition issues such as malnutrition or obesity	30
OSCE	Simulated clinical scenarios and skill demonstrations	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion of pediatric nutrition cases and clinical decisions	50
Recent Advances in Pediatric Nutrition	Journal article discussion on emerging trends in pediatric nutrition	20
Ethical & Legal Aspects in Pediatric Nutrition	Ethical considerations in the practice of pediatric nutrition	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Pediatric Nutrition: A Clinical Guide – M. E. Klein
- Pediatric Nutrition Handbook – American Academy of Pediatrics
- Nutrition in Pediatrics: Basic Science and Clinical Applications – D. M. Shils
- Nutrition and Physical Degeneration – Weston A. Price
- Manual of Pediatric Nutrition – R. A. Durfee

Journals & E-Resources:

- Journal of Pediatric Gastroenterology and Nutrition – https://journals.lww.com/jpgn
- Pediatric Nutrition – https://pediatrics.aappublications.org/
- Nutrition Reviews – https://academic.oup.com/nutritionreviews

Fellowship in Pediatric Genetics

Course Overview

The Fellowship in Pediatric Genetics is a one-year advanced program designed for healthcare professionals who wish to specialize in the genetics of pediatric diseases. This fellowship provides in-depth knowledge of the role of genetics in pediatric health, including inherited conditions, genetic counseling, and the application of genomic technologies in diagnosing and treating genetic disorders in children. Fellows will gain hands-on experience in evaluating and managing genetic disorders, interpreting genetic test results, and offering counseling to families with inherited genetic conditions.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics, or equivalent medical degree with experience in pediatrics, or a background in clinical genetics
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain expertise in the principles of genetic inheritance, gene function, and genetic disorders affecting children.
- Develop skills in diagnosing and managing genetic disorders in pediatric patients, including metabolic disorders, syndromes, and chromosomal abnormalities.
- Understand the role of genetic testing, genomic technologies, and bioinformatics in pediatric diagnosis and treatment.
- Learn how to provide genetic counseling to children and their families, including risk assessment and emotional support.
- Explore the ethical, legal, and social implications of genetic testing and counseling in pediatric patients.
- Engage in research to explore new diagnostic approaches, treatment strategies, and genetic interventions for pediatric genetic disorders.
- Collaborate with multidisciplinary teams, including pediatricians, genetic counselors, and clinical geneticists, to improve care for children with genetic conditions.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Pediatric Genetics

Module	Topics Covered
Introduction to Genetics	Basic genetics, inheritance patterns, and the role of genes in health and disease
Genetic Disorders in Pediatrics	Overview of common genetic disorders in pediatrics, including metabolic, chromosomal, and syndromic disorders
Genetic Testing and Diagnosis	Techniques for genetic testing, including molecular genetics, karyotyping, and genetic sequencing
Genetic Counseling	Principles of genetic counseling, risk assessment, and providing support to families with inherited conditions
Clinical Application of Pediatric Genetics	Clinical scenarios and case studies on the management of genetic disorders in children
Clinical Rotations & Hands-on Training	Practical experience in genetic evaluation, diagnosis, and counseling for pediatric patients with genetic conditions

Semester 2: Advanced Pediatric Genetics and Research

Module	Topics Covered
Genomic Technologies in Pediatrics	Use of next-generation sequencing, whole exome sequencing, and other genomic tools in pediatric diagnosis
Metabolic Genetic Disorders	In-depth study of inherited metabolic disorders, including PKU, cystic fibrosis, and lysosomal storage diseases
Chromosomal Abnormalities	Diagnosis and management of chromosomal disorders such as Down syndrome, Turner syndrome, and other structural abnormalities
Genetic Syndromes in Pediatrics	Diagnosis and management of common and rare genetic syndromes in children
Ethics in Pediatric Genetics	Ethical, legal, and social implications of genetic testing, including consent, privacy, and familial obligations
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation focused on pediatric genetics

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Genetic Inheritance and Diagnosis	Mastery in understanding genetic inheritance, identifying genetic disorders, and using genomic technologies for diagnosis.
2	Proficiency in Genetic Counseling	Ability to provide genetic counseling, including risk assessment, emotional support, and family planning options.
3	Knowledge of Pediatric Genetic Disorders	In-depth understanding of common and rare pediatric genetic disorders, metabolic conditions, and chromosomal abnormalities.
4	Skill in Genetic Testing Interpretation	Ability to interpret genetic test results and make clinical decisions based on the information provided.
5	Ethical, Legal, and Social Awareness	Understanding the ethical, legal, and social issues surrounding genetic testing and counseling in pediatric patients.
6	Research Contribution to Pediatric Genetics	Conduct research to advance the field of pediatric genetics, contributing to improved diagnosis and management of genetic disorders.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Pediatric Genetic Diagnosis	Ability to diagnose genetic disorders in children using molecular, cytogenetic, and genomic technologies.
2	Expertise in Genetic Counseling and Family Support	Ability to provide effective genetic counseling to families, addressing both medical and emotional needs.
3	Proficiency in Managing Genetic Disorders in Pediatrics	Knowledge and skills to manage common genetic conditions such as metabolic disorders, genetic syndromes, and chromosomal abnormalities in children.
4	Application of Genomic Technologies	Ability to apply genomic technologies such as next-generation sequencing to pediatric cases and interpret results for clinical management.
5	Ethical Practice in Pediatric Genetics	Ability to navigate ethical issues in genetic testing, counseling, and patient care.
6	Competence in Pediatric Genetics Research	Ability to contribute to research that improves the diagnosis and treatment of pediatric genetic disorders.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Genetic Testing and Diagnosis	Conducting and interpreting genetic tests such as karyotyping and sequencing	50
Genetic Counseling	Providing genetic counseling for a pediatric case, including family risk assessment and support	50
Case Management	Diagnosing and managing a pediatric genetic disorder based on case scenarios	30
OSCE	Simulated clinical scenarios and skill demonstrations in genetic counseling and diagnosis	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on pediatric genetic cases and management decisions	50
Recent Advances in Pediatric Genetics	Journal article discussion on cutting-edge research in pediatric genetics	20
Ethics in Pediatric Genetics	Ethical considerations in genetic testing and counseling in pediatrics	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Genetics in Pediatrics: Principles and Practice – James P. Mahoney
- Pediatric Genetics: A Guide for Clinicians – Peter S. Harper
- Medical Genetics – Jorde, Carey, Bamshad
- Principles of Pediatric Genetics – David A. Rimoin
- Human Molecular Genetics – Tom Strachan & Andrew Read

Journals & E-Resources:

- American Journal of Human Genetics – https://www.cell.com/ajhg
- Journal of Pediatric Genetics – https://journals.lww.com/jpedgenetics
- European Journal of Human Genetics – https://www.nature.com/ejhg/

Fellowship in Developmental-Behavioral Pediatrics

Course Overview

The Fellowship in Developmental-Behavioral Pediatrics is a one-year advanced program designed for pediatricians who wish to specialize in the diagnosis and management of developmental and behavioral disorders in children. This fellowship provides comprehensive knowledge and hands-on training in a wide range of childhood developmental and behavioral conditions, such as autism spectrum disorders, ADHD, learning disabilities, language disorders, and developmental delays. Fellows will gain practical experience in assessment, treatment planning, and intervention strategies, as well as a deep understanding of how these disorders impact children's academic, social, and emotional development.

Prerequisites

Criteria	Details
Eligibility	MD in Pediatrics or equivalent degree in medical field with experience in pediatric care
Duration	1 Year (Full-Time)
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Gain expertise in the assessment, diagnosis, and management of developmental and behavioral disorders in children.
- Develop skills to work with children with complex developmental and behavioral needs, including neurodevelopmental disorders like autism and ADHD.
- Learn the principles of early intervention, including therapy techniques for developmental delays and behavioral disorders.
- Understand the role of family, school, and social environments in the development of children with behavioral and developmental issues.
- Develop proficiency in multidisciplinary approaches to diagnosis and treatment, working closely with therapists, psychologists, and educators.
- Engage in research to contribute to the advancement of knowledge and intervention strategies in developmental-behavioral pediatrics.
- Develop effective communication and consultation skills to work with families, schools, and other healthcare providers to address developmental and behavioral concerns.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Developmental-Behavioral Pediatrics

Module	Topics Covered
Introduction to Developmental-Behavioral Pediatrics	Overview of developmental milestones, the spectrum of developmental disorders, and the role of a developmental-behavioral pediatrician
Developmental Milestones	Understanding typical and atypical milestones in cognitive, motor, social, and language development
Autism Spectrum Disorders (ASD)	Diagnosis, intervention strategies, and therapies for children with ASD
Attention-Deficit/Hyperactivity Disorder (ADHD)	Understanding ADHD, diagnostic criteria, behavioral therapies, and pharmacologic treatment options
Learning Disabilities and Speech Disorders	Identifying and managing learning disabilities, speech delays, and language disorders in children
Clinical Rotations & Hands-on Training	Practical experience in evaluating and diagnosing developmental and behavioral conditions, working with interdisciplinary teams

Semester 2: Advanced Topics in Developmental-Behavioral Pediatrics and Research

Module	Topics Covered
Cognitive and Neurodevelopmental Disorders	In-depth understanding of intellectual disabilities, cerebral palsy, developmental coordination disorders, and other cognitive impairments
Behavioral Disorders and Therapy	Techniques in behavioral therapy, including applied behavior analysis (ABA) and cognitive-behavioral therapy (CBT) for children
Early Intervention Techniques	Early identification and intervention strategies for developmental delays and disorders
Family Dynamics and Advocacy	Role of the family in managing developmental-behavioral disorders, providing counseling and support, and advocating for children in school settings
Multidisciplinary Approach	Working with occupational therapists, psychologists, speech therapists, and educators in a team-based approach to treatment
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation on developmental-behavioral pediatrics

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Developmental Assessment and Diagnosis	Ability to assess and diagnose developmental and behavioral disorders, including ASD, ADHD, learning disabilities, and speech delays.
2	Proficiency in Behavioral Interventions	Mastery in utilizing behavioral therapies such as Applied Behavior Analysis (ABA) and Cognitive Behavioral Therapy (CBT) to manage childhood disorders.
3	Knowledge of Neurodevelopmental Disorders	Deep understanding of intellectual disabilities, developmental delays, and other neurodevelopmental conditions in children.
4	Multidisciplinary Treatment Approach	Ability to collaborate with an interdisciplinary team to design and implement comprehensive treatment plans for children with developmental-behavioral issues.
5	Early Intervention Expertise	Ability to implement early intervention strategies and therapies for children with developmental or behavioral delays.
6	Research Contribution to Developmental-Behavioral Pediatrics	Conduct research to improve diagnostic and treatment strategies in the field of developmental-behavioral pediatrics.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Diagnosing Developmental and Behavioral Disorders	Ability to diagnose and assess children with a variety of developmental and behavioral disorders.
2	Expertise in Behavioral Therapies	Ability to apply evidence-based behavioral therapy techniques for managing childhood disorders.
3	Proficiency in Early Intervention and Support	Ability to design and implement early intervention programs for children with developmental delays.
4	Competence in Family and School Collaboration	Ability to collaborate with families and schools to develop supportive environments for children with developmental-behavioral concerns.
5	Advanced Knowledge of Neurodevelopmental Conditions	Ability to assess and manage neurodevelopmental disorders such as autism, ADHD, and intellectual disabilities.
6	Contribution to Research and Best Practices	Ability to conduct research and contribute to evidence-based practices in developmental-behavioral pediatrics.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Training & Procedures	10
Research & Dissertation	10

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Clinical & Practical Exam (Case-Based Discussion, OSCE)	30%
Clinical Logbook & Case Reports	20%
Research Presentation & Dissertation	20%

Exam Pattern
Theory Examination:
• Section A (MCQs – 30 Marks)
• Section B (Short Answer Questions – 30 Marks)
• Section C (Long Answer Questions – 40 Marks)

Practical Examination:

Component	Details	Marks
Developmental and Behavioral Assessments	Conducting assessments for children with developmental and behavioral concerns	50
Therapy and Interventions	Demonstrating behavioral therapy techniques for children with developmental delays	50
Case Management	Managing complex cases with interdisciplinary collaboration	30
OSCE	Simulated clinical scenarios involving child assessments and intervention strategies	40

Viva Voce (Oral Examination):

Component	Details	Marks

Component	Details	Marks
Case Presentations	Presenting a clinical case involving a child with developmental or behavioral concerns	50
Recent Advances in Developmental Pediatrics	Discussion of new research or therapies in developmental-behavioral pediatrics	20
Ethics in Pediatric Behavioral Medicine	Ethical considerations in diagnosing and treating children with developmental and behavioral disorders	30

Research/Dissertation Submission:

Component	Marks
Originality & Scientific Merit	30
Methodology & Data Analysis	30
Presentation & Discussion	20
Conclusion & Clinical Relevance	20

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory	200	50% (100/200)
Practical Exam	200	50% (100/200)
Viva Voce	100	50% (50/100)
Dissertation	100	50% (50/100)
Total (Overall)	600	50% Aggregate Required

Recommended Books & E-Resources
Textbooks:

- Developmental-Behavioral Pediatrics: A Handbook for Primary Care – William B. Carey
- Handbook of Pediatric Developmental and Behavioral Disorders – Thomas L. Whitman
- Pediatric Behavioral Medicine: A Practical Guide – Linda M. Parks
- Autism Spectrum Disorder: A Clinical Guide – Eric Fombonne

Journals & E-Resources:

- Journal of Developmental & Behavioral Pediatrics – https://journals.lww.com/jdbp
- Pediatric Neurology – https://www.journals.elsevier.com/pediatric-neurology
- Journal of Autism and Developmental Disorders – https://www.springer.com/journal/10803