Department of Anesthesia

S.No	Name of the Fellowship	Eligibility	Duration	Fee(₹)
01	Fellowship in Cardiac Anaesthesia	MD/DNB Anaes	1 yr	1,00,000
02	Fellowship in Neuro Anaesthesia	MD/DNB Anaes	1 yr	1,00,000
03	Fellowship in Onco-Anaesthesia	MD/DNB Anaes	1 yr	1,00,000
04	Fellowship in Paediatric Anaesthesia	MD/DNB Paeds/ Anaes	1 yr	1,00,000
05	Fellowship in Transplant Anaesthesia	MD/DNB Anaes	1 yr	1,00,000
06	Fellowship in Interventional Pain Management	MD/DNB Anaes, Gen Surg, Ortho, Radio	1 yr	1,00,000

Fellowship in Cardiac Anaesthesia

Course Overview

The Fellowship in Cardiac Anaesthesia is a one-year intensive program designed to train healthcare professionals in the specialized management of anaesthesia for cardiac and thoracic surgeries. The course focuses on perioperative care, hemodynamic monitoring, transesophageal echocardiography (TEE), cardiopulmonary bypass management, and critical care interventions. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anaesthesia / Critical Care / General Medicine
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in anaesthetic management of cardiac surgical patients.
- Gain proficiency in perioperative haemodynamic monitoring and management.
- Learn advanced airway management and ventilatory support techniques.
- Master the use of transesophageal echocardiography (TEE) in cardiac anaesthesia.
- Understand cardiopulmonary bypass (CPB) management and weaning strategies.
- Enhance decision-making and procedural skills in cardiac anaesthesia.
- Conduct research in cardiac anaesthesia and apply evidence-based practices.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals & Core Cardiac Anaesthesia

Module	Topics Covered
Principles of Cardiac Anaesthesia	Cardiovascular physiology, pharmacology, preoperative assessment
Airway & Ventilatory Management	Intubation, lung isolation techniques, mechanical ventilation
Haemodynamic Monitoring	Invasive & non-invasive monitoring, arterial line, PA catheter

Module	Topics Covered
Transesophageal Echocardiography (TEE)	Basic TEE views, Doppler assessment, case studies
Cardiopulmonary Bypass (CPB)	CPB principles, management, hemodilution, weaning
Clinical Rotations – OR & ICU	Hands-on patient care experience

Semester 2: Advanced Cardiac Anaesthesia & Critical Procedures

Module	Topics Covered
Anaesthesia for Complex Cardiac Surgeries	CABG, valve replacement, aortic surgeries
Perioperative Management	Coagulation management, hemodynamic optimization
Heart Failure & Transplant Anaesthesia	Anaesthesia for heart transplant, ECMO support
Pediatric Cardiac Anaesthesia	Congenital heart disease, neonatal considerations
Ethical & Legal Aspects	Informed consent, medical negligence
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Program Outcome	Description
Proficiency in Cardiac Anaesthesia	Perform anesthetic management for various cardiac and thoracic surgeries.
Advanced Haemodynamic Monitoring	Interpret and manage invasive and non-invasive haemodynamic parameters.
Expertise in Transesophageal Echocardiography (TEE)	Utilize TEE for intraoperative decision-making and cardiac function assessment.
Cardiopulmonary Bypass (CPB) Management	Optimize perfusion strategies, anticoagulation, and CPB weaning.
Pediatric & Transplant Anaesthesia	Deliver anesthetic care for pediatric cardiac surgeries and heart transplants.

Course Outcomes

Course Outcome	Description
Cardiac Anaesthesia Techniques	Learn advanced anaesthetic management for CABG, valve replacements, and aortic surgeries.
Haemodynamic Monitoring	Gain expertise in invasive monitoring, arterial lines, PA catheters, and cardiac output assessment.
Transesophageal Echocardiography (TEE)	Master the use of TEE for intraoperative cardiac assessment and optimization.
Cardiopulmonary Bypass (CPB) & Weaning	Understand CPB physiology, anticoagulation strategies, and weaning protocols.
Anaesthesia for Heart Failure & Transplantation	Manage perioperative care for heart transplant and ECMO-supported patients.

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%

Passing Criteria: Minimum 50% in each component to qualify.

Exam PatternTheory 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
Clinical Case Presentation	Diagnosis & Management of Cardiac Anaesthesia Cases	40
Advanced Airway & Ventilation	Intubation, Ventilation Techniques	50
Haemodynamic Monitoring	PA catheterization, arterial line insertion	30
OSCE	Clinical Scenarios, Skill Demonstration	40
CPB & Weaning	Cardiopulmonary Bypass Simulation	40

Viva Voce (Oral Examination) (Total: 100 Marks)

Component	Details	Marks
Case Presentations	Discussion on Cardiac Anaesthesia Cases	50
Recent Advances in Cardiac Anaesthesia	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in Anaesthesia	30

Research/Dissertation Submission (Total: 100 Marks)

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 (Paper 1 & 2)	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**

Additional Notes

- To pass the fellowship, a minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required.
- Distinction: Candidates scoring 75% and above will be awarded "Distinction."
- Failure in Practical or Viva: If a candidate fails in the practical or viva, they must reappear for the failed component in the next examination cycle.

Recommended Books & E-ResourcesTextbooks:

- Kaplan's Cardiac Anesthesia – Joel A. Kaplan
- Stoelting's Anesthesia and Co-Existing Disease – Roberta L. Hines
- Cardiac Anesthesia: Principles and Clinical Practice – Glenn P. Gravlee
- Transesophageal Echocardiography – A Comprehensive Guide – Poonam Malhotra Kapoor
- Essentials of Cardiac Anesthesia for Non-Cardiac Surgery – Joel A. Kaplan

Journals & E-Resources:

- Journal of Cardiothoracic and Vascular Anesthesia – https://www.jcvaonline.com/
- Anesthesia & Analgesia – https://journals.lww.com/anesthesia-analgesia
- British Journal of Anaesthesia – https://bjanaesthesia.org/
- European Journal of Anaesthesiology – https://journals.lww.com/ejanaesthesia
- World Federation of Societies of Anaesthesiologists (WFSA) – https://www.wfsahq.org/

Fellowship in Neuro Anaesthesia

Course Overview

The Fellowship in Neuro Anaesthesia is a one-year intensive program designed to train healthcare professionals in the specialized management of anaesthesia for neurosurgical procedures. The course focuses on perioperative neurophysiology, intracranial pressure management, neuromonitoring, cerebrovascular anaesthesia, and critical care interventions. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anaesthesia / Critical Care / General Medicine
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in anaesthetic management of neurosurgical patients.
- Gain proficiency in perioperative neuromonitoring and cerebral protection strategies.
- Learn advanced airway management and ventilatory support techniques for neuro patients.
- Master the management of intracranial pressure and cerebrovascular autoregulation.
- Understand anaesthetic implications of stroke, traumatic brain injury, and epilepsy surgery.
- Enhance decision-making and procedural skills in neuro anaesthesia.
- Conduct research in neuro anaesthesia and apply evidence-based practices.

Curriculum with Semester-wise Syllabus & Modules The one-year program is structured into two semesters, covering theoretical concepts, clinical training, and research.

Semester 1: Fundamentals & Core Neuro Anaesthesia

Module	Topics Covered

Module	Topics Covered
Principles of Neuro Anaesthesia	Neurophysiology, pharmacology, preoperative assessment
Airway & Ventilatory Management	Intubation, lung isolation techniques, mechanical ventilation
Neuromonitoring	BIS, evoked potentials, cerebral oximetry
Intracranial Pressure (ICP) Management	CSF drainage, osmotherapy, hyperventilation
Cerebrovascular Anaesthesia	Aneurysm, AVM, stroke management
Clinical Rotations – OR & ICU	Hands-on patient care experience

Semester 2: Advanced Neuro Anaesthesia & Critical Procedures

Module	Topics Covered
Anaesthesia for Complex Neurosurgeries	Craniotomies, tumor resection, spine surgery
Perioperative Neuroprotection	Hypothermia, barbiturate coma, pharmacological protection
Traumatic Brain Injury (TBI) & Stroke	Anaesthetic considerations, ICU management
Paediatric Neuro Anaesthesia	Congenital anomalies, paediatric brain tumours
Ethical & Legal Aspects	Informed consent, medical negligence
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Program Outcome	Description
Proficiency in Neuro Anaesthesia	Manage anaesthesia for neurosurgical procedures effectively.
Advanced Airway & Ventilation Techniques	Ensure safe airway management in neurocritical care.
Intracranial Pressure (ICP) Monitoring	Optimize cerebral hemodynamics and neuroprotection.
Neurophysiological Monitoring	Use EEG, BIS, and evoked potentials intraoperatively.
Pediatric & Geriatric Neuro Anaesthesia	Tailor anaesthesia for special neuro cases.
Ethical & Legal Aspects	Ensure compliance with ethical and medico-legal considerations.

Course Outcomes

Course Outcome	Description
Neuro Anaesthesia Techniques	Master the principles of neuro anaesthesia for various neurosurgical cases.
ICP & Brain Injury Management	Gain expertise in managing patients with increased ICP and brain injuries.
Neuromuscular Blockade & Reversal	Learn advanced neuromuscular blockade and reversal strategies.
Stroke & Neuroprotection	Understand perioperative stroke prevention and management.
Research & Evidence-Based Practice	Conduct research in neuro anaesthesia and apply evidence-based 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%

Passing Criteria: Minimum 50% in each component to qualify.

Exam PatternTheory 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
Clinical Case Presentation	Diagnosis & Management of Neuro Anaesthesia Cases	40
Advanced Airway & Ventilation	Intubation, Ventilation Techniques	50
Neuromonitoring	BIS, Evoked Potentials Interpretation	30
OSCE	Clinical Scenarios, Skill Demonstration	40
ICP Management	Intracranial Pressure Monitoring	40

Viva Voce (Oral Examination) (Total: 100 Marks)

Component	Details	Marks
Case Presentations	Discussion on Neuro Anaesthesia Cases	50
Recent Advances in Neuro Anaesthesia	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in Anaesthesia	30

Research/Dissertation Submission (Total: 100 Marks)

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 (Paper 1 & 2)	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**

Additional Notes

- To pass the fellowship, a minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required.
- Distinction: Candidates scoring 75% and above will be awarded "Distinction."
- Failure in Practical or Viva: If a candidate fails in the practical or viva, they must reappear for the failed component in the next examination cycle.

Recommended Books & E-ResourcesTextbooks:

- Cottrell and Patel's Neuroanesthesia – James E. Cottrell
- Essentials of Neuroanesthesia – Hemanshu Prabhakar
- Clinical Neuroanesthesia – Paul M. Vanhoutte
- Neurosurgical Anesthesia – Jeffrey R. Kirsch
- Pharmacology of Neurocritical Care – Michael C. James

Journals & E-Resources:

- Journal of Neurosurgical Anesthesiology – https://journals.lww.com/jnsa
- British Journal of Anaesthesia – https://bjanaesthesia.org/
- European Journal of Anaesthesiology – https://journals.lww.com/ejanaesthesia
- Society for Neuroscience in Anesthesiology and Critical Care – https://snacc.org/
- World Federation of Societies of Anaesthesiologists (WFSA) – https://www.wfsahq.org/

Fellowship in Onco-Anaesthesia

Course Overview

The Fellowship in Onco-Anaesthesia is a one-year intensive program designed to train healthcare professionals in the specialized management of anaesthesia for oncological surgeries and cancer-related critical care. The course focuses on perioperative care, pain management, airway management in difficult cases, anesthesia for complex cancer surgeries, and palliative care. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anaesthesia / Critical Care / General Medicine
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in anaesthetic management of oncological surgical patients.
- Gain proficiency in perioperative haemodynamic monitoring and pain management.
- Learn advanced airway management techniques for difficult intubations.
- Master anaesthesia techniques for complex oncological procedures.
- Understand palliative care and pain management strategies for cancer patients.
- Enhance decision-making and procedural skills in onco-anaesthesia.
- Conduct research in onco-anaesthesia and apply evidence-based practices.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals & Core Onco-Anaesthesia

Module	Topics Covered
Principles of Onco-Anaesthesia	Cancer physiology, pharmacology, preoperative assessment
Airway & Ventilatory Management	Difficult airway management, fiberoptic intubation
Haemodynamic Monitoring	Invasive & non-invasive monitoring, arterial line, PA

Module	Topics Covered
	catheter
Anaesthesia for Head & Neck Surgeries	Tracheostomy, awake intubation, airway tumors
Pain Management in Oncology	Acute, chronic, and palliative pain management
Clinical Rotations – OR & ICU	Hands-on patient care experience

Semester 2: Advanced Onco-Anaesthesia & Critical Procedures

Module	Topics Covered
Anaesthesia for Complex Cancer Surgeries	GI, hepatobiliary, thoracic, and neurosurgical oncology
Perioperative Cancer Care	Immunosuppression, chemotherapy effects on anaesthesia
Pediatric Onco-Anaesthesia	Anaesthesia considerations for pediatric cancer patients
Palliative Care & Pain Management	End-of-life care, opioid management, nerve blocks
Ethical & Legal Aspects	Informed consent, medical negligence
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Onco-Anaesthesia Techniques	Develop specialized skills in anaesthesia management for oncological surgeries, including complex airway management and pain control.
2	Multidisciplinary Team Collaboration	Work effectively with oncologists, surgeons, and palliative care teams to optimize perioperative care.
3	Proficiency in Regional Anaesthesia & Pain Management	Master advanced regional anaesthesia techniques for pain management in cancer patients.
4	Evidence-Based Clinical Decision-Making	Apply research and clinical guidelines to ensure safe and effective anaesthesia practices in oncological procedures.

Sr. No.	Program Outcome	Description
5	Ethical & Palliative Care Integration	Understand ethical considerations and integrate palliative care principles in managing cancer patients requiring anaesthesia.

Course Outcomes (COs)

Sr. No.	Course Outcome	Description
1	Understanding of Cancer Pathophysiology	Gain in-depth knowledge of cancer-related physiological changes affecting anaesthesia management.
2	Anaesthetic Considerations in Oncological Surgeries	Learn perioperative anaesthesia strategies for different types of oncological surgeries.
3	Management of Chemotherapy-Induced Complications	Develop expertise in handling anaesthesia for patients undergoing chemotherapy and radiation therapy.
4	Critical Care & Postoperative Management	Master ICU care, post-operative pain control, and airway management in cancer patients.
5	Research & Innovation in Onco-Anaesthesia	Conduct research on novel anaesthetic techniques and contribute to advancements in cancer care.

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%

Passing Criteria: Minimum 50% in each component to qualify.

Exam PatternTheory 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
Clinical Case Presentation	Diagnosis & Management of Onco-Anaesthesia Cases	40
Advanced Airway & Ventilation	Fiberoptic Intubation, Tracheostomy	50
Haemodynamic Monitoring	PA catheterization, arterial line insertion	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Pain Management	Nerve Blocks, Epidural Techniques	40

Viva Voce (Oral Examination) (Total: 100 Marks)

Component	Details	Marks
Case Presentations	Discussion on Onco-Anaesthesia Cases	50
Recent Advances in Onco-Anaesthesia	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in Anaesthesia	30

Research/Dissertation Submission (Total: 100 Marks)

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 (Paper 1 & 2)	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**

Additional Notes

- To pass the fellowship, a minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required.
- Distinction: Candidates scoring 75% and above will be awarded "Distinction."
- Failure in Practical or Viva: If a candidate fails in the practical or viva, they must reappear for the failed component in the next examination cycle.

Recommended Books & E-ResourcesTextbooks:

- Clinical Anesthesia for Oncology Patients – Ismail Jatoi
- Miller's Anesthesia – Ronald D. Miller
- Handbook of Cancer-Related Pain Syndromes – Michael D. Fisch
- Basics of Oncology Anesthesia – Cynthia A. Lien
- Palliative Medicine and Pain Management – Sriram Yennurajalingam

Journals & E-Resources:

- Journal of Anesthesia & Oncology – https://www.oncoanesthesia.com/
- Anesthesia & Analgesia – https://journals.lww.com/anesthesia-analgesia
- British Journal of Anaesthesia – https://bjanaesthesia.org/
- European Journal of Anaesthesiology – https://journals.lww.com/ejanaesthesia
- World Federation of Societies of Anaesthesiologists (WFSA) – https://www.wfsahq.org/

Fellowship in Paediatric Anaesthesia

Course Overview

The Fellowship in Paediatric Anaesthesia is a one-year intensive program designed to train healthcare professionals in the specialized management of anaesthesia for neonatal and paediatric patients. The course focuses on perioperative care, airway management, regional anaesthesia, pain management, and critical care interventions for paediatric patients. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anaesthesia / Critical Care / General Medicine
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in anaesthetic management of paediatric surgical patients.
- Gain proficiency in perioperative monitoring and paediatric airway management.
- Learn advanced techniques in regional anaesthesia for children.
- Master pain management strategies for paediatric patients.
- Understand the physiological and pharmacological differences in paediatric anaesthesia.
- Enhance decision-making and procedural skills in paediatric anaesthesia.
- Conduct research in paediatric anaesthesia and apply evidence-based practices.

Curriculum with Semester-wise Syllabus & Modules The one-year program is structured into two semesters, covering theoretical concepts, clinical training, and research.

Semester 1: Fundamentals & Core Paediatric Anaesthesia

Module	Topics Covered
Principles of Paediatric Anaesthesia	Neonatal and paediatric physiology, pharmacology, preoperative assessment
Airway & Ventilatory Management	Difficult airway management, intubation, ventilation strategies
Monitoring in Paediatric Anaesthesia	Non-invasive and invasive monitoring techniques
Regional Anaesthesia Techniques	Caudal blocks, epidurals, nerve blocks
Pain Management in Children	Acute and chronic pain management strategies
Clinical Rotations – OR & PICU	Hands-on patient care experience

Semester 2: Advanced Paediatric Anaesthesia & Critical Procedures

Module	Topics Covered
Anaesthesia for Neonatal Surgeries	Anaesthesia for preterm and neonatal surgeries
Congenital Heart Disease & Anaesthesia	Special considerations for paediatric cardiac patients
Anaesthesia for Paediatric Neurosurgery	Anaesthesia for hydrocephalus, brain tumors
Trauma & Emergency Anaesthesia	Paediatric trauma care, rapid sequence induction
Ethical & Legal Aspects	Informed consent, child protection laws
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Program Outcome	Description
Expertise in Pediatric Airway Management	Perform safe intubation and ventilation in neonates & children.
Anesthesia for Pediatric Surgeries	Deliver anaesthesia for common and complex pediatric procedures.
Pain Management in Children	Utilize multimodal pain relief strategies, including regional techniques.

Program Outcome	Description
Pediatric Critical Care & Resuscitation	Handle pediatric emergencies and resuscitation.
Congenital & Neonatal Anesthesia	Manage anaesthesia for congenital anomalies and preterm infants.
Ethical & Parental Communication	Navigate consent and parental discussions in pediatric care.

Course Outcomes

Course Outcome	Description
Pediatric Pharmacology	Understand pediatric pharmacology and anaesthetic considerations.
Neonatal & Infant Care	Gain expertise in fluid management and temperature control in neonates.
Pediatric Regional Anaesthesia	Perform pediatric regional anaesthesia and analgesia techniques.
Specialized Pediatric Surgeries	Learn perioperative care for pediatric cardiac and neurosurgical cases.
Research & Evidence-Based Practice	Conduct research in pediatric anaesthesia and apply best 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%

Passing Criteria: Minimum 50% in each component to qualify.

Exam PatternTheory 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
Clinical Case Presentation	Diagnosis & Management of Paediatric Anaesthesia Cases	40
Advanced Airway & Ventilation	Intubation, Ventilation Techniques	50
Regional Anaesthesia	Caudal, Epidural & Nerve Blocks	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Emergency Anaesthesia	Paediatric Trauma & Resuscitation	40

Viva Voce (Oral Examination) (Total: 100 Marks)

Component	Details	Marks
Case Presentations	Discussion on Paediatric Anaesthesia Cases	50
Recent Advances in Paediatric Anaesthesia	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in Paediatric Care	30

Research/Dissertation Submission (Total: 100 Marks)

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

Exam Component	Total Marks	Minimum Passing Marks
Theory (Paper 1 & 2)	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**

Additional Notes

- To pass the fellowship, a minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required.
- Distinction: Candidates scoring 75% and above will be awarded "Distinction."
- Failure in Practical or Viva: If a candidate fails in the practical or viva, they must reappear for the failed component in the next examination cycle.

Recommended Books & E-ResourcesTextbooks:

- Gregory's Pediatric Anesthesia – Dean B. Andropoulos
- A Practice of Anesthesia for Infants and Children – Charles J. Cote
- Smith's Anesthesia for Infants and Children – Peter J. Davis
- Paediatric Anaesthesia – A Handbook of Perioperative Medicine – Steve Roberts
- Basics of Paediatric Anaesthesia – Pradip K. Saha

Journals & E-Resources:

- Paediatric Anaesthesia Journal – https://onlinelibrary.wiley.com/journal/14609592
- British Journal of Anaesthesia – https://bjanaesthesia.org/
- Anesthesia & Analgesia – https://journals.lww.com/anesthesia-analgesia
- European Journal of Anaesthesiology – https://journals.lww.com/ejanaesthesia
- World Federation of Societies of Anaesthesiologists (WFSA) – https://www.wfsahq.org/

Fellowship in Transplant Anaesthesia

Course Overview

The Fellowship in Transplant Anaesthesia is a one-year intensive program designed to train healthcare professionals in the specialized management of anaesthesia for organ transplant surgeries. The course focuses on perioperative care, advanced haemodynamic monitoring, transplant pharmacology, organ preservation, immunosuppression, and post-transplant critical care. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anaesthesia / Critical Care / General Medicine
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in anaesthetic management for transplant surgeries.
- Gain proficiency in perioperative haemodynamic monitoring and fluid management.
- Learn advanced airway management and ventilatory support techniques.
- Master the pharmacological principles of immunosuppression and transplant drugs.
- Understand organ preservation techniques and transplantation immunology.
- Enhance decision-making and procedural skills in transplant anaesthesia.
- Conduct research in transplant anaesthesia and apply evidence-based practices.

Curriculum with Semester-wise Syllabus & Modules The one-year program is structured into two semesters, covering theoretical concepts, clinical training, and research.

Semester 1: Fundamentals & Core Transplant Anaesthesia

Module	Topics Covered
Principles of Transplant Anaesthesia	Physiology of organ failure, transplant pharmacology, preoperative optimization
Airway & Ventilatory Management	Intubation, lung isolation techniques, mechanical ventilation
Haemodynamic Monitoring	Invasive & non-invasive monitoring, arterial line, PA catheter
Immunosuppression & Transplant Pharmacology	Immunosuppressants, drug interactions, rejection prevention
Organ Preservation & Perfusion	Preservation techniques, ischemia-reperfusion injury
Clinical Rotations – OR & ICU	Hands-on patient care experience

Semester 2: Advanced Transplant Anaesthesia & Critical Procedures

Module	Topics Covered
Anaesthesia for Liver Transplant	Coagulation management, haemodynamic instability, post-transplant care
Anaesthesia for Kidney & Pancreas Transplant	Fluid & electrolyte balance, renal replacement therapy
Anaesthesia for Heart & Lung Transplant	ECMO, CPB management, rejection & immunosuppression
Pediatric Transplant Anaesthesia	Unique considerations in pediatric recipients
Ethical & Legal Aspects	Informed consent, organ donation ethics
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Program Outcome	Description
Mastery in Liver & Kidney Transplant Anaesthesia	Deliver anaesthesia for solid organ transplants.
Perioperative Critical Care	Manage ICU care for transplant patients.
Advanced Hemodynamic & Coagulation Management	Optimize perfusion and coagulation strategies.

Program Outcome	Description
Ventilation & Weaning in Transplant Patients	Manage ventilatory support post-transplant.
Immunosuppression & Rejection Monitoring	Understand immunosuppression and organ rejection management.
Ethical & Legal Considerations in Transplantation	Ensure compliance with transplant ethics and legal aspects.

Course Outcomes

Course Outcome	Description
Transplant Anaesthesia Techniques	Learn advanced anaesthetic strategies for liver, kidney, and heart transplants.
Coagulation & Blood Management	Manage blood transfusion and coagulation in transplant patients.
Postoperative ICU Care	Optimize postoperative management and monitoring in transplant recipients.
Ventilatory Strategies	Implement mechanical ventilation strategies for transplant patients.
Research & Evidence-Based Practice	Conduct research and contribute to advancements in transplant anaesthesia.

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

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%

Passing Criteria: Minimum 50% in each component to qualify.

Exam PatternTheory 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
Clinical Case Presentation	Diagnosis & Management of Transplant Anaesthesia Cases	40
Advanced Airway & Ventilation	Intubation, Ventilation Techniques	50
Haemodynamic Monitoring	PA catheterization, arterial line insertion	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Transplant Surgery Anaesthetic Management	Liver, Kidney, Heart, Lung Transplantation	40

Viva Voce (Oral Examination) (Total: 100 Marks)

Component	Details	Marks
Case Presentations	Discussion on Transplant Anaesthesia Cases	50
Recent Advances in Transplant Anaesthesia	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in Anaesthesia	30

Research/Dissertation Submission (Total: 100 Marks)

Component	Marks
Originality & Scientific Merit	30

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

Final Weightage & Passing Criteria

Exam Component	Total Marks	Minimum Passing Marks
Theory (Paper 1 & 2)	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**

Additional Notes

- To pass the fellowship, a minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required.
- Distinction: Candidates scoring 75% and above will be awarded "Distinction."
- Failure in Practical or Viva: If a candidate fails in the practical or viva, they must reappear for the failed component in the next examination cycle.

Recommended Books & E-ResourcesTextbooks:

- Miller's Anesthesia – Ronald D. Miller
- Transplant Anesthesia and Critical Care – J.M. O'Donnell
- Liver Anesthesia – Gebhard Wagener
- Handbook of Kidney Transplantation – Gabriel M. Danovitch
- Essentials of Organ Transplantation – Nadey Hakim

Journals & E-Resources:

- Transplantation Proceedings – https://www.transplantation-proceedings.org/
- Journal of Anesthesia & Clinical Research – https://www.omicsonline.org/anesthesia-clinical-research.php
- American Journal of Transplantation – https://onlinelibrary.wiley.com/journal/16006143
- British Journal of Anaesthesia – https://bjanaesthesia.org/

- World Federation of Societies of Anaesthesiologists (WFSA) – https://www.wfsahq.org/

Fellowship in Interventional Pain Management

Course Overview The Fellowship in Interventional Pain Management is a one-year intensive program designed to train healthcare professionals in the specialized management of acute and chronic pain through interventional techniques. The course focuses on pain pathophysiology, multimodal analgesia, fluoroscopy and ultrasound-guided interventions, and advanced pain procedures. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anaesthesia / Pain Medicine / Orthopaedics / Neurology / Physical Medicine & Rehabilitation
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in the assessment and management of acute and chronic pain conditions.
- Gain proficiency in fluoroscopy and ultrasound-guided pain procedures.
- Learn pharmacological and non-pharmacological approaches to pain management.
- Master interventional techniques including nerve blocks, radiofrequency ablation, and spinal cord stimulation.
- Understand the role of regenerative medicine in pain therapy.
- Enhance decision-making and procedural skills in interventional pain management.
- Conduct research in pain medicine and apply evidence-based practices.

Curriculum with Semester-wise Syllabus & Modules The one-year program is structured into two semesters, covering theoretical concepts, clinical training, and research.

Semester 1: Fundamentals & Core Pain Management

Module	Topics Covered
Principles of Pain Medicine	Pain physiology, classification, assessment scales
Pharmacology of Pain Management	Opioids, NSAIDs, adjuvants, multimodal analgesia
Neuroanatomy & Pain Pathways	Peripheral and central pain mechanisms
Basic Interventional Techniques	Nerve blocks, trigger point injections
Imaging in Pain Management	Fluoroscopy, ultrasound guidance
Clinical Rotations – Pain Clinics & OR	Hands-on patient care experience

Semester 2: Advanced Interventional Pain & Specialized Techniques

Module	Topics Covered
Advanced Interventional Techniques	Epidural injections, facet joint interventions, RF ablation
Neuropathic Pain & Cancer Pain	Diagnosis, management, palliative approaches
Spinal Cord Stimulation & Neuromodulation	Indications, techniques, complications
Regenerative Medicine in Pain	PRP therapy, stem cell applications
Ethical & Legal Aspects	Opioid prescription policies, patient consent
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Program Outcome	Description
Mastery in Chronic Pain Management	Diagnose and treat chronic pain conditions effectively.

Program Outcome	Description
Expertise in Interventional Procedures	Perform advanced interventional pain procedures such as nerve blocks, epidurals, and radiofrequency ablation.
Multidisciplinary Pain Management Approach	Coordinate with specialists for a holistic pain management plan.
Pharmacological & Non-Pharmacological Therapy	Optimize medication use and alternative pain relief therapies.
Neuromodulation & Regenerative Medicine	Apply emerging techniques like spinal cord stimulation and PRP therapy.
Ethical & Psychological Considerations	Ensure ethical pain management and address psychological aspects of chronic pain.

Course Outcomes

Course Outcome	Description
Pain Assessment & Diagnosis	Develop expertise in evaluating and diagnosing various pain syndromes.
Interventional Techniques	Master procedural skills in nerve blocks, epidural steroid injections, and radiofrequency ablation.
Pharmacological Management	Learn safe prescribing practices for analgesic and adjuvant pain medications.
Multimodal Pain Therapy	Implement an integrated approach combining interventional, pharmacological, and psychological therapies.
Research & Evidence-Based Practice	Conduct research and contribute to advancements in pain management.

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%

Assessment Type	Weightage
Research Presentation & Dissertation	20%

Passing Criteria: Minimum 50% in each component to qualify.

Exam PatternTheory 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
Clinical Case Presentation	Diagnosis & Management of Pain Cases	40
Interventional Techniques	Nerve Blocks, Epidural Injections, RF Ablation	50
Imaging-Guided Procedures	Fluoroscopy & Ultrasound-Guided Interventions	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Neuromodulation	Spinal Cord Stimulation Procedures	40

Viva Voce (Oral Examination) (Total: 100 Marks)

Component	Details	Marks
Case Presentations	Discussion on Pain Management Cases	50
Recent Advances in Pain Medicine	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in Pain Medicine	30

Research/Dissertation Submission (Total: 100 Marks)

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 (Paper 1 & 2)	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**

Additional Notes

- To pass the fellowship, a minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required.
- Distinction: Candidates scoring 75% and above will be awarded "Distinction."
- Failure in Practical or Viva: If a candidate fails in the practical or viva, they must reappear for the failed component in the next examination cycle.

Recommended Books & E-ResourcesTextbooks:

- Raj's Practical Management of Pain – Honorio Benzon
- Bonica's Management of Pain – Scott M. Fishman
- Atlas of Interventional Pain Management – Steven D. Waldman
- Essentials of Pain Medicine – Benzon & Raja
- Wall and Melzack's Textbook of Pain – Stephen McMahon

Journals & E-Resources:

- Pain Medicine Journal – https://academic.oup.com/painmedicine
- Journal of Pain Research – https://www.dovepress.com/journal-of-pain-research-journal
- Regional Anesthesia & Pain Medicine – https://rapm.bmj.com/
- International Association for the Study of Pain (IASP) – https://www.iasp-pain.org/
- World Institute of Pain (WIP) – https://www.worldinstituteofpain.org/