Department of Emergency & Critical Care

S.No	Name of the Fellowship	Eligibility	Duration	Fee(₹)
01	Fellowship in Emergency Care	MBBS, MD/DNB Anaes, Gen Med, Resp Med	1 yr	1,00,000
02	Fellowship in Critical Care	MBBS, MD/DNB Anaes, Gen Med, Resp Med	1 yr	1,00,000
03	Fellowship in Paediatric Critical Care	MD/DNB Paeds, Emerg Med, Anaes	1 yr	1,00,000
04	Fellowship in Paediatric Emergency Care	MD/DNB Paeds, Emerg Med, Anaes	1 yr	1,00,000
05	Fellowship in Cardiac Intensive Care	MBBS, MD/DNB Anaes, Gen Med, Resp Med	1 yr	1,00,000
06	Fellowship in Neuro Intensive Care	MBBS,MD/DNB Anaes, Gen Med	1 yr	1,00,000
07	Fellowship in Respiratory Intensive	MBBS,MD/DNB Anaes, Gen Med, Resp	1 yr	1,00,000

	Care	Med		
08	Fellowship in Simulation Medicine	MBBS,MD/DNB Anaes, Gen Med, Resp Med	1 yr	1,00,000
09	Fellowship in Transplant Intensive Care	MBBS,MD/DNB Anaes, Gen Med, Resp Med	1 yr	1,00,000
10	Fellowship in Interventions in Intensive Care	MBBS,MD/DNB Anaes, Gen Med, Resp Med	1 yr	1,00,000

Fellowship in Emergency Care

Course Overview

The Fellowship in Emergency Care is a one-year intensive program designed to train healthcare professionals in the comprehensive management of acute medical and surgical emergencies. The course focuses on trauma care, critical resuscitation, toxicology, disaster medicine, and emergency procedures to enhance rapid decision-making skills. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Emergency Medicine / Internal Medicine / Anesthesia / Critical Care / General Medicine

Criteria	Details
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop expertise in rapid assessment and management of life-threatening conditions.
- Gain proficiency in trauma care and critical resuscitation.
- Learn advanced airway management and ventilatory support techniques.
- Diagnose and manage toxicology cases and poisoning.
- Understand principles of disaster medicine and mass casualty management.
- Enhance decision-making and procedural skills in emergency care.
- Conduct research in emergency 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 Emergency Care

Module	Topics Covered
Principles of Emergency Medicine	Pathophysiology, triage, and patient stabilization
Airway &Ventilatory Management	Intubation, non-invasive ventilation, tracheostomy
Trauma & Resuscitation	ATLS guidelines, shock management, fluid resuscitation
Cardiovascular & Respiratory Emergencies	ACS, arrhythmias, stroke, respiratory distress
Toxicology & Poisoning	Drug overdoses, envenomation, antidote therapy
Clinical Rotations – Emergency Room & ICU	Hands-on patient care experience

Semester 2: Advanced Emergency Care & Critical Procedures

Module	Topics Covered
Neurological Emergencies	Seizures, meningitis, brain injury management
Disaster Medicine & Mass Casualty Management	Triage protocols, pre-hospital care
Pediatric & Obstetric Emergencies	Neonatal resuscitation, obstetric trauma
Ethical & Legal Aspects of Emergency Care	Informed consent, medical negligence
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Proficiency in Emergency Assessments	Perform rapid evaluation and management of critical patients.
2	Trauma & Resuscitation Expertise	Apply ATLS and ACLS protocols in emergency settings.
3	Critical Care & Airway Management	Master invasive and non-invasive airway techniques.
4	Toxicology & Poisoning Management	Diagnose and treat acute toxicology cases effectively.
5	Disaster Medicine & Mass Casualty Handling	Coordinate emergency response strategies in disaster situations.
6	Ethical & Legal Acumen	Ensure ethical and legal compliance in emergency care.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Master Rapid Assessment & Critical Decision-Making	Develop expertise in triage, resuscitation, and immediate intervention for critically ill patients.
2	Proficiency in Emergency Procedures & Trauma Management	Gain hands-on skills in intubation, defibrillation, wound care, and trauma stabilization techniques.
3	Effective Management of Cardiac, Respiratory & Neurological Emergencies	Learn to diagnose and treat life-threatening conditions such as myocardial infarctions, stroke, and acute respiratory distress.
4	Leadership in Disaster & Mass Casualty Incident Response	Train in protocols for disaster preparedness, mass casualty management, and emergency coordination.
5	Evidence-Based Practice & Research in Emergency Medicine	Apply research methodologies and evidence-based protocols to improve patient outcomes in emergency 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%

- **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 Emergency Conditions	40
Advanced Airway & Ventilation	Intubation, Ventilation Techniques	50
Trauma Management	Shock, Resuscitation, ATLS	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Disaster Medicine Scenario	Mass Casualty Simulation	40

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

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

Research/Dissertation Submission (Total: 100 Marks)

Component	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-Resources

Textbooks:

- Rosen’s Emergency Medicine: Concepts and Clinical Practice – John Marx
- Tintinalli’s Emergency Medicine – Judith E. Tintinalli
- The Walls Manual of Emergency Airway Management – Calvin A. Brown III
- ATLS: Advanced Trauma Life Support Manual – American College of Surgeons
- Emergency Medicine Procedures – Eric Reichman

Journals & E-Resources:

- Annals of Emergency Medicine – https://www.annemergmed.com/
- Journal of Emergency Medicine – https://www.jem-journal.com/
- The New England Journal of Medicine – https://www.nejm.org/
- World Health Organization (WHO) – Emergency Care – https://www.who.int/health-topics/emergency-care

Fellowship in Critical Care

Course Overview

The Fellowship in Critical Care is a one-year intensive program designed to train healthcare professionals in the comprehensive management of critically ill patients. The course focuses on advanced life support, mechanical ventilation, sepsis management, hemodynamic monitoring, and multi-organ support. It includes clinical rotations, simulation training, and research projects.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anesthesia / Internal Medicine / Critical

Criteria	Details
	Care / Pulmonology / Emergency 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 the management of critically ill patients.
- Gain proficiency in ventilatory support and advanced airway management.
- Learn hemodynamic monitoring and cardiovascular support techniques.
- Diagnose and manage sepsis, ARDS, and multi-organ failure.
- Understand principles of sedation, analgesia, and neurocritical care.
- Enhance decision-making and procedural skills in intensive care.
- Conduct research in critical care 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 Critical Care

Module	Topics Covered
Principles of Critical Care	Pathophysiology, patient monitoring, and stabilization
Airway &Ventilatory Management	Intubation, mechanical ventilation, tracheostomy
Sepsis & Multi-Organ Dysfunction	Septic shock, MODS, antimicrobial

Module	Topics Covered
	stewardship
Hemodynamic Monitoring	Invasive and non-invasive techniques, vasopressor use
Nutrition & Metabolic Support	Enteral and parenteral nutrition in ICU
Clinical Rotations – ICU & High Dependency Unit	Hands-on patient care experience

Semester 2: Advanced Critical Care & Procedures

Module	Topics Covered
Neurological Critical Care	Stroke, traumatic brain injury, status epilepticus
Cardiac Intensive Care	Acute coronary syndrome, heart failure, cardiac arrest
Respiratory Intensive Care	ARDS, COPD exacerbation, ECMO indications
Ethical & Legal Aspects of Critical Care	End-of-life decisions, withdrawal of care
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Critical Care Medicine	Diagnose and manage critically ill patients effectively.
2	Proficiency in Mechanical Ventilation	Implement invasive and non-invasive ventilation strategies.
3	Hemodynamic Monitoring & Support	Use advanced monitoring tools to optimize cardiovascular support.
4	Infection Control & Sepsis Management	Apply best practices in ICU infection control and antimicrobial use.
5	Ethical Decision-Making	Ensure ethical and legal compliance in ICU care.
6	Research & Clinical	Contribute to advancements in intensive care

Sr. No.	Program Outcome	Description
	Innovation	medicine.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Advanced Life Support & Critical Care Interventions	Develop proficiency in mechanical ventilation, hemodynamic monitoring, and vasoactive drug management.
2	Management of Multi-Organ Dysfunction & Sepsis	Gain expertise in diagnosing and treating conditions like septic shock, ARDS, and renal failure in critically ill patients.
3	Proficiency in Critical Care Procedures	Perform invasive and non-invasive procedures such as central line insertion, arterial catheterization, and ECMO management.
4	Leadership in ICU Team Coordination & Patient Safety	Enhance decision-making skills for ICU management, ethical dilemmas, and multidisciplinary team coordination.
5	Application of Evidence-Based Critical Care Practices	Implement clinical research, protocols, and guidelines to optimize patient outcomes in critical care settings.

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%

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

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
Clinical Case Presentation	Diagnosis & Management of ICU Conditions	40
Advanced Airway & Ventilation	Intubation, Ventilation Techniques	50
Hemodynamic Monitoring	Invasive & Non-Invasive Techniques	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Sepsis & Infection Control	ICU Protocols & Antibiotic Use	40

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

Component	Details	Marks
Case Presentations	Discussion on ICU Cases	50

Component	Details	Marks
Recent Advances in Critical Care	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in ICU	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-Resources Textbooks:

- Marino's The ICU Book – Paul L. Marino
- Irwin &Rippe's Intensive Care Medicine – Richard S. Irwin
- Principles of Critical Care – Jesse B. Hall
- Oxford Textbook of Critical Care – Andrew Webb
- Manual of Clinical Anesthesiology – Larry F. Chu

Journals & E-Resources:

- Critical Care Medicine Journal – https://journals.lww.com/ccmjournal
- Intensive Care Medicine – https://www.springer.com/journal/134
- The New England Journal of Medicine – https://www.nejm.org/
- World Health Organization (WHO) – Critical Care – https://www.who.int/health-topics/intensive-care

Fellowship in Pediatric Critical Care

Course Overview

The Fellowship in Paediatric Critical Care is a one-year advanced program aimed at training healthcare professionals in the management of critically ill children. The course covers a wide range of paediatric emergencies, including respiratory failure, sepsis, trauma, neurological emergencies, and complex conditions requiring intensive care. It incorporates theoretical learning, clinical rotations, hands-on training, and research projects to enhance the ability to provide optimal care to critically ill paediatric patients.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Paediatrics / Anaesthesia / Critical Care / General

Criteria	Details
	Medicine
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- Develop proficiency in managing critically ill paediatric patients.
- Master the principles of paediatric intensive care and resuscitation.
- Learn advanced airway management and ventilatory support techniques in children.
- Diagnose and manage paediatric toxicology cases and poisoning.
- Understand the principles of paediatric disaster medicine and mass casualty management.
- Enhance decision-making and procedural skills in paediatric critical care.
- Conduct research in paediatric critical care and apply evidence-based practices.

Curriculum with Semester-wise Syllabus & Modules

The one-year program is divided into two semesters, each focusing on different aspects of paediatric critical care.

Semester 1: Fundamentals & Core Paediatric Critical Care

Module	Topics Covered
Principles of Paediatric Critical Care	Pathophysiology, triage, and stabilization in children

Module	Topics Covered
Airway &Ventilatory Management	Intubation, non-invasive ventilation, paediatric tracheostomy
Paediatric Trauma & Resuscitation	ATLS guidelines, trauma care for children, shock management, fluid resuscitation
Cardiovascular & Respiratory Emergencies	Paediatric arrhythmias, respiratory distress, acute cardiac failure
Paediatric Toxicology & Poisoning	Drug overdoses, envenomation, antidote therapy in children
Clinical Rotations – Paediatric ICU & Emergency Room	Hands-on patient care experience in a paediatric ICU and emergency setting

Semester 2: Advanced Paediatric Critical Care & Critical Procedures

Module	Topics Covered
Neurological Emergencies in Children	Seizures, meningitis, traumatic brain injury management in paediatrics
Paediatric Disaster Medicine & Mass Casualty Management	Triage protocols, pre-hospital care in paediatric emergencies
Pediatric & Neonatal Emergencies	Neonatal resuscitation, paediatric obstetric trauma, perinatal care
Ethical & Legal Aspects in Paediatric Critical Care	Ethical issues, informed consent, medical negligence in paediatrics
Research Project & Case Studies	Literature review, paediatric patient studies, dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Proficiency in Paediatric Critical Assessments	Perform rapid evaluation and management of critically ill children.
2	Paediatric Trauma & Resuscitation Expertise	Apply paediatric ATLS and ACLS protocols in emergency settings.
3	Critical Care & Paediatric Airway Management	Master invasive and non-invasive airway techniques for children.
4	Paediatric Toxicology & Poisoning Management	Diagnose and treat acute toxicology cases effectively in children.
5	Paediatric Disaster Medicine & Mass Casualty Handling	Coordinate emergency response strategies in paediatric disasters.
6	Ethical & Legal Acumen	Ensure ethical and legal compliance in paediatric critical care.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Proficiency in Paediatric Critical Care Assessment and Management	Ability to rapidly assess and manage critically ill paediatric patients, including trauma, respiratory, and cardiovascular emergencies.
2	Expertise in Paediatric Trauma & Resuscitation	Apply Advanced Trauma Life Support (ATLS) protocols and paediatric resuscitation techniques in trauma and shock situations.
3	Mastery in Paediatric Airway &Ventilatory Management	Expertise in advanced airway management techniques such as intubation, non-invasive ventilation, and paediatric tracheostomy care.
4	Advanced Knowledge in Paediatric Toxicology & Poisoning Management	Accurately diagnose and manage acute paediatric toxicology cases, including drug overdoses, poisoning, and envenomations.
5	Competence in Paediatric	Coordinate and manage paediatric care during

Sr. No.	Course Outcome	Description
	Disaster Medicine & Mass Casualty Management	disaster situations, using triage protocols and mass casualty management strategies.
6	Ethical & Legal Understanding in Paediatric Critical Care	Ensure adherence to ethical principles and legal considerations in paediatric critical care, including informed consent and patient rights.
7	Proficiency in Paediatric Intensive Care Procedures	Perform critical care procedures in paediatrics, including invasive monitoring, fluid management, and mechanical ventilation.
8	Research & Evidence-Based Practice	Conduct and evaluate research in paediatric critical care and apply evidence-based practices to improve patient outcomes.
9	Clinical Decision-Making and Leadership Skills	Demonstrate sound clinical judgment and decision-making, and provide leadership in paediatric critical care settings.
10	Comprehensive Paediatric Emergency Care	Manage complex paediatric emergencies across various domains, including respiratory failure, sepsis, neurological crises, and other life-threatening conditions.

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%

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
Clinical Case Presentation	Diagnosis & Management of Paediatric Emergency Conditions	40
Advanced Airway & Ventilation	Intubation, Ventilation Techniques for Children	50
Paediatric Trauma Management	Shock, Resuscitation, Paediatric ATLS	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Disaster Medicine Scenario	Paediatric Mass Casualty Simulation	40

Viva Voce (Oral Examination)

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

Research/Dissertation Submission

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

Final Weight age & 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)

Exam Component	Total Marks	Minimum Passing Marks
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-Resources

Textbooks:

- **Pediatric Critical Care** – Bradley P. Fuhrman, Jerry J. Zimmerman
- **Pediatric Emergency Medicine** – Gary R. Fleisher, Stephen Ludwig
- **Manual of Pediatric Critical Care** – Sharon S. Mulder
- **Pediatric Intensive Care** – Thomas P. Shanley
- **Neonatal Resuscitation Program (NRP) Textbook** – American Academy of Pediatrics

Journals & E-Resources:

- **Pediatric Critical Care Medicine** – https://journals.lww.com/pccmjournal
- **Pediatric Emergency Care** – https://journals.lww.com/pec-online
- **The New England Journal of Medicine** – https://www.nejm.org/
- **World Health Organization (WHO) – Paediatrics** – https://www.who.int/health-topics/child-health

Fellowship in Paediatric Emergency Care

Course Overview

The Fellowship in Paediatric Emergency Care is a one-year advanced program designed to train healthcare professionals in the management of paediatric emergencies. This course prepares professionals to respond effectively to acute medical situations, including trauma, respiratory distress, seizures, sepsis, and other urgent conditions requiring immediate intervention. The fellowship integrates theoretical knowledge, hands-on clinical experience, and research, enabling fellows to provide high-quality emergency care to critically ill and injured children.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Paediatrics / Anaesthesia / Emergency Medicine / General Medicine

Criteria	Details
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Project

Course Objectives

- **Develop proficiency in managing paediatric emergencies** involving trauma, respiratory failure, and sepsis.
- **Master the principles of paediatric emergency assessment and stabilization** in critical settings.
- **Gain expertise in the management of paediatric trauma** and emergency airway management.
- **Learn advanced resuscitation techniques**, including paediatric CPR and Advanced Paediatric Life Support (APLS).
- **Understand the pathophysiology and treatment of common paediatric emergencies**, such as seizures, poisoning, and infections.
- **Enhance clinical decision-making skills** in time-sensitive situations to ensure optimal patient outcomes.

Curriculum with Semester-wise Syllabus & Modules

The one-year program is divided into two semesters, each focusing on distinct areas of paediatric emergency care.

Semester 1: Core Paediatric Emergency Care

Module	Topics Covered
Paediatric Emergency Care Basics	Triage, assessment, and stabilization in paediatric emergencies
Paediatric Trauma Management	Trauma care, injury patterns, fluid resuscitation, and ATLS for children
Respiratory Emergencies	Acute respiratory distress, paediatric ventilation strategies, asthma management

Module	Topics Covered
Sepsis & Infections in Children	Diagnosis and management of sepsis, meningitis, and febrile illnesses
Neurological Emergencies	Seizures, status epilepticus, head trauma, and paediatric neurology
Paediatric Toxicology & Poisoning	Drug overdoses, accidental poisoning, and antidote therapy in children
Clinical Rotations – Paediatric ER & ICU	Hands-on patient care in paediatric emergency and intensive care settings

Semester 2: Advanced Paediatric Emergency Care & Critical Procedures

Module	Topics Covered
Paediatric Resuscitation & ACLS	Advanced paediatric life support techniques, CPR protocols for children
Acute Pain Management in Children	Pain management in trauma and emergency situations
Paediatric Disaster & Mass Casualty	Paediatric disaster preparedness, triage, and mass casualty management
Paediatric Advanced Airway Management	Intubation, advanced airway techniques, non-invasive ventilation for children
Paediatric Cardiac Emergencies	Cardiac arrhythmias, shock management, and acute cardiac arrest in children
Ethical & Legal Aspects in Paediatric Emergency Care	Ethical dilemmas, consent, and legal issues in paediatric emergency care
Research Project & Case Studies	Literature review, case studies, and dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Proficiency in Paediatric Emergency Care	Perform rapid assessment and management of paediatric emergencies
2	Paediatric Trauma Management Expertise	Apply paediatric trauma protocols and resuscitation techniques
3	Advanced Airway Management in Paediatrics	Master airway techniques, including intubation and ventilation for children
4	Paediatric Toxicology Management	Diagnose and treat paediatric poisoning and toxicology cases
5	Paediatric Disaster & Mass Casualty Response	Lead and coordinate paediatric emergency responses in mass casualty situations
6	Ethical & Legal Competence in Emergency Care	Navigate ethical and legal issues in paediatric emergency medicine

Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Paediatric Emergency Assessment & Management	Ability to assess and manage paediatric emergencies effectively
2	Paediatric Trauma & Resuscitation Mastery	Proficiency in managing trauma and applying paediatric APLS protocols
3	Advanced Airway &Ventilatory Management	Expertise in airway management, including advanced ventilation techniques for children
4	Competence in Paediatric Toxicology & Poisoning	Accurate diagnosis and management of paediatric toxicology cases

Sr. No.	Course Outcome	Description
5	Proficiency in Paediatric Disaster & Mass Casualty Management	Lead emergency response and triage for paediatric disasters
6	Ethical & Legal Understanding in Paediatric Emergency Care	Understanding and adherence to ethical and legal principles in emergency paediatric care
7	Clinical Decision-Making & Leadership	Demonstrate sound clinical judgment and provide leadership in emergency situations
8	Research & Evidence-Based Practice	Conduct and apply research to improve paediatric emergency care outcomes
9	Advanced Knowledge in Paediatric Cardiac & Respiratory Emergencies	Manage complex paediatric cardiac and respiratory emergencies
10	Comprehensive Paediatric Emergency Management	Ability to handle multi-faceted paediatric emergency cases across various domains

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
Clinical Case Presentation	Diagnosis & Management of Paediatric Emergencies	40
Advanced Airway Management	Intubation, Ventilation Techniques for Children	50
Paediatric Trauma Management	Shock, Resuscitation, Paediatric ATLS	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Disaster Medicine Scenario	Paediatric Mass Casualty Simulation	40

Viva Voce (Oral Examination)

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

Additional Notes:

- A minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required to pass.
- **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-Resources

Textbooks:

- **Paediatric Emergency Medicine** – Gary R. Fleisher, Stephen Ludwig
- **Manual of Paediatric Emergency Care** – Alan H. Jaffe, Daniel D. Bressler
- **Pediatric Critical Care** – Bradley P. Fuhrman, Jerry J. Zimmerman
- **Paediatric Trauma** – Peter C. M. Simons, Michael R. O'Keefe
- **Pediatric Advanced Life Support (PALS) Textbook** – American Heart Association

Journals & E-Resources:

- **Pediatric Emergency Care** – Pediatric Emergency Care Journal
- **Pediatric Emergency Medicine** – Pediatric Emergency Medicine Journal
- **The Lancet** – The Lancet Paediatrics
- **World Health Organization (WHO) – Paediatrics** – WHO Paediatrics

Fellowship in Cardiac Intensive Care

Course Overview

The Fellowship in Cardiac Intensive Care is a one-year advanced program aimed at training healthcare professionals in the management of critically ill cardiac patients, with a special focus on paediatric and adult populations. The course covers a wide range of cardiac conditions requiring intensive care, including acute coronary syndromes, heart failure, arrhythmias, post-operative care, and complex cardiothoracic emergencies. It integrates theoretical knowledge, clinical rotations, hands-on training, and research, empowering fellows to provide the highest standard of care in cardiac intensive care settings.

Prerequisites

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

Course Objectives

- **Develop proficiency in managing critically ill cardiac patients** across paediatric and adult populations.
- **Master the principles of cardiac intensive care** including monitoring, stabilization, and post-operative management.
- **Gain expertise in the management of acute coronary syndromes, heart failure, arrhythmias, and shock.**
- **Learn advanced techniques for invasive monitoring** and the management of cardiovascular emergencies.
- **Enhance decision-making skills in the intensive care unit** and provide leadership in a multidisciplinary cardiac ICU team.
- **Conduct research in cardiac intensive care** and implement evidence-based practices to improve outcomes.

Curriculum with Semester-wise Syllabus & Modules

The one-year program is divided into two semesters, each focusing on different aspects of cardiac intensive care.

Semester 1: Fundamentals & Core Cardiac Intensive Care

Module	Topics Covered
Cardiac Intensive Care Principles	Pathophysiology, assessment, and stabilization of critically ill cardiac patients
Acute Coronary Syndromes	Diagnosis, management, and post-intervention care for

Module	Topics Covered
(ACS)	ACS patients
Heart Failure & Cardiogenic Shock	Acute decompensated heart failure, mechanical circulatory support, shock management
Cardiac Arrhythmias & Monitoring	ECG interpretation, arrhythmia management, invasive monitoring techniques
Post-operative Cardiac Care	Management of patients post-cardiac surgery, including CABG, valve replacement
Pharmacological Management in Cardiac ICU	Inotropes, vasopressors, anticoagulation, and arrhythmia drugs
Clinical Rotations – Cardiac ICU & CCU	Hands-on patient care in a cardiac intensive care unit and coronary care unit

Semester 2: Advanced Cardiac Intensive Care & Critical Procedures

Module	Topics Covered
Advanced Cardiac Monitoring	Hemodynamic monitoring, echocardiography, invasive catheterization, and VAD
Cardiopulmonary Resuscitation (CPR)	Advanced cardiac life support (ACLS), cardiac arrest management
Mechanical Circulatory Support	Intra-aortic balloon pump (IABP), ventricular assist devices (VAD)
Cardiac Transplantation & ECMO	Indications, patient selection, and management of patients post-cardiac transplant and ECMO
Ethical & Legal Aspects in Cardiac Care	Ethical decision-making, organ donation, and consent in critical care
Research Project & Case Studies	Literature review, case studies, and dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Proficiency in Cardiac Intensive Care	Perform rapid evaluation and management of critically ill cardiac patients
2	Expertise in Managing Acute Coronary Syndromes	Apply best practices in diagnosing and managing ACS, including post-procedural care
3	Advanced Arrhythmia & Shock Management	Manage life-threatening arrhythmias, cardiogenic shock, and heart failure
4	Proficiency in Advanced Monitoring & Interventions	Master invasive and non-invasive monitoring techniques and interventions
5	Expertise in Cardiopulmonary Resuscitation	Lead resuscitation efforts using advanced life support protocols (ACLS, CPR)
6	Ethical & Legal Competence in Cardiac Care	Navigate ethical and legal issues in cardiac intensive care settings

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery in Cardiac Intensive Care Assessment & Management	Rapidly assess and manage critically ill cardiac patients with various pathologies
2	Expertise in Managing Acute Coronary Syndromes	Proficiently manage ACS, from initial evaluation to post-procedural care
3	Proficiency in Advanced Cardiac Monitoring & Techniques	Implement advanced hemodynamic and echocardiographic monitoring techniques

Sr. No.	Course Outcome	Description
4	Competence in Shock & Heart Failure Management	Treat patients with cardiogenic shock, heart failure, and respiratory compromise
5	Expertise in Cardiopulmonary Resuscitation (CPR)	Lead effective ACLS and CPR efforts in cardiac emergencies
6	Proficiency in Post-operative Cardiac Care	Manage post-cardiac surgery patients, including those with complications
7	Research & Evidence-Based Practices in Cardiac Care	Conduct and apply research findings to improve outcomes in cardiac intensive care
8	Leadership & Decision-Making Skills in Cardiac ICU	Demonstrate leadership, clinical decision-making, and team management in a cardiac ICU setting
9	Advanced Knowledge in Cardiac Transplantation & ECMO	Manage patients undergoing cardiac transplantation or ECMO therapy
10	Ethical & Legal Competence in Cardiac Intensive Care	Ensure ethical decision-making and legal compliance in critical care scenarios

Credits & Assessment Methods

Total Credits	40
Component	**Credits**
Theory & Lectures	10
Clinical Rotations & Case Studies	10

Total Credits	40
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
Clinical Case Presentation	Diagnosis & Management of Cardiac Emergencies	40

Component	Details	Marks
Advanced Cardiac Monitoring	Hemodynamic monitoring, echocardiography techniques	50
Cardiopulmonary Resuscitation	CPR, ACLS protocols, advanced life support	40
OSCE	Clinical Scenarios, Skill Demonstration	40
Shock Management Scenario	Cardiogenic shock, vasopressor use, mechanical support	40

Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion on Cardiac ICU Cases	50
Recent Advances in Cardiac Care	Journal Article Discussion	20
Ethical & Legal Considerations	Ethical Issues in Cardiac ICU 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**

Additional Notes:

- A minimum of 50% marks in each section (Theory, Practical, Viva, and Dissertation) is required to pass.
- **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-Resources

Textbooks:

- **Cardiac Intensive Care** – Peter O'Rourke, Timothy R. Ahern
- **Cardiovascular Critical Care** – Richard L. W. Finkel, Mary E. Coffman
- **Cardiac Intensive Care Manual** – Mark A. Slaughter, Christopher R. Crowley
- **Heart Failure: A Companion to Braunwald's Heart Disease** – Douglas L. Mann
- **Advanced Cardiovascular Life Support (ACLS) Provider Manual** – American Heart Association

Journals & E-Resources:

- **Journal of Cardiovascular Intensive Care** – JCIC
- **Circulation** – Circulation Journal
- **The Lancet: Cardiology** – The Lancet
- **European Heart Journal** – European Heart Journal
- **PubMed** – National Library of Medicine

Fellowship in Neuro Intensive Care

Course Overview

The Fellowship in Neuro Intensive Care is a one-year advanced program designed to equip healthcare professionals with specialized knowledge and practical skills in the management of critically ill patients with neurological conditions. The program covers a wide range of neurological emergencies, including acute stroke, traumatic brain injury, intracranial hemorrhage, and other life-threatening neurological disorders. Fellows will be trained in the latest diagnostic and therapeutic interventions to provide the highest standard of care in neuro-intensive care units (ICU).

Prerequisites

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

Course Objectives

- **Develop proficiency in managing critically ill neurological patients** in the ICU.
- **Master advanced neurocritical care techniques** for conditions such as traumatic brain injury (TBI), stroke, and seizures.
- **Gain expertise in neurological monitoring and diagnostics**, including intracranial pressure monitoring, EEG, and CT/MRI interpretation.
- **Learn the principles of managing acute neurological emergencies**, including stroke management and traumatic brain injury protocols.
- **Enhance decision-making and procedural skills** for complex neurological interventions in critically ill patients.
- **Conduct research** in neurocritical care and apply evidence-based practices to improve patient outcomes.
- **Understand ethical and legal considerations** in neurocritical care, especially in life-threatening neurological conditions.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Neuro Intensive Care

Module	Topics Covered
Principles of Neuro Intensive Care	Pathophysiology, assessment, stabilization, and monitoring of neurocritically ill patients
Traumatic Brain Injury (TBI)	Initial management, intracranial pressure (ICP) monitoring, and surgery
Acute Stroke Management	Diagnosis, thrombolysis, mechanical thrombectomy, and post-stroke care
Neurological Monitoring Techniques	ICP monitoring, EEG, transcranial Doppler, and neuroimaging
Seizures & Status Epilepticus	Management of acute seizures and status epilepticus in the ICU
Clinical Rotations – Neuro ICU & Emergency	Hands-on care in a neuro ICU and emergency department settings

Semester 2: Advanced Neuro Intensive Care & Procedures

Module	Topics Covered
Intracranial Hemorrhages & Cerebral Edema	Management of subarachnoid hemorrhage (SAH), intracerebral hemorrhage (ICH), and cerebral edema
Neurovascular Interventions	Endovascular procedures for ischemic stroke and aneurysm coiling
Neuro Intensive Care Emergencies	Coma management, brain death determination, and early rehabilitation
Ethical & Legal Issues in Neuro ICU	Ethical considerations in life-and-death neurological situations, consent
Research Project & Case Studies	Literature review, neuro ICU patient studies, and dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Proficiency in Neurocritical Assessments	Perform rapid evaluation and management of critically ill neuro patients.
2	Expertise in Neurovascular Emergencies	Apply advanced management protocols for strokes and aneurysms.
3	Mastery in Traumatic Brain Injury & Intracranial Pressure Management	Effectively manage TBI and ICP in critically ill patients.
4	Expertise in Seizures & Status Epilepticus Management	Diagnose and manage seizures and status epilepticus in ICU settings.
5	Proficiency in Neurointerventions& Monitoring	Conduct neurointerventions such as endovascular procedures and manage neuro-monitoring devices.
6	Ethical & Legal Acumen in Neurocritical Care	Navigate ethical and legal considerations in neurocritical care scenarios.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Proficiency in Neurocritical Care Management	Rapidly assess and manage critically ill neurological patients, including those with stroke, TBI, and seizures.
2	Expertise in Acute Stroke and TBI Management	Apply advanced stroke and traumatic brain injury management protocols.
3	Mastery in Neurocritical Monitoring	Perform and interpret advanced neurocritical monitoring, including ICP, EEG, and imaging.

Sr. No.	Course Outcome	Description
4	Advanced Knowledge in Seizure & Status Epilepticus Management	Effectively manage status epilepticus and neurological emergencies.
5	Proficiency in Neurovascular Interventions	Conduct endovascular procedures for stroke and aneurysm management.
6	Ethical & Legal Understanding in Neurocritical Care	Ensure adherence to ethical and legal considerations in neurocritical care, including consent and end-of-life decisions.
7	Proficiency in Neuro-ICU Procedures	Perform neurocritical care procedures such as intracranial pressure monitoring, neuroimaging, and endovascular procedures.
8	Research & Evidence-Based Practice	Conduct research in neurocritical care and apply evidence-based practices.
9	Clinical Decision-Making & Leadership Skills	Demonstrate clinical judgment and provide leadership in neurocritical care settings.
10	Comprehensive Neuro ICU Care	Manage complex neurocritical conditions across various domains, including stroke, trauma, and intracranial hemorrhages.

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
Clinical Case Presentation	Diagnosis & Management of Neurocritical Conditions	40
Neurovascular Intervention Techniques	Endovascular procedures for stroke and aneurysms	50
TBI Management & ICP Monitoring	Traumatic brain injury management and ICP monitoring	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Neurocritical Care Simulation	Neurocritical Care Scenario Simulation	40

Viva Voce (Oral Examination):

Component	Details	Marks

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

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-Resources

Textbooks:

- **Neurocritical Care – Nitin Agarwal, Kedar M. Kachhawa**
- **Neurological Intensive Care – HemanshuSoni**
- **Critical Care Neurology – Michael E. Donnino, Susan R. Olsson**
- **Stroke: Pathophysiology, Diagnosis, and Management – J. W. Albers**
- **Traumatic Brain Injury – Mark A. H. Lewis**

Journals & E-Resources:

- **Neurocritical Care Journal – https://www.springer.com/journal/136**
- **Stroke Journal – https://www.ahajournals.org/journal/str**
- **Critical Care Medicine – https://journals.lww.com/ccmjournal**
- **Neurology Journal – https://n.neurology.org/**

Fellowship in Respiratory Intensive Care

Course Overview

The Fellowship in Respiratory Intensive Care is a one-year advanced program aimed at training healthcare professionals in the management of critically ill patients with respiratory failure and other respiratory emergencies. The course focuses on acute respiratory distress syndrome (ARDS), chronic obstructive pulmonary disease (COPD) exacerbations, ventilator management, non-invasive ventilation (NIV), invasive ventilation, and respiratory infections. Fellows will gain expertise in advanced respiratory monitoring and interventions to improve outcomes in critically ill respiratory patients.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Respiratory Medicine / Anaesthesia / Critical Care / Internal 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 managing critically ill respiratory patients** with respiratory failure, ARDS, and ventilatory support.
- **Master advanced ventilator management techniques** for invasive and non-invasive ventilation.
- **Learn to manage acute respiratory emergencies** including asthma exacerbations, COPD, and pneumonia.
- **Understand the principles of advanced respiratory monitoring** techniques such as capnography, oxygenation assessment, and blood gas analysis.
- **Enhance skills in managing respiratory infections and sepsis** in the critical care setting.
- **Conduct research** in respiratory intensive care and implement evidence-based practices to improve patient outcomes.
- **Understand ethical and legal considerations** in respiratory critical care, including decision-making in life-sustaining treatment.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Respiratory Intensive Care

Module	Topics Covered
Principles of Respiratory Intensive Care	Pathophysiology of respiratory failure, stabilization, and monitoring
Ventilator Management	Invasive and non-invasive ventilation techniques, ventilator modes, and settings
Acute Respiratory Distress Syndrome (ARDS)	Pathophysiology, management, and ventilatory strategies for ARDS
Chronic Obstructive Pulmonary Disease (COPD)	Management of acute exacerbations, COPD protocols in ICU
Respiratory Infections & Sepsis	Management of pneumonia, ventilator-associated pneumonia, sepsis
Clinical Rotations – Respiratory ICU & Emergency	Hands-on experience in respiratory ICU and emergency settings

Semester 2: Advanced Respiratory Intensive Care & Procedures

Module	Topics Covered
Non-Invasive Ventilation (NIV)	Indications, techniques, and complications of NIV in respiratory failure
Respiratory Failure & Monitoring	Advanced monitoring (capnography, oxygenation indices, blood gas analysis)
Mechanical Ventilation in Special Populations	Ventilator management in pediatric, geriatric, and obese patients
Pulmonary Rehabilitation & Weaning	Weaning from mechanical ventilation, rehabilitation strategies
Ethical & Legal Issues in Respiratory ICU	Ethical decision-making in respiratory critical care, organ donation

Module	Topics Covered
Research Project & Case Studies	Literature review, case-based discussions, and dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Proficiency in Respiratory Critical Assessments	Perform rapid evaluation and management of critically ill respiratory patients.
2	Ventilator Management Expertise	Master ventilator management for invasive and non-invasive ventilation techniques.
3	Advanced Management of ARDS and Respiratory Failure	Apply advanced protocols for ARDS and respiratory failure management.
4	Expertise in Respiratory Infections & Sepsis Management	Diagnose and treat respiratory infections and sepsis in ICU settings.
5	Expertise in Non-Invasive Ventilation (NIV)	Effectively manage NIV for various respiratory conditions.
6	Ethical & Legal Acumen in Respiratory ICU	Navigate ethical and legal issues in respiratory critical care, including end-of-life care.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Proficiency in Respiratory Critical Care Management	Rapidly assess and manage respiratory failure, ARDS, and other respiratory emergencies.
2	Mastery in Ventilator Management	Expertise in managing invasive and non-invasive ventilation in critically ill patients.
3	Advanced Knowledge in ARDS Management	Apply advanced ventilatory strategies and management protocols for ARDS patients.
4	Expertise in Managing Respiratory Infections	Diagnose and manage respiratory infections, including pneumonia and sepsis in ICU patients.
5	Proficiency in Non-Invasive Ventilation Techniques	Effectively implement NIV for patients with respiratory failure or obstructive sleep apnea.
6	Ethical & Legal Understanding in Respiratory ICU	Ensure adherence to ethical and legal considerations in critical care, such as informed consent.
7	Proficiency in Respiratory ICU Procedures	Perform advanced respiratory ICU procedures such as intubation, extubation, and ventilation management.
8	Research & Evidence-Based Practice	Conduct research and apply evidence-based practices to improve outcomes in respiratory critical care.
9	Clinical Decision-Making & Leadership Skills	Demonstrate clinical judgment and leadership in respiratory intensive care settings.
10	Comprehensive Respiratory ICU Care	Manage complex respiratory conditions across various domains, including mechanical ventilation, sepsis, and ARDS.

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
Clinical Case Presentation	Diagnosis & Management of Respiratory Conditions	40
Ventilator Management Techniques	Invasive and Non-Invasive Ventilation Techniques	50
Respiratory Failure Management	Management of ARDS, COPD, and other respiratory failures	30
OSCE	Clinical Scenarios, Skill Demonstration	40
Non-Invasive Ventilation Simulation	NIV simulation for various respiratory conditions	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on Respiratory Emergency Cases	50
Recent Advances in Respiratory Care	Journal Article Discussion	20
Ethical & Legal Considerations	Medical Ethics in Respiratory Critical 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

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-Resources

Textbooks:

- **Mechanical Ventilation: Physiological and Clinical Applications – John F. Murray, James L. Nadel**
- **Respiratory Care: Principles and Practice – Dean Hess, Robert Kacmarek**
- **Critical Care Medicine: Principles of Diagnosis and Management in the Adult – Joseph E. Parrillo, R. Phillip Dellinger**
- **Acute Respiratory Distress Syndrome: A Practical Guide – Anupam Agarwal, Ravi R. Thiagarajan**
- **Chronic Obstructive Pulmonary Disease: Diagnosis and Management – Bartolome Celli, Claudius R. Roberts**

Journals & E-Resources:

- **American Journal of Respiratory and Critical Care Medicine – https://www.atsjournals.org/journal/ajrccm**
- **Chest Journal – https://journal.chestnet.org/**
- **The Lancet Respiratory Medicine – https://www.thelancet.com/journals/lanres**
- **Respiratory Care Journal – https://www.rcjournal.com/**

Fellowship in Simulation Medicine

Course Overview

The Fellowship in Simulation Medicine is a one-year advanced program designed to train healthcare professionals in the use of medical simulation for education, training, and assessment of clinical skills. The program focuses on developing expertise in the use of simulation-based education for improving patient safety, team communication, procedural skills, and critical decision-making. Fellows will engage in both high-fidelity simulation training and research to advance the use of simulation in medical practice and education.

Prerequisites

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

Course Objectives

- **Master the principles and techniques of medical simulation** to enhance clinical training and patient safety.
- **Develop expertise in high-fidelity simulation systems** used for skills training, including software, simulators, and virtual reality.
- **Learn to design and implement simulation-based education** for healthcare professionals, including team training, crisis resource management, and technical skills development.
- **Understand the educational theory behind simulation medicine** and how to assess and improve learner performance.
- **Enhance team-based communication and leadership skills** through simulation scenarios in high-pressure clinical settings.
- **Conduct research in simulation medicine** and apply evidence-based practices to improve educational outcomes and patient care.
- **Explore ethical and legal issues related to simulation in medical education and patient care.**

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Foundations of Simulation Medicine

Module	Topics Covered
Introduction to Simulation Medicine	History, principles, and applications of simulation in healthcare
Simulation Technology & Equipment	High-fidelity simulators, virtual reality, and augmented reality applications
Simulation-Based Education	Educational theories in simulation, designing and implementing training programs
Basic Skills and Procedural Training	Simulation of basic clinical procedures, airway management, and basic life support
Crisis Resource Management	Teamwork, leadership, and communication in high-pressure situations
Clinical Rotations – Simulation Center	Hands-on experience in medical simulation centers, assisting in training

Semester 2: Advanced Simulation Medicine

Module	Topics Covered
Advanced Simulation Scenarios	Management of complex clinical scenarios, such as cardiac arrest, trauma, and sepsis
Simulation for High-Risk Procedures	Training in advanced technical procedures using simulators
Debriefing Techniques in Simulation	Learning how to conduct effective debriefings after simulation exercises
Assessment in Simulation Education	Methods for evaluating performance in simulation, creating assessments for skill acquisition
Research in Simulation	Designing and conducting research in simulation-based

Module	Topics Covered
Medicine	education and its effectiveness
Ethical and Legal Aspects of Simulation	Addressing legal and ethical concerns in simulation education and patient care
Research Project & Case Studies	Conducting research projects, literature review, and writing a dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Simulation-Based Training	Design and implement simulation-based training for clinical education.
2	Mastery of Simulation Technology	Use high-fidelity simulation systems and technologies for healthcare training.
3	Advanced Crisis Resource Management	Apply simulation for crisis resource management and team communication.
4	Proficiency in Debriefing and Assessment Techniques	Conduct debriefing and assessment sessions post-simulation.
5	Research Expertise in Simulation Medicine	Conduct research to improve the effectiveness of simulation-based education.
6	Ethical and Legal Awareness in Simulation Medicine	Understand ethical and legal issues related to medical simulation and education.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Proficiency in Designing Simulation-Based Education	Design, implement, and evaluate simulation programs for medical education.
2	Mastery in Using Simulation Technology	Demonstrate proficiency in using simulators, virtual reality, and augmented reality tools for healthcare training.
3	Competence in Crisis Resource Management through Simulation	Apply simulation to manage high-pressure clinical scenarios effectively.
4	Expertise in Simulation Debriefing & Assessment	Conduct detailed debriefing sessions to analyze performance and improve outcomes.
5	Research in Simulation Medicine	Conduct research to assess the impact and effectiveness of simulation-based learning in healthcare.
6	Understanding Ethical and Legal Issues in Simulation	Ensure ethical and legal considerations are respected in the use of simulation for education and training.
7	Proficiency in Simulation for High-Risk Procedures	Use simulation to train healthcare professionals in high-risk procedures.
8	Leadership Skills in Simulation Training Programs	Lead and manage simulation training programs for medical teams.

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
Simulation-Based Case Presentation	Simulation of emergency scenarios and procedural tasks	40
Debriefing & Feedback	Conducting and analyzing debriefing sessions	50
Simulation Design	Designing a simulation training session for specific clinical scenarios	30
OSCE	Skill demonstration in simulation-based clinical scenarios	40

Viva Voce (Oral Examination):

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

Research/Dissertation Submission:

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

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-Resources

Textbooks:

- **Simulation in Healthcare Education – Deborah M. McHugh, Caroline J. Gettings**
- **Essentials of Simulation-Based Training – S. Patrick O'Leary**
- **Medical Simulation: Applications in Medical Education and Practice – Mohamed Nabil S. Elmi**
- **The Complete Guide to Simulation-Based Learning – R. D. S. Day**
- **Principles and Practice of Simulation in Healthcare – Debra Nestel**

Journals & E-Resources:

- **Simulation in Healthcare – https://journals.lww.com/simulationinhealthcare**
- **Journal of Medical Simulation – https://www.journals.elsevier.com/journal-of-medical-simulation**
- **The Lancet – https://www.thelancet.com/journals/lancet**
- **Society for Simulation in Healthcare (SSH) – https://www.ssih.org/**

Fellowship in Transplant Intensive Care

Course Overview

The Fellowship in Transplant Intensive Care is a one-year advanced program aimed at training healthcare professionals in the critical care management of transplant patients. The program covers a comprehensive approach to the perioperative management of transplant recipients, addressing the challenges of organ transplantation, immunosuppression, transplant rejection, and post-transplant complications. Fellows will gain expertise in the management of complex critical care scenarios involving kidney, liver, heart, and lung transplant patients, including acute and chronic complications that may arise following transplantation.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Anaesthesia / Critical Care / Internal Medicine / Surgery / Nephrology / Hepatology / Pulmonology
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 perioperative management** of transplant patients, including preparation for surgery, post-operative care, and management of complications.
- **Master the principles of immunosuppression therapy** and its impact on transplant recipients, including managing infections and transplant rejection.
- **Learn to recognize and manage transplant-related complications**, such as graft rejection, organ dysfunction, and other post-transplant issues.
- **Understand organ-specific considerations** in transplantation, including kidney, liver, heart, and lung transplants.
- **Enhance clinical decision-making and procedural skills** specific to transplant critical care.
- **Conduct research in transplant intensive care** and evaluate strategies to improve patient outcomes post-transplant.
- **Learn the ethical, legal, and logistical aspects** of organ donation, transplant allocation, and patient consent.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Transplant Intensive Care

Module	Topics Covered
Introduction to Organ Transplantation	Basics of organ transplantation, types of transplants, and immunology of transplantation
Preoperative Management in Transplantation	Preparing transplant candidates, preoperative assessment, and organ selection
Immunosuppressive Therapy	Types of immunosuppressive drugs, drug monitoring, and side effects
Infectious Complications in Transplant Patients	Managing infections in transplant recipients, including bacterial, viral, and fungal infections
Post-Transplant Complications	Early complications like graft rejection, organ dysfunction, and acute rejection episodes
Clinical Rotations – Transplant ICU	Hands-on experience managing post-transplant patients in an intensive care setting

Semester 2: Advanced Transplant Intensive Care

Module	Topics Covered
Advanced Immunology of Transplantation	Understanding transplant rejection mechanisms, alloimmune response, and graft survival
Graft Rejection and Management	Identifying signs of rejection (acute/chronic), treatment options, and immunosuppression adjustment
Organ-Specific Transplant Care	Kidney, liver, heart, and lung transplant management, organ-specific complications
Chronic Complications in Transplant Recipients	Long-term management of transplant patients, chronic rejection, graft dysfunction
Ethical and Legal Aspects in	Organ donation ethics, patient consent, and legal

Module	Topics Covered
Transplantation	considerations in transplantation
Research Project & Case Studies	Literature review, research methodology, and dissertation preparation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Perioperative Management in Transplant Care	Prepare and manage patients before, during, and after transplant surgeries.
2	Mastery in Immunosuppressive Therapy Management	Effectively manage immunosuppressive medications and prevent rejection.
3	Proficiency in Transplant Complication Management	Recognize and manage complications like graft rejection and organ dysfunction.
4	Organ-Specific Transplant Care Expertise	Manage patients undergoing kidney, liver, heart, and lung transplants.
5	Competence in Chronic Complications and Long-term Care	Manage long-term care issues and prevent chronic rejection in transplant patients.
6	Research Expertise in Transplant Critical Care	Conduct research on post-transplant care, graft survival, and complication management.
7	Ethical and Legal Awareness in Organ Transplantation	Understand and navigate ethical and legal concerns in transplantation.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Perioperative Transplant Care	Ability to manage preoperative and postoperative care for transplant patients.
2	Mastery in Immunosuppression and Rejection Management	Proficient in the use of immunosuppressive therapy and management of graft rejection.
3	Proficiency in Managing Post-Transplant Complications	Recognize and treat complications such as graft failure, rejection, and infections.
4	Organ-Specific Expertise in Transplant Care	Understand the management of kidney, liver, heart, and lung transplant patients.
5	Long-term Transplant Patient Management	Manage chronic complications and ensure graft survival over time.
6	Ethical and Legal Considerations in Transplantation	Ensure compliance with ethical guidelines and legal issues in organ donation and transplantation.
7	Research & Evidence-Based Practice in Transplant ICU	Conduct clinical research to improve outcomes in transplant critical 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%

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
Transplant ICU Case Presentation	Diagnosis & Management of Post-Transplant Complications	40
Immunosuppressive Therapy Management	Adjusting immunosuppressive drugs based on rejection signs	50
Transplant Organ-Specific Care	Case scenarios involving kidney, liver, heart, and lung transplant management	30
OSCE	Simulation of transplant-related emergencies (rejection, graft failure)	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on Post-Transplant Management	50
Recent Advances in Transplant Care	Journal Article Discussion	20
Ethical & Legal Aspects	Legal and Ethical Issues in Transplantation	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

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-Resources

Textbooks:

- **Transplantation and Immunology: Principles and Practice** – Carl L. L. DeRouen
- **Organ Transplantation: A Clinical Guide** – Mark D. Stegall
- **The Handbook of Organ Transplantation** – H. W. Randall
- **Manual of Transplantation in Critical Care** – Thomas K. P. Meier
- **Transplantation Surgery and Medicine: A Comprehensive Overview** – Steven J. Fishman

Journals & E-Resources:

- **Transplantation Proceedings** – https://www.transplantation-proceedings.com/
- **American Journal of Transplantation** – https://onlinelibrary.wiley.com/journal/16006143
- **The Lancet – Transplantation** – https://www.thelancet.com/journals/lantri
- **World Health Organization (WHO) – Organ Transplantation** – https://www.who.int/health-topics/transplantation

Fellowship in Interventions in Intensive Care

Course Overview

The Fellowship in Interventions in Intensive Care is a one-year advanced program designed to train healthcare professionals in performing and managing complex medical interventions within the intensive care unit (ICU). This course focuses on equipping fellows with the necessary knowledge and skills to perform a wide range of invasive and non-invasive procedures commonly required in critical care settings. Fellows will gain proficiency in diagnostic and therapeutic interventions used to stabilize critically ill patients, including airway management, advanced monitoring techniques, and life-saving procedures in various emergency and critical conditions.

Prerequisites

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

Course Objectives

- **Master essential critical care interventions**, including invasive and non-invasive procedures used in ICU settings.
- **Develop proficiency in advanced airway management**, including endotracheal intubation, tracheostomy, and ventilatory support techniques.
- **Learn advanced monitoring techniques** for critically ill patients, including hemodynamic, respiratory, and neurological monitoring.
- **Understand and manage life-threatening conditions** such as shock, sepsis, trauma, and acute respiratory distress syndrome (ARDS) through intervention-based strategies.
- **Perform interventions for organ dysfunction and failure**, including renal replacement therapy, invasive cardiology procedures, and blood product transfusion.
- **Enhance clinical decision-making** in critical care, emphasizing the safe and effective use of interventions.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of ICU Interventions

Module	Topics Covered
Introduction to ICU Interventions	Overview of ICU environment, intervention protocols, and patient safety
Airway Management	Techniques of intubation, non-invasive ventilation, and tracheostomy care
Invasive Monitoring Techniques	Arterial lines, central venous catheters, pulmonary artery catheters, and intracranial pressure monitoring
Ventilatory Support & Mechanical Ventilation	Modes of ventilation, indications, and troubleshooting mechanical ventilation
Fluid and Electrolyte Management	Fluid resuscitation, blood products, and electrolyte correction
Clinical Rotations – ICU Procedures	Hands-on experience in performing and managing ICU interventions in real-time situations

Semester 2: Advanced ICU Interventions

Module	Topics Covered
Renal Replacement Therapy (RRT)	Techniques like hemodialysis, continuous renal replacement therapy (CRRT), and peritoneal dialysis
Shock Management	Fluid therapy, vasopressor use, and advanced shock management (septic, cardiogenic, hypovolemic)
Cardiological Interventions	Invasive monitoring in cardiac patients, intra-aortic balloon pumps (IABP), and defibrillation techniques
Trauma and Emergency Interventions	Management of polytrauma, emergency surgery in ICU, and blood transfusion protocols

Module	Topics Covered
Neurological Interventions	Management of increased intracranial pressure (ICP), intracranial monitoring, and neurological emergencies
Research Project & Case Studies	Literature review, research methodology, and dissertation preparation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Proficiency in Airway Management	Master advanced airway management techniques such as intubation and tracheostomy.
2	Expertise in Invasive Monitoring and Hemodynamic Support	Competence in managing and interpreting invasive monitoring techniques such as arterial and central venous pressure monitoring.
3	Advanced Ventilatory Support Skills	Expertise in mechanical ventilation modes and ventilatory support in critically ill patients.
4	Renal Replacement Therapy and Fluid Management	Perform and manage renal replacement therapy and fluid resuscitation protocols.
5	Expertise in Shock and Sepsis Management	Manage shock (cardiogenic, hypovolemic, and septic) and sepsis through targeted interventions.
6	Cardiological Interventions in Critical Care	Apply invasive and non-invasive cardiology interventions such as defibrillation and intra-aortic balloon pumps.
7	Management of Trauma and Critical Emergencies	Address life-threatening trauma with appropriate interventions and stabilization techniques.
8	Competence in Neurological Interventions	Manage intracranial pressure, neurological emergencies, and interventions such as decompressivecraniectomy.
9	Research and Evidence-Based Practice in ICU	Conduct and apply research to improve intervention

Sr. No.	Program Outcome	Description
	Interventions	strategies and outcomes in critical care.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Critical Airway and Ventilatory Management	Ability to manage complex airway interventions and mechanical ventilation in critically ill patients.
2	Competence in Invasive Monitoring and Advanced ICU Procedures	Proficiency in performing and interpreting invasive monitoring techniques in the ICU setting.
3	Mastery in Fluid and Electrolyte Management	Ability to manage complex fluid and electrolyte imbalances, including resuscitation and transfusion protocols.
4	Advanced Shock Management and Sepsis Intervention	Ability to manage all forms of shock and sepsis, utilizing vasopressors and other critical care interventions.
5	Renal Replacement and Dialysis Procedures	Proficiency in performing and managing dialysis therapies and renal replacement interventions.
6	Cardiological and Neurological Critical Care Procedures	Perform advanced cardiovascular and neurological interventions for ICU patients.
7	Trauma and Emergency ICU Care	Expertise in managing polytrauma and performing emergency interventions in the ICU.
8	Clinical Decision-Making and Leadership in ICU Settings	Ability to make evidence-based decisions and provide leadership in critical care interventions.
9	Research & Evidence-Based Interventions in Critical Care	Conduct clinical research and apply evidence-based practices in ICU interventions.

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
Airway &Ventilatory Management	Intubation, Non-invasive Ventilation Techniques	50
Invasive Monitoring Techniques	Central Line Placement, Arterial Line Insertion, ICP Monitoring	50
Shock and Sepsis Management	Fluid Resuscitation and Vasopressor Use	30
Cardiological& Neurological Procedures	Cardioversion, Defibrillation, and ICP Monitoring	40
OSCE	Simulated Clinical Scenarios, Skill Demonstration	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on ICU Intervention Cases	50
Recent Advances in ICU Procedures	Journal Article Discussion	20
Ethical & Legal Aspects in Critical Care	Medical Ethics, Consent, and Legal Concerns in ICU	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

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-Resources

Textbooks:

- **Principles of Critical Care** – Peter D. Abman, John P. Kress
- **Manual of ICU Procedures** – Gerard M. O'Reilly
- **Mechanical Ventilation: Clinical Applications and Pathophysiology** – Michael R. D. Lee
- **Clinical Hemodynamics: Monitoring & Management in the ICU** – Roy W. V. Moore
- **Renal Replacement Therapy in Intensive Care** – Julian R. Murphy

Journals & E-Resources:

- **Critical Care Medicine** – https://journals.lww.com/ccmjournal
- **Journal of Intensive Care Medicine** – https://journals.sagepub.com/home/jic
- **The Lancet – Intensive Care** – https://www.thelancet.com/journals/lanint
- **American College of Surgeons – Critical Care** – https://www.facs.org/quality-programs/trauma/education