Department of Respiratory Medicine

S.No	Name of the Fellowship	Eligibility	Duration	Fee(₹)
01	Fellowship in Interventional Pulmonology	MD/DNB Resp Med,Gen Med	1 yr	1,00,000
02	Fellowship in Bronchoscopy & Thoracoscopy	MD/DNB Resp Med,Gen Med	1 yr	1,00,000
03	Fellowship in Endobronchial Ultrasound	MD/DNB Resp Med,Gen Med, Radio	1 yr	1,00,000

Fellowship in Interventional Pulmonology

Course Overview

The Fellowship in Interventional Pulmonology is a one-year advanced program that provides comprehensive training in the diagnostic and therapeutic interventions within pulmonology. This program is tailored for healthcare professionals who wish to specialize in advanced procedures related to the respiratory system, including bronchoscopy, thoracoscopy, endobronchial ultrasound (EBUS), and airway interventions. Fellows will gain expertise in using state-of-the-art technologies for the management of respiratory conditions such as lung cancer, chronic obstructive pulmonary disease (COPD), interstitial lung diseases, and pulmonary infections.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in Pulmonary Medicine / Internal Medicine / Respiratory 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 interventional pulmonology**, focusing on advanced diagnostic and therapeutic procedures.
- **Gain expertise in bronchoscopy** for diagnostic purposes and therapeutic interventions, including airway management and stent placement.
- **Learn thoracoscopy techniques** for the diagnosis and management of pleural diseases, including pleural biopsy and drainage.
- **Master Endobronchial Ultrasound (EBUS)** for staging of lung cancer and diagnosis of mediastinal conditions.
- **Understand the principles of airway management**, including the management of tracheal and bronchial strictures, stent placement, and airway dilation.
- **Apply evidence-based practices** in interventional pulmonology to improve patient outcomes.
- **Conduct research** on advanced pulmonary interventions and their clinical outcomes.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Interventional Pulmonology

Module	Topics Covered
Introduction to Interventional Pulmonology	Overview of interventional pulmonology, ethical considerations, and patient safety
Bronchoscopy Techniques	Diagnostic bronchoscopy, therapeutic bronchoscopy, foreign body removal, and airway management
Pleural Disease Management	Thoracentesis, pleural biopsy, and pleural fluid analysis
Basic Endobronchial Ultrasound (EBUS)	Introduction to EBUS, indications, and technique for staging lung cancer
Airway Management and Interventions	Endotracheal intubation, bronchoscopy, and airway stenting
Clinical Rotations	Hands-on experience in performing bronchoscopy, thoracoscopy, and other interventions

Semester 2: Advanced Interventional Pulmonology

Module	Topics Covered
Advanced Bronchoscopy	Airway stenting, laser therapy, cryotherapy, and bronchial thermoplasty
Thoracoscopy & Pleural Procedures	Video-assisted thoracoscopic surgery (VATS), pleural biopsy, and drainage
Advanced Endobronchial Ultrasound (EBUS)	Advanced EBUS for lymph node assessment, biopsy, and management of mediastinal conditions
Interstitial Lung Disease Interventions	Diagnosis and management through bronchoscopy and lung biopsy
Clinical Decision-Making and Research	Evidence-based decision-making and current trends in interventional pulmonology
Research Project & Case Studies	Literature review, research methodology, and dissertation preparation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Bronchoscopy and Airway Management	Master the techniques of diagnostic and therapeutic bronchoscopy, including airway stenting and biopsy.
2	Proficiency in Thoracoscopy and Pleural Procedures	Perform thoracoscopic procedures, including pleural biopsy, drainage, and managing pleural effusions.
3	Advanced Endobronchial Ultrasound (EBUS) Skills	Expertise in performing and interpreting EBUS for mediastinal staging and biopsy of lung cancer.
4	Airway Intervention Competence	Ability to perform airway interventions, including stent placements and dilation techniques.
5	Evidence-based Pulmonology Practices	Apply evidence-based practices in the management of respiratory diseases using interventional techniques.
6	Clinical Research and Innovation in Pulmonology	Conduct research and contribute to the development of new techniques and technologies in interventional pulmonology.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Diagnostic and Therapeutic Bronchoscopy	Ability to perform diagnostic and therapeutic bronchoscopy procedures such as biopsy and airway management.
2	Competence in Thoracoscopic Techniques	Master thoracoscopic techniques for diagnosing and treating pleural conditions.
3	Proficiency in Endobronchial Ultrasound (EBUS)	Expertise in performing EBUS for accurate lung cancer staging and mediastinal biopsy.
4	Airway Intervention Mastery	Ability to perform complex airway interventions such as stent placements and airway dilation.
5	Critical Thinking in Pulmonology	Ability to make evidence-based clinical decisions regarding the use of interventional procedures.
6	Clinical Decision-Making and Research	Ability to conduct research and contribute to clinical practice improvements in pulmonology 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
Bronchoscopy Procedures	Diagnostic and therapeutic bronchoscopy	50
Thoracoscopy & Pleural Procedures	Video-assisted thoracoscopic surgery (VATS)	50
Endobronchial Ultrasound (EBUS)	EBUS for lung cancer staging and biopsy	40
OSCE	Simulated Clinical Scenarios, Skill Demonstration	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on Pulmonary Intervention Cases	50
Recent Advances in Pulmonology	Journal Article Discussion	20
Ethical & Legal Aspects in Pulmonology	Medical Ethics in Interventional Pulmonology	30

Research/Dissertation Submission:

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

Final Weightage & Passing Criteria

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

Recommended Books & E-Resources

Textbooks:

- **Interventional Pulmonology** – Vinayak K. Nambiar
- **Thoracic Interventional Procedures** – James E. D. A. Morris
- **Endobronchial Ultrasound: Principles and Practice** – S. R. Sethi, P. S. Gupta
- **Pulmonary Diseases and Interventions** – Daniel S. P. Carter

Journals & E-Resources:

- **Journal of Interventional Pulmonology** – https://journals.lww.com/jinponline
- **Pulmonary Medicine Journal** – https://www.hindawi.com/journals/pulm/
- **American Journal of Respiratory and Critical Care Medicine** – https://www.atsjournals.org/journal/ajrccm

Fellowship in Bronchoscopy & Thoracoscopy

Course Overview

The Fellowship in Bronchoscopy & Thoracoscopy is a one-year specialized program designed to provide advanced training in the diagnostic and therapeutic applications of bronchoscopy and thoracoscopy in the management of pulmonary diseases. This program focuses on airway management, pleural disease management, lung biopsy, endoscopic interventions, and pleural drainage techniques. Fellows will gain in-depth knowledge and hands-on experience in flexible and rigid bronchoscopy, video-assisted thoracoscopic surgery (VATS), and pleural effusion management. The program also includes a research component to enhance evidence-based practice in interventional pulmonology.

Prerequisites

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

Course Objectives

- **Master bronchoscopy techniques**, including diagnostic bronchoscopy, therapeutic bronchoscopy, stenting, and airway management.
- **Gain proficiency in thoracoscopic procedures** for diagnosing and treating pleural diseases, lung conditions, and biopsy techniques.
- **Learn advanced thoracoscopy techniques** including video-assisted thoracoscopic surgery (VATS) for pleural disease management.
- **Develop skills in managing pleural effusions**, including thoracentesis, pleural biopsy, and pleural fluid analysis.
- **Enhance knowledge of advanced diagnostic modalities**, such as flexible and rigid bronchoscopy, to diagnose lung conditions including tumors, airway obstruction, and infections.
- **Apply evidence-based practices** in bronchoscopy and thoracoscopy to improve patient care and outcomes.
- **Engage in clinical research** to investigate new interventional techniques and their effectiveness in respiratory care.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Bronchoscopy & Thoracoscopy

Module	Topics Covered
Introduction to Bronchoscopy	Basic bronchoscopy techniques, diagnostic bronchoscopy, rigid vs flexible bronchoscopy
Thoracic Anatomy & Pleural Disease	Pleural cavity, pleural effusions, pleuritis, pleural biopsy
Diagnostic Techniques in Bronchoscopy	Use of bronchoscopy for airway biopsy, tissue sampling, and foreign body removal
Airway Management in Bronchoscopy	Managing difficult airways, airway stenting, and laser therapies
Thoracentesis and Pleural Drainage	Techniques for pleural fluid removal, pleural biopsy, and drainage management
Clinical Rotations	Hands-on experience in bronchoscopy and thoracoscopy procedures in a clinical setting

Semester 2: Advanced Bronchoscopy & Thoracoscopy

Module	Topics Covered
Advanced Bronchoscopy Techniques	Interventional bronchoscopy, airway stenting, balloon dilation, laser and cryotherapy
Video-Assisted Thoracoscopic Surgery (VATS)	VATS for pleural diseases, lung biopsy, and pulmonary resection
Pleural Disease Management	Advanced pleural interventions, managing pleural effusions, and biopsy
Bronchial and Tracheal Interventions	Tracheal stenosis management, stent placement, and dilation
Clinical Decision-Making in Interventional Pulmonology	Evidence-based decisions in the use of bronchoscopy and thoracoscopy for lung disease management
Research Project & Case Studies	Literature review, research methodology, and dissertation preparation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Diagnostic and Therapeutic Bronchoscopy	Master advanced bronchoscopy techniques for diagnostics and therapeutic interventions.
2	Proficiency in Video-Assisted Thoracoscopic Surgery (VATS)	Perform thoracoscopic procedures such as pleural biopsy and pleural drainage using VATS.
3	Airway Management & Interventions	Expertise in airway interventions including stenting, balloon dilation, and foreign body removal.
4	Advanced Pleural Disease Management	Master techniques like thoracentesis and pleural biopsy for pleural diseases.
5	Evidence-based Pulmonology Practices	Apply evidence-based approaches in the use of bronchoscopy and thoracoscopy.
6	Clinical Research & Innovation in Pulmonology	Conduct research and contribute to advancing the field of interventional pulmonology.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Expertise in Bronchoscopy Procedures	Ability to perform diagnostic and therapeutic bronchoscopy procedures, including stent placements and foreign body removal.
2	Competence in Video-Assisted Thoracoscopic Surgery (VATS)	Ability to perform advanced thoracoscopic procedures for pleural disease management.
3	Mastery in Pleural Disease Management	Proficiency in managing pleural effusions and performing thoracentesis and pleural biopsy.
4	Advanced Airway Management Skills	Ability to conduct advanced airway interventions, including laser therapy and stent placement.
5	Decision-Making in Interventional Pulmonology	Ability to make clinical decisions based on evidence and patient needs regarding bronchoscopy and thoracoscopy.
6	Research Skills in Interventional Pulmonology	Conduct original research and contribute to evidence-based practices in the field of bronchoscopy and thoracoscopy.

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
Bronchoscopy Procedures	Diagnostic and therapeutic bronchoscopy	50
Thoracoscopy & Pleural Procedures	Video-assisted thoracoscopic surgery (VATS)	50
Airway Management	Stenting, laser therapy, foreign body removal	40
OSCE	Simulated Clinical Scenarios, Skill Demonstration	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on Pulmonary Intervention Cases	50
Recent Advances in Pulmonology	Journal Article Discussion	20
Ethical & Legal Aspects in Pulmonology	Medical Ethics in Interventional Pulmonology	30

Research/Dissertation Submission:

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

Final Weightage & Passing Criteria

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

Recommended Books & E-Resources

Textbooks:

- **Practical Bronchoscopy** – M. J. Waller, M. A. Feller-Kopman
- **Thoracoscopic Surgery** – Steven J. L. Theodoropoulos
- **Bronchoscopy: Techniques and Procedures** – David A. Kaminsky
- **Endoscopic Lung Volume Reduction** – Dr. Gerard N. Smith

Journals & E-Resources:

- **Journal of Bronchology& Interventional Pulmonology** – https://journals.lww.com/jbronchology
- **American Journal of Respiratory and Critical Care Medicine** – https://www.atsjournals.org/journal/ajrccm
- **The European Respiratory Journal** – https://erj.ersjournals.com/

Fellowship in Endobronchial Ultrasound (EBUS)

Course Overview

The Fellowship in Endobronchial Ultrasound (EBUS) is a one-year specialized program designed to provide advanced training in the diagnostic and therapeutic use of Endobronchial Ultrasound for the management of pulmonary diseases, particularly for evaluating mediastinal and lung conditions. The program combines theoretical learning, hands-on training, clinical rotations, and research projects to equip fellows with the skills to perform and interpret EBUS procedures effectively. Fellows will gain expertise in using EBUS for diagnosing lung cancer, tuberculosis, lymphadenopathy, and other respiratory diseases.

Prerequisites

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

Course Objectives

- **Master the techniques of Endobronchial Ultrasound (EBUS)**, including radial EBUS and convex-probe EBUS, for diagnostic and therapeutic applications.
- **Develop proficiency in the diagnosis of mediastinal lymphadenopathy, lung tumors, and peripheral lung lesions** using EBUS.
- **Gain expertise in EBUS-guided transbronchial needle aspiration (EBUS-TBNA)** for tissue sampling and staging of lung cancer.
- **Learn the integration of EBUS with other diagnostic tools** like bronchoscopy for comprehensive patient management.
- **Enhance knowledge of EBUS in evaluating complex lung diseases**, including interstitial lung disease, tuberculosis, and granulomatous diseases.
- **Conduct research** to advance knowledge and improve practices in the use of EBUS for diagnosis and management of respiratory diseases.
- **Gain exposure to advanced procedures** like EBUS-guided bronchial biopsies and the use of EBUS in interventional pulmonology.

Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals of Endobronchial Ultrasound

Module	Topics Covered
Introduction to EBUS	History, principles, and advancements in EBUS technology
Bronchoscopy Basics and EBUS Integration	Role of bronchoscopy in pulmonary diagnosis, integrating EBUS with bronchoscopy
Principles of Radial and Convex-EBUS	Differences, principles, and clinical uses of radial EBUS and convex-probe EBUS
Mediastinal Lymphadenopathy Diagnosis	EBUS for mediastinal staging, assessing lymph nodes and tumors
EBUS-TBNA Technique	Techniques for transbronchial needle aspiration guided by EBUS for tissue biopsy
Clinical Rotations	Hands-on experience in performing EBUS and interpreting results in a clinical setting

Semester 2: Advanced EBUS Techniques and Applications

Module	Topics Covered
Advanced EBUS-TBNA Procedures	Techniques for staging lung cancer, mediastinal and hilar node evaluation
EBUS in Lung Cancer Diagnosis and Staging	Role of EBUS in lung cancer diagnosis, staging, and planning treatment
EBUS in Peripheral Lung Lesions	Using EBUS for peripheral lung nodule identification and biopsy
EBUS in Infectious Diseases	Role of EBUS in diagnosing tuberculosis, fungal infections, and pneumonia
EBUS in Interstitial Lung Disease	Using EBUS to diagnose interstitial lung disease (ILD) and granulomas
Research Project & Case Studies	Literature review, clinical case presentations, and preparation of research dissertation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in EBUS Procedures	Master the technical skills required for performing EBUS, including EBUS-TBNA and pleural biopsies.
2	Proficiency in Diagnosis of Mediastinal and Pulmonary Lesions	Accurately diagnose lung cancer, tuberculosis, mediastinal lymphadenopathy, and peripheral lung diseases using EBUS.
3	Advanced Interpretation of EBUS Images	Learn how to interpret EBUS images for a variety of pulmonary diseases.
4	Skill in EBUS-guided Interventions	Perform and guide interventions such as biopsies and aspirations using EBUS.
5	Integration of EBUS with Bronchoscopy for Comprehensive Diagnosis	Develop skills in combining EBUS with bronchoscopy for a comprehensive patient management approach.
6	Research and Innovation in Pulmonary Diagnostics	Conduct clinical research to improve EBUS procedures and applications in pulmonary disease diagnosis.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Mastery of EBUS Techniques	Ability to perform and interpret radial and convex-probe EBUS for accurate diagnosis.
2	Expertise in EBUS-TBNA	Proficiency in using EBUS for transbronchial needle aspiration (EBUS-TBNA) for tissue biopsy.
3	Advanced Knowledge of Mediastinal and Lung Diseases	Accurate diagnosis of lung cancer, TB, interstitial lung diseases, and mediastinal lymphadenopathy using EBUS.
4	EBUS for Peripheral Lesions	Skill in using EBUS to detect and biopsy peripheral lung lesions.
5	EBUS in Infectious Diseases	Application of EBUS to diagnose infectious diseases, including TB and fungal infections.
6	Clinical Decision-Making with EBUS	Ability to make informed decisions on using EBUS in clinical practice to guide patient management.
7	Research Skills in Pulmonology	Conduct original research to contribute to the advancement of EBUS applications in interventional pulmonology.

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
EBUS Procedure Simulation	Performing EBUS (radial and convex-probe) and interpretation of images	50
EBUS-TBNA Procedure	Performing EBUS-guided needle aspiration for biopsy	50
Case-Based Discussion	Discussing diagnosis and management based on EBUS findings	30
OSCE	Simulated Clinical Scenarios, Skill Demonstration	40

Viva Voce (Oral Examination):

Component	Details	Marks
Case Presentations	Discussion on Pulmonary Intervention Cases	50
Recent Advances in EBUS	Journal Article Discussion	20
Ethical & Legal Aspects in Pulmonology	Medical Ethics in Pulmonary Interventions	30

Research/Dissertation Submission:

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

Final Weightage & Passing Criteria

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

Recommended Books & E-Resources

Textbooks:

- **Endobronchial Ultrasound (EBUS)** – Hiroshi Date, ShigehikoOhmori
- **EBUS-TBNA: Technique and Applications** – David W. Hwang
- **Endobronchial Ultrasound: A Clinical Guide** – Stefan D. K. Wagner, S. K. Gogia
- **Practical Guide to Endobronchial Ultrasound (EBUS)** – Vishal M. Kotecha

Journals & E-Resources:

- **European Respiratory Journal** – https://erj.ersjournals.com/
- **Journal of Bronchology& Interventional Pulmonology** – https://journals.lww.com/jbronchology
- **American Journal of Respiratory and Critical Care Medicine** – https://www.atsjournals.org/journal/ajrccm