

Fellowship in Interventional Radiology

Index Course Module Document

S. No.	Contents
1	Program Overview
2	Eligibility Criteria
3	Program Educational Objectives (PEOs)
4	Program Outcomes (POs)
5	Course Outcomes (COs)
6	Course Content Modules
7	Curriculum Structure
8.1	Theory Syllabus
8.2	Practical Training
9	Teaching and Learning Methods
10	Clinical Exposure
11	Research Project
12	Assessment and Evaluation
13	Code of Conduct Policy
14	Career Opportunities
15	Training Schedule
16	Faculty Profiles
17	Conflict of Interest and Ineligibility

Fellowship in Interventional Radiology

Index Course Module Document

1. Program Overview

Name	:	Fellowship in Interventional Radiology
Duration	:	1 Year (Full-Time)
Intake	:	2 seats per academic year (1 st Jan to 31 st Dec)
Location Mode	:	Rohilkhand Cancer Institute Rohilkhand Medical College and Hospital
Mode	:	On-campus with clinical training and research

Program Objective:

To provide structured and didactic training with specific emphasis on interventional hands-on in all aspects of Interventional Radiology with specific emphasis on Oncological interventions enabling fellows to accurately diagnose, manage and rehabilitate patients.

2. Eligibility Criteria

- MD / DNB or equivalent degrees in either of the following disciplines:
Radiodiagnosis/Radiology
 - Registered with the appropriate medical council/license to practice.
 - Candidates with any prior disciplinary issues or ethical violations are not eligible.
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3. PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The fellow should be able to:

- PEO1: Independently diagnose various diseases requiring radiological interventions and perform basic non vascular as well as vascular interventions including post procedure management.
 - PEO2: Lead interventional radiology units in a hospital setting.
 - PEO3: Participate actively in multidisciplinary clinical meetings.
 - PEO4: Conduct meaningful research, audits, and contribute to academic work publications.
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4. PROGRAM OUTCOMES (POS)

Upon successful completion of the program, the fellow will be able to:

- PO1: Assess patients requiring interventional radiological management including clinical, radiological and laboratory workup.
- PO2: Understand indications, contraindications and complications of various interventional radiological procedures
- PO3: Perform pre-procedure management and optimization of patients.
- PO4: Effectively perform commonly performed non vascular and vascular procedures.
- PO5: Effectively communicate with clinical teams and present findings at multidisciplinary meetings

Fellowship in Interventional Radiology

Index Course Module Document

- PO6: Perform post procedure management of patients including complication management and follow up.
 - PO7: Maintain quality control and standard operating procedures in line with NABH.
 - PO8: Participate in academic teaching and mentoring of postgraduates.
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5. PROGRAM SPECIFIC OUTCOMES (PSOs)

- PSO1: Evaluation of patients requiring interventional radiological procedure
 - PSO2: Understanding indications and contraindications of various interventional radiological procedures
 - PSO3: Prepare comprehensive treatment plan for the patient including post procedure management.
 - PSO4: Coordinate with clinical team regarding treatment plan, expected outcomes and aid in decision making
 - PSO6: Conduct audits, maintain logbooks, and contribute to quality improvement work.
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6. COURSE OUTCOMES (COs)

At the end of the course, the fellow will be able to:

- CO1: Diagnose the patient requiring interventional radiological procedure.
 - CO2: Formulate a proper treatment plan appropriate for the patient needs.
 - CO3: Perform non vascular and vascular interventions including fine needle aspiration cytology, biopsies, percutaneous nephrostomies, percutaneous transhepatic biliary drainage, ablation procedures, diagnostic angiographies, angioplasties, stenting and embolization procedures.
 - CO4: Manage patient post intervention including complications and follow up.
 - CO5: Draft a research/academic work and publish an original research paper in indexed journal.
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7. COURSE CONTENT MODULES

Module 1: Introduction to Interventional Radiology and its scope

- Hardware in Interventional radiology
- Vascular access and vascular closure devices
- Drugs in Interventional radiology
- Radiation hazard

Module 2: Basic non vascular interventions

- Aspiration and drainage of pleural, ascitic fluid and collections
- Percutaneous abdominal biopsies
- Lung and mediastinal biopsies
- Pain management and neural blocks

Module 3: Specialised non vascular interventions

Fellowship in Interventional Radiology

Index Course Module Document

- Percutaneous nephrostomy
- Percutaneous biliary interventions
- Percutaneous gastrostomies
- Gastrointestinal stenting
- Tumor ablations

Module 5: Vascular interventions (Venous)

- Central venous catheter placement
- Management of varicose veins
- Management of deep vein thrombosis and pulmonary embolism
- Dialysis fistula management
- Hepatic venous interventions including transjugular biopsies, TIPS, shunt occlusion and portal vein embolization

Module 6: Vascular interventions (Arterial)

- Trauma management
- Management of stroke and vascular emergencies of head and neck
- Carotid artery stenosis
- Aortoiliac, femoral and below knee interventions
- Acute gastrointestinal hemorrhage
- Renal artery and mesenteric stenosis management
- Management of visceral aneurysms
- Management of hepatic and renal malignancies
- Embolization procedures including bronchial, uterine, prostatic, genicular, varicocele embolization

Module 8: Tumour Boards & Clinical Correlation

- Multidisciplinary meeting
- Coordinated decision making with clinical colleagues

Module 9: Research Methodology

- Study design, data analysis, poster/paper writing

Module 10: Teaching & Professional Skills

- Presentations, CME coordination, ethics, communication

8. Curriculum Structure

8.1 Theory Syllabus

I. Basics of interventional radiology

- Hardware in Interventional radiology
- Vascular access and vascular closure devices
- Drugs in Interventional radiology
- Radiation hazard and safety in Interventional radiology
- Research Methodology: Study design, biostatistics, ethics in research

II. Non vascular interventions

- Aspiration and drainage of pleural, ascitic fluid and collections

Fellowship in Interventional Radiology

Index Course Module Document

- Percutaneous abdominal biopsies
- Lung and mediastinal biopsies
- Lymphatic interventions
- Percutaneous nephrostomy
- Percutaneous biliary interventions
- Percutaneous gastrostomies
- Gastrointestinal stenting
- Tumor ablations
- Pain management and neural blocks

III. Vascular interventions

- Central venous catheter placement
- Management of varicose veins
- Management of deep vein thrombosis and pulmonary embolism
- Dialysis fistula management
- Trauma management
- Management of stroke and vascular emergencies of head and neck
- Carotid artery stenosis
- Basics of aortic interventions
- Aortoiliac, femoral and below knee interventions
- Acute gastrointestinal hemorrhage
- Renal artery and mesenteric stenosis management
- Management of visceral aneurysms
- Hepatic interventions including transjugular biopsies, TIPS, shunt occlusion and portal vein embolization
- Management of hepatic and renal malignancies
- Embolization procedures including bronchial, uterine, prostatic, genicular, varicocele embolization

8.2 Practical Training

- Clinical aspects of interventional radiology
- Non vascular and vascular interventions
- Patient counselling and post procedure management
- Multidisciplinary meeting participation and case presentations

9. Teaching and Learning Methods

- Didactic lectures and seminars
- Case-based learning
- Interactive multidisciplinary meetings
- Hands-on training
- Research presentations
- Regular formative assessments

Fellowship in Interventional Radiology

Index Course Module Document

10. Clinical Exposure

- Diagnosis and interpretation of clinical, radiological and laboratory investigations
 - Interventional radiological procedures including fine needle aspiration cytology, biopsies, percutaneous nephrostomies, percutaneous transhepatic biliary drainage, ablation procedures, diagnostic angiographies, angioplasties, stenting and embolization procedures.
 - Participation in multidisciplinary meetings
 - Exposure to various clinical departments
 - Interaction with clinical colleagues aiding in patient management
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11. Research Project

- Each fellow will undertake 1-2 original academic works related to any field of Interventional Radiology under course director.
 - Encouragement to publish original research in indexed journals.
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12. Assessment and Evaluation

- Continuous formative internal assessment via case discussions /log book etc. (30%)
 - Final examination comprising (40%)
 - Theory exam (essay and short notes)
 - Practical/viva voce exam (case presentations - long and short)
 - Academic work submission (30%)
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13. Code of Conduct Policy

- Fellows must maintain professional ethics in all academic and clinical activities.
 - Timely attendance and active participation are mandatory.
 - Disclosure of any conflict of interest related to diagnostics, research, or patient care is required.
 - Fellows involved in unethical behaviour or malpractice may face disciplinary action.
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14. Career Opportunities

- Consultant Interventional Radiologists in hospitals
 - Academic faculty positions in medical colleges
 - Leadership roles in hospitals and medical colleges
 - Research scientist positions
 - Opportunities in pharmaceutical and biotech companies focusing on Interventional Radiological equipment
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Fellowship in Interventional Radiology

Index Course Module Document

15. Training Schedule:

- Dedicated Lectures and seminars
- Allotment of Dissertation
- Procedural planning and assistance in interventional radiological procedures

Stage 1: Non vascular interventions

- Preprocedural clinical evaluation and investigations
- Procedural planning
- Hands on procedural training including post procedure management
- Multidisciplinary meeting participation

Stage 2: Vascular Interventions

- Preprocedural clinical evaluation and investigations
 - Procedural planning
 - Assistance in interventional radiological procedures
 - Hands on procedural training
 - Post-surgery patient care and planning
 - Multidisciplinary meeting participation
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16. Faculty Profiles:

- Dr Mohit Gambhir, Interventional radiologist, Rohilkhand Medical College & Hospital - Course Director
 - Dr. Arjun Agarwal, Mch (Surgical oncology) -Prof & Head, Department of Surgical Oncology, Rohilkhand Medical College & Hospital
 - Dr Ashish Kamathan, Mch (Surgical Oncology) - Assistant Professor, Department of Surgical Oncology, Rohilkhand Medical College & Hospital
 - Dr Laxman Pandey, MD (Radiation Oncology), Department of Radiation Oncology, Rohilkhand Medical College & Hospital
 - Dr Siddharth Arora, MD (Radiation Oncology), Department of Radiation Oncology, Rohilkhand Medical College & Hospital
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17. Conflict of Interest & Ineligibility

To maintain the academic integrity and ethical standards of the Fellowship in Oral Oncology, the following candidates shall not be eligible to apply:

I. Employment/Age Conflicts

- Individuals already holding a full-time appointment that prevents them from fulfilling full-time academic responsibilities during the fellowship.
- Candidates enrolled in any other fellowship, residency, or academic program simultaneously.
- Candidates who already have enough work experience in Interventional Radiology as a faculty/staff member shall be ineligible.

II. Professional Misconduct

Fellowship in Interventional Radiology

Index Course Module Document

- Applicants who have faced disciplinary action, suspension, or license cancellation by a medical council or any competent regulatory authority.
- III. Financial or Ethical Conflict**
- Candidates with ongoing legal or ethical investigations related to patient misdiagnosis, or clinical fraud.
 - Any applicant with declared or undeclared financial interest in may pose a bias in training or evaluation.
- IV. Academic Dishonesty**
- Prior record of plagiarism, data falsification, or unethical research conduct disqualifies participation.