



Department of General Medicine

S.No	Name of the Fellowship	Eligibility	Duration	Fee ₹)
01	Fellowship in Geriatric Medicine	MBBS, MD/DNB Gen Med	1 yr	1,00,000
02	Fellowship in Family Medicine	MBBS, MD/DNB Gen Med	1 yr	1,00,000
03	Fellowship in Diabetology	MBBS, MD/DNB Gen Med	1 yr	1,00,000
04	Fellowship in Obesity & Metabolism	MBBS, MD/DNB Gen Med, Biochem	1 yr	1,00,000
05	Fellowship in Medical Nutrition & Dietetics	MBBS, MD/DNB Gen Med	1 yr	1,00,000
06	Fellowship in Sleep Medicine	MBBS, MD/DNB Gen Med, Resp Med	1 yr	1,00,000
07	Fellowship in Sports Medicine	MBBS, MD/DNB Gen Med, Ortho, Physio	1 yr	1,00,000
08	Fellowship in Lab orator Medicine	MBBS, MD/DNB Patho, Biochem, Micro	1 yr	1,00,000
09	Fellowship in Blood Banking	MBBS, MD/DNB Patho	1 yr	1,00,000
10	Fellowship in Infectious Diseases	MBBS, MD/DNB Gen Med, Paed, Resp Med	1 yr	1,00,000
11	Fellowship in Allergy & Immunology	MBBS, MD/DNB Gen Med, Paed, DVL	1 yr	1,00,000
12	Fellowship in Ultrasonography	MBBS, MD/DNB Gen Med, Paed, MS/DNB Gen surg, Obgy	1 yr	1,00,000
13	Fellowship in Clinical Cardiology	MD/DNB Gen Med	1 yr	1,00,000
14	Fellowship in Clinical Neurology	MD/DNB Gen Med	1 yr	1,00,000
15	Fellowship in Clinical Nephrology	MD/DNB Gen Med	1 yr	1,00,000
16	Fellowship in Medical Gastro Enter ology	MD/DNB Gen Med	1 yr	1,00,000
17	Fellowship in Clinical Endocrinology	MD/DNB Gen Med, Biochem	1 yr	1,00,000



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18	Fellowship in Clinical Rheumatology	MD/DNB Gen Med	1 yr	1,00,000
19	Fellowship in Liver & Biliary Diseases	MD/DNB Gen Med	1 yr	1,00,000
20	Fellowship in Diabetic Neurology (Autonomic Neuropathy)	MD/DNB Gen Med	1 yr	1,00,000
21	Fellowship in Diabetic Nephrology	MD/DNB Gen Med	1 yr	1,00,000
22	Fellowship in Diabetic Foot Management	MD/DNB Gen Med	1 yr	1,00,000
23	Fellowship in Diabetic Retinal Sciences	MD/DNB Gen Med ,MS/DNB in Ophthal	1 yr	1,00,000
24	Fellowship in Epilepsy	MD/DNB Gen Med, DM/DNB Neurology	1 yr	1,00,000
25	Fellowship in Andrology & Male Infertility	MD/DNB Gen Med, MS/DNB in Gen surg M.Ch/DNB Urology	1 yr	1,00,000
26	Fellowship in Pain Management	MBBS, MD/DNB Anaes, Gen Med, Radio Onco DM/DNB Med Onco, M.Ch/DNB in Surg Onco	1 yr	1,00,000
27	Fellowship in Palliative Care	MBBS, MD/DNB Anaes, Gen Med, Radio Onco DM/DNB Med Onco, M.Ch/DNB in Surg Onco	1 yr	1,00,000



Fellowship In Geriatric Medicine

Course Overview

The **Fellowship in Geriatric Medicine** is a **one-year** intensive program designed to train healthcare professionals in the comprehensive management of elderly patients. The course focuses on age-related diseases, multimorbidity, geriatric syndromes, palliative care, and rehabilitation to improve the quality of life in older adults. It includes clinical rotations, interdisciplinary care, and research training.

Prerequisites

Criteria	Details
Eligibility	MBBS with MD/DNB in General Medicine / Family Medicine / Geriatrics / 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 **comprehensive geriatric assessment and management**.
- Diagnose and manage **age-related diseases, frailty, and polypharmacy**.
- Gain proficiency in **palliative and end-of-life care**.
- Understand **neurodegenerative disorders**, including dementia and Parkinson's disease.
- Learn **rehabilitation and functional recovery techniques** for elderly patients.
- Implement **preventive geriatrics** to promote healthy aging.
- Conduct **research in geriatric medicine** and apply evidence-based practices.



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Curriculum with Semester-wise Syllabus & Modules

Semester 1: Fundamentals & Core Geriatric Care

Module	Topics Covered
Principles of Geriatric Medicine	Biology of aging, physiology, and age-related changes
Comprehensive Geriatric Assessment (CGA)	Physical, cognitive, psychological, and social assessment
Frailty & Sarcopenia	Diagnosis, prevention, and management
Polypharmacy & Rational Drug Use	Safe prescribing for elderly patients
Neurodegenerative Disorders	Alzheimer's, Parkinson's, and other dementias
Cardiovascular & Metabolic Disorders	Hypertension, diabetes, stroke, and heart failure
Palliative & End-of-Life Care	Pain management, symptom control, ethical considerations
Clinical Rotations – Geriatric Ward & OPD	Hands-on patient care experience

Semester 2: Advanced Geriatric Care & Rehabilitation

Module	Topics Covered
Falls, Osteoporosis & Mobility Disorders	Prevention and management of falls, fractures, and gait disorders
Geriatric Psychiatry	Depression, anxiety, and psychiatric conditions in older adults



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Module	Topics Covered
Rehabilitation & Functional Recovery	Physiotherapy, occupational therapy, and speech therapy
Geriatric Nutrition & Malnutrition	Nutritional assessment and intervention
Respiratory & Infectious Diseases	Pneumonia, COPD, tuberculosis in elderly patients
Preventive Geriatrics & Health Promotion	Vaccination, cancer screening, lifestyle interventions
Ethical & Legal Aspects of Geriatric Medicine	Informed consent, elder abuse, advance directives
Research Project & Case Studies	Literature review, patient studies, dissertation submission

Program Outcomes

Sr. No.	Program Outcome	Description
1	Comprehensive Knowledge of Aging & Geriatrics	Understand aging physiology, multimorbidity, and geriatric assessment.
2	Expertise in Disease Management	Diagnose and treat age-related diseases, including dementia and cardiovascular disorders.
3	Functional & Rehabilitation Strategies	Implement rehabilitation for mobility disorders, frailty, and sarcopenia.
4	Palliative & End-of-Life Care	Deliver compassionate and ethical care for terminally ill elderly patients.
5	Polypharmacy & Rational Drug Use	Optimize medication management to prevent adverse effects.
6	Research & Evidence-Based	Conduct clinical research to improve geriatric



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Sr. No.	Program Outcome	Description
	Practice	healthcare outcomes.
7	Ethical & Social Responsibility	Advocate for patient rights, elder care policies, and legal frameworks.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Understanding of Geriatric Physiology	Apply knowledge of aging-related changes in patient management.
2	Expertise in Frailty & Multimorbidity	Recognize, assess, and treat complex health conditions in older adults.
3	Proficiency in Cognitive & Psychiatric Care	Diagnose and manage dementia, depression, and psychiatric illnesses.
4	Skills in Palliative & Supportive Care	Provide end-of-life care, pain management, and hospice care.
5	Leadership in Preventive Geriatrics	Promote health strategies to reduce age-related complications.
6	Research & Clinical Application	Analyze case studies and contribute to geriatric medical advancements.

Fellowship in Geriatric Medicine – Credits & Assessment Methods

Total Credits: 40

Component	Credits



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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
Comprehensive Geriatric Assessment	Conducting a full assessment including cognitive, functional, and frailty evaluations	50
Polypharmacy Management	Reviewing and optimizing medication regimens for elderly patients	50
End-of-Life & Palliative Care	Discussing ethical dilemmas and managing symptoms in	30



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Component	Details	Marks
Planning	terminal illnesses	
OSCE (Objective Structured Clinical Examination)	Clinical scenarios related to geriatric emergencies, falls, and multimorbidity	40

Viva Voce (Oral Examination)

Component	Details	Marks
Case Presentations	Discussion of clinical cases, treatment decisions, and outcomes in geriatrics	50
Recent Advances in Geriatric Medicine	Presentation on innovations in elderly care and multidisciplinary management	20
Ethical & Legal Considerations	Discussing ethical challenges, patient rights, and end-of-life care decisions	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)



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

Recommended Books & E-Resources

Textbooks:

- **Brocklehurst's Textbook of Geriatric Medicine and Gerontology** – Howard M. Fillit
- **Hazzard's Geriatric Medicine and Gerontology** – Jeffrey B. Halter
- **Oxford Textbook of Geriatric Medicine** – Jean-Pierre Michel, et al.
- **Principles and Practice of Geriatric Psychiatry** – Mohammed Abou-Saleh
- **Geriatric Physical Therapy** – Andrew A. Guccione

Journals & E-Resources:

- **Journal of the American Geriatrics Society (JAGS)** – <https://agsjournals.onlinelibrary.wiley.com/>
- **Age and Ageing (Oxford Journals)** – <https://academic.oup.com/ageing>
- **International Journal of Geriatric Psychiatry** – <https://onlinelibrary.wiley.com/journal/10991166>
- **OrthoBullets – Geriatric Medicine** – <https://www.orthobullets.com>
- **World Health Organization (WHO) – Aging & Health** – <https://www.who.int/health-topics/ageing>



Fellowship InFamily Medicine

Course Overview

The **Fellowship in Family Medicine** is a **one-year** specialized clinical training program designed to equip physicians with comprehensive skills in primary care, preventive medicine, chronic disease management, and holistic patient care. The program emphasizes evidence-based practice, patient-centered approaches, and interdisciplinary collaboration, preparing physicians to manage a wide range of medical conditions across all age groups.

Prerequisites

Criteria	Details
Eligibility	MBBS with Internship Completion
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives



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- Develop expertise in **comprehensive primary care** across all age groups.
- Learn **preventive medicine** strategies and health promotion techniques.
- Gain proficiency in managing **acute and chronic diseases** in outpatient and inpatient settings.
- Understand **evidence-based medicine** and its application in clinical decision-making.
- Enhance skills in **pediatric, adult, and geriatric care**, including mental health management.
- Learn to coordinate **multidisciplinary care teams** for holistic patient care.
- Conduct **clinical research** and apply scientific knowledge in family medicine practice.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical rotations, and research.

Semester 1: Foundations of Family Medicine

Module	Topics Covered
Principles of Family Medicine & Primary Care	Patient-centered approach, continuity of care
Health Promotion & Preventive Medicine	Vaccination, lifestyle counseling, screening programs
Common Acute & Chronic Diseases	Hypertension, diabetes, asthma, arthritis
Pediatric Care in Family Medicine	Growth monitoring, immunization, common childhood illnesses
Geriatric & Elderly Care	Functional assessment, polypharmacy, dementia management



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Module	Topics Covered
Women's Health & Maternal Care	Antenatal & postnatal care, contraception, menopause management
Emergency & Trauma Management in Primary Care	CPR, wound care, first-line management of emergencies
Clinical Rotations – OPD, Emergency, Pediatric & Geriatric Clinics	Supervised patient care in various settings

Semester 2: Advanced Clinical Practice & Research

Module	Topics Covered
Chronic Disease Management	COPD, kidney disease, metabolic disorders
Mental Health in Primary Care	Depression, anxiety, psychiatric emergencies
Dermatology & Minor Surgical Procedures	Skin conditions, wound care, biopsies
Musculoskeletal & Sports Medicine	Joint injections, rehabilitation strategies
Occupational & Environmental Health	Workplace hazards, ergonomics, public health interventions
Palliative & End-of-Life Care	Pain management, advanced directives, hospice care
Clinical Research & Case Studies	Evidence-based practice, systematic reviews, patient-centered studies
Community-Based Family Practice Training	Rural and urban healthcare settings, home visits

Program Outcomes



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Sr. No.	Program Outcome	Description
1	Comprehensive Patient Care	Provide holistic care for patients of all age groups.
2	Chronic Disease & Preventive Medicine	Diagnose and manage common acute and chronic conditions.
3	Emergency & Urgent Care Skills	Handle primary care emergencies and trauma cases.
4	Pediatric & Geriatric Expertise	Address unique healthcare needs of children and elderly patients.
5	Mental Health & Holistic Well-being	Integrate mental health services into primary care.
6	Multidisciplinary & Team-Based Care	Collaborate with specialists, nurses, and allied health professionals.
7	Research & Evidence-Based Practice	Conduct and apply clinical research to improve patient care.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Principles of Family Medicine	Understand the fundamentals of primary care and patient continuity.
2	Preventive & Public Health Strategies	Implement screening, vaccination, and health education programs.
3	Management of Chronic Diseases	Provide long-term care for hypertension, diabetes, and COPD.
4	Pediatric & Maternal Health Care	Deliver primary care for children and women at different life stages.



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Sr. No.	Course Outcome	Description
5	Emergency & Trauma Management	Treat acute illnesses and minor injuries in primary care settings.
6	Community & Occupational Health	Address public health concerns and workplace-related illnesses.

Credits & Assessment Methods

Total Credits: 40

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

Assessment Pattern

Assessment Type	Weightage
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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

- Case Presentation & Viva (30 Marks)
- OSCE (Objective Structured Clinical Examination) – 30 Marks
- Hands-on Primary Care Skills – 40 Marks

Research Project

- Dissertation Submission & Defense (20 Marks)

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



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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:

- **Textbook of Family Medicine** – Robert E. Rakel, David Rakel
- **Current Diagnosis & Treatment in Family Medicine** – Jeannette South-Paul, Samuel Matheny
- **Primary Care Medicine: Office Evaluation and Management of the Adult Patient** – Allan H. Goroll
- **Essential Evidence-Based Medicine** – Dan Mayer
- **WHO Primary Health Care Guidelines**

Journals & E-Resources:

- **Journal of Family Medicine & Primary Care (JFMPC)** – <https://www.jfmprc.com/>
- **British Journal of General Practice (BJGP)** – <https://bjgp.org/>
- **American Academy of Family Physicians (AAFP)** – <https://www.aafp.org/>

Fellowship InDiabetology

Course Overview

The **Fellowship in Diabetology** is a **one-year** specialized clinical training program designed to develop expertise in the diagnosis, management, and prevention of diabetes and its complications. The program focuses on evidence-based diabetes care, metabolic syndrome, diabetic foot care, lifestyle management, and emerging treatment strategies, equipping physicians with the knowledge and skills necessary for comprehensive diabetes management.

Prerequisites

Criteria	Details
Eligibility	MBBS with Internship Completion / MD/DNB in General Medicine / Family Medicine / Endocrinology
Duration	1 Year



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Criteria	Details
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Develop expertise in **diabetes pathophysiology, classification, and epidemiology**.
- Master **diagnostic and clinical decision-making** for diabetes and its complications.
- Learn to manage **Type 1, Type 2, and Gestational Diabetes Mellitus (GDM)** effectively.
- Gain proficiency in **insulin therapy, oral hypoglycemics, and emerging treatment modalities**.
- Understand **diabetes complications**, including neuropathy, nephropathy, and retinopathy.
- Implement **lifestyle modifications, nutrition counseling, and exercise interventions**.
- Conduct **clinical research and apply evidence-based practices** in diabetology.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.

Semester 1: Fundamentals & Core Diabetology

Module	Topics Covered
Pathophysiology & Classification of Diabetes	Type 1, Type 2, MODY, LADA, Gestational Diabetes
Diabetes Epidemiology & Risk Factors	Genetic & environmental factors, metabolic syndrome



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Module	Topics Covered
Diagnosis & Monitoring of Diabetes	Fasting blood glucose, HbA1c, OGTT, CGM (Continuous Glucose Monitoring)
Pharmacological Management	Insulin therapy, oral hypoglycemics, SGLT2 inhibitors, GLP-1 agonists
Diabetes & Cardiovascular Disease	Atherosclerosis, hypertension, dyslipidemia management
Diabetic Foot Care & Neuropathy	Foot ulcer prevention, neuropathy screening, podiatry care
Nutrition & Lifestyle in Diabetes Management	Meal planning, calorie counting, dietary interventions
Clinical Rotations – OPD, Diabetes Clinics, Foot Care Clinics	Supervised patient care

Semester 2: Advanced Diabetology & Research

Module	Topics Covered
Diabetes & Pregnancy (GDM)	Diagnosis, management, fetal monitoring
Obesity & Metabolic Syndrome	Bariatric interventions, lifestyle modification
Diabetes & Endocrine Disorders	Thyroid dysfunction, adrenal involvement in diabetes
Emerging Therapies in Diabetes	Stem cell therapy, artificial pancreas, closed-loop insulin delivery
Complications of Diabetes	Retinopathy, nephropathy, diabetic ketoacidosis (DKA), hyperosmolar coma
Geriatric Diabetes Care	Managing multimorbidity in elderly patients
Clinical Research & Case Studies	Evidence-based management, systematic reviews



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Module	Topics Covered
Community-Based Diabetes Screening & Education Programs	Public health initiatives

Program Outcomes (POs)

Sr. No.	Program Outcome	Description
1	Expertise in Diabetes Management	Develop skills to diagnose, classify, and manage different types of diabetes, including Type 1, Type 2, and gestational diabetes.
2	Proficiency in Diabetes-Related Complications	Gain knowledge in managing diabetes complications, including diabetic neuropathy, nephropathy, retinopathy, and cardiovascular risks.
3	Multidisciplinary Approach to Diabetes Care	Work collaboratively with endocrinologists, dietitians, and educators to provide comprehensive diabetes care.
4	Research & Evidence-Based Practice	Apply research methodologies to explore new treatment options and improve patient outcomes in diabetology.
5	Preventive & Lifestyle Medicine	Implement lifestyle modification strategies, including diet, exercise, and behavioral therapy, to prevent diabetes and its complications.

Course Outcomes (COs)

Sr. No.	Course Outcome	Description
1	Understanding Diabetes Pathophysiology	Learn the underlying mechanisms of diabetes and its metabolic effects.
2	Glycemic Control & Insulin Therapy	Master the use of oral hypoglycemic agents, insulin therapy, and continuous glucose monitoring.
3	Management of Diabetic Emergencies	Handle acute complications such as diabetic ketoacidosis (DKA) and hyperosmolar hyperglycemic state (HHS).



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Sr. No.	Course Outcome	Description
4	Patient Education & Lifestyle Modification	Guide patients on diet, exercise, and self-monitoring techniques to improve diabetes control.
5	Advances in Diabetes Research & Technology	Understand emerging trends, including artificial pancreas, digital health solutions, and novel drug therapies.

Credits & Assessment Methods

Total Credits: 40

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



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

Practical Examination

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Diabetes Management Simulation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Joslin's Diabetes Mellitus** – C. Ronald Kahn, Gordon C. Weir
- **International Textbook of Diabetes Mellitus** – Ralph A. DeFronzo
- **Atlas of Diabetes** – Jay S. Skyler
- **Handbook of Diabetes** – Richard Holt
- **Diabetes Care & Management** – American Diabetes Association

Journals & E-Resources:



- **Diabetes Care – American Diabetes Association (ADA)** – <https://diabetesjournals.org/care>
- **Journal of Diabetes & Metabolic Disorders** – <https://jdm.sums.ac.ir/>
- **Diabetes Research and Clinical Practice – Elsevier** – <https://www.journals.elsevier.com/diabetes-research-and-clinical-practice>
- **Up-to-date – Diabetes Management** – <https://www.uptodate.com>
- **World Diabetes Foundation Resources** – <https://www.worlddiabetesfoundation.org/>



Fellowship in Obesity & Metabolism

Course Overview

The **Fellowship in Obesity & Metabolism** is a **one-year** advanced clinical training program designed to provide in-depth knowledge and expertise in the prevention, diagnosis, and management of obesity and metabolic disorders. The program covers endocrinology, nutritional therapy, pharmacological and surgical interventions, and metabolic syndrome management. It integrates evidence-based approaches for obesity treatment and emphasizes patient-centered care.

Prerequisites



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Criteria	Details
Eligibility	MBBS with Internship Completion / MD/DNB in General Medicine, Endocrinology, Family Medicine, or related fields
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand the **pathophysiology of obesity and metabolic disorders**.
- Learn **clinical evaluation techniques** for obesity, metabolic syndrome, and associated diseases.
- Master **nutritional, lifestyle, and behavioral interventions** for weight management.
- Gain expertise in **pharmacotherapy and surgical options** for obesity treatment.
- Develop skills in **managing metabolic disorders** such as insulin resistance, NAFLD, and dyslipidemia.
- Conduct **clinical research on obesity, metabolism, and weight-loss interventions**.
- Implement **public health strategies** for obesity prevention and lifestyle modifications.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.

Semester 1: Fundamentals of Obesity & Metabolic Disorders

Module	Topics Covered
Introduction to Obesity & Metabolism	Classification, epidemiology, genetic & environmental factors
Pathophysiology of Obesity	Hormonal regulation, appetite control, gut microbiome influence



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Module	Topics Covered
Assessment & Diagnosis of Obesity	BMI, body fat analysis, metabolic panel, indirect calorimetry
Lifestyle & Behavioral Interventions	Diet therapy, calorie restriction, cognitive-behavioral therapy (CBT)
Endocrinology of Obesity	Role of leptin, ghrelin, insulin, thyroid hormones in weight regulation
Metabolic Syndrome & Insulin Resistance	Diabetes, dyslipidemia, hypertension, non-alcoholic fatty liver disease (NAFLD)
Pharmacological Management of Obesity	GLP-1 agonists, lipase inhibitors, appetite suppressants
Clinical Rotations – Obesity Clinics, Metabolic Disorder Units	Hands-on patient evaluation

Semester 2: Advanced Obesity Management & Research

Module	Topics Covered
Obesity & Cardiovascular Disease	Hypertension, atherosclerosis, cardiac risk reduction
Pediatric & Adolescent Obesity	Growth monitoring, early interventions, childhood obesity prevention
Obesity & Reproductive Health	PCOS, infertility, pregnancy-related obesity risks
Surgical Interventions for Obesity	Bariatric surgery (Roux-en-Y, sleeve gastrectomy, gastric banding)
Gut Hormones & Metabolic Adaptation	GLP-1, PYY, gut-brain axis regulation in obesity
Physical Activity & Exercise Science	Strength training, aerobic exercise, metabolic rate enhancement
Community & Public Health	Obesity prevention programs, workplace interventions



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Module	Topics Covered
Approaches	
Clinical Research & Case Studies	Evidence-based practice, systematic reviews

Program Outcomes

Sr. No.	Program Outcome	Description
1	Comprehensive Knowledge of Obesity	Understand mechanisms and classification of obesity.
2	Metabolic & Endocrine Disorder Management	Diagnose and treat obesity-related metabolic diseases.
3	Lifestyle & Behavioral Modification Skills	Implement non-pharmacological interventions for weight management.
4	Pharmacological & Surgical Interventions	Optimize medical and surgical treatments for obesity.
5	Pediatric & Geriatric Obesity Care	Address obesity management across different age groups.
6	Research & Evidence-Based Practice	Conduct and apply clinical research in obesity and metabolism.
7	Public Health & Preventive Strategies	Develop community-based obesity prevention initiatives.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Understanding of Obesity	Explain metabolic adaptations and hormonal



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Sr. No.	Course Outcome	Description
	Pathophysiology	regulation.
2	Clinical Diagnosis & Assessment	Use advanced diagnostic techniques to assess obesity and metabolism.
3	Pharmacotherapy & Nutritional Interventions	Manage obesity with drugs and diet modifications.
4	Surgical Management & Postoperative Care	Understand bariatric surgery and long-term follow-up care.
5	Multidisciplinary Treatment Approaches	Work with dietitians, endocrinologists, and psychologists for patient care.
6	Research & Public Health Interventions	Develop evidence-based strategies for obesity prevention and management.

Credits & Assessment Methods

Total Credits: 40

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

Assessment Pattern



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Obesity & Metabolic Disorder Management Simulation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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



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- **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:

- **Bray's Obesity: Clinical Management** – George A. Bray
- **Handbook of Obesity** – Wadden, Bray
- **Obesity: Evaluation and Treatment Essentials** – Michael G. Steelman
- **Metabolic Syndrome and Obesity** – Christopher D. Byrne
- **Endocrinology of Obesity** – W. Timothy Garvey

Journals & E-Resources:

- **Obesity Journal – The Obesity Society** – <https://onlinelibrary.wiley.com/journal/1930739x>
- **Metabolism: Clinical and Experimental** – <https://www.metabolismjournal.com/>
- **The American Journal of Clinical Nutrition** – <https://academic.oup.com/ajcn>
- **UpToDate – Obesity Management** – <https://www.uptodate.com>
- **World Obesity Federation** – <https://www.worldobesity.org/>

Fellowship in Medical Nutrition & Dietetics



School of Medical Sciences & Technology

Course Overview

The **Fellowship in Medical Nutrition & Dietetics** is a **one-year** specialized training program focused on the role of clinical nutrition in disease prevention and management. It equips healthcare professionals with expertise in therapeutic diets, nutritional interventions, metabolic disorders, and public health nutrition strategies.

Prerequisites

Criteria	Details
Eligibility	MBBS / B.Sc. Nutrition & Dietetics / B.Sc. Food Science / B.Sc. Nursing / B.Pharm / Other healthcare-related degrees
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand **the role of nutrition in disease prevention and management**.
- Learn **dietary assessment techniques** and patient-specific meal planning.
- Gain expertise in **clinical nutrition therapy for various diseases** such as diabetes, cardiovascular diseases, and kidney disorders.
- Develop skills in **critical care nutrition, enteral and parenteral feeding**.
- Apply **nutritional counseling and behavior modification strategies**.
- Conduct **research on emerging trends in dietetics and nutrition science**.
- Implement **public health and community nutrition programs**.

Curriculum with Semester-wise Syllabus & Modules



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The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.

Semester 1: Fundamentals of Medical Nutrition

Module	Topics Covered
Principles of Medical Nutrition	Macronutrients, micronutrients, dietary guidelines
Nutritional Biochemistry & Metabolism	Digestion, absorption, energy metabolism
Clinical Nutrition & Dietetics	Role of diet in disease management
Nutrition in Chronic Diseases	Diabetes, hypertension, obesity, metabolic syndrome
Pediatric & Maternal Nutrition	Growth monitoring, lactation, weaning foods
Nutritional Assessment & Diet Planning	Dietary recall, BMI, nutritional screening tools
Food Science & Food Safety	Food preservation, fortification, contamination control
Clinical Rotations – Diet Consultation, Nutrition Clinics	Hands-on patient assessment

Semester 2: Advanced Clinical & Research in Nutrition

Module	Topics Covered
Critical Care & Enteral Nutrition	Parenteral nutrition, ICU feeding, tube feeding
Sports Nutrition & Performance Dietetics	Macronutrient timing, hydration, supplementation
Renal & Gastrointestinal Nutrition	CKD diets, gluten intolerance, IBD nutrition
Oncology & Palliative Nutrition	Cancer cachexia, immune-enhancing diets



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Module	Topics Covered
Obesity & Weight Management	Behavior modification, bariatric nutrition
Nutrigenomics & Personalized Nutrition	Genetic influence on diet and metabolism
Community & Public Health Nutrition	Nutritional programs, malnutrition interventions
Research & Case Studies	Clinical trials, evidence-based practice

Program Outcomes

Sr. No.	Program Outcome	Description
1	Comprehensive Knowledge of Medical Nutrition	Apply advanced nutrition concepts in clinical settings.
2	Disease-Specific Diet Management	Develop tailored diet plans for specific diseases.
3	Critical Care & ICU Nutrition	Manage nutritional needs in critically ill patients.
4	Pediatric & Geriatric Nutrition	Address age-specific nutritional requirements.
5	Sports & Performance Nutrition	Design meal plans for athletes and active individuals.
6	Research & Public Health Interventions	Conduct nutritional research and promote community health.
7	Patient Counseling & Behavioral Change	Educate and guide patients toward sustainable dietary habits.

Course Outcomes



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Sr. No.	Course Outcome	Description
1	Nutritional Biochemistry & Metabolism	Understand macronutrient metabolism and absorption.
2	Diet Therapy for Chronic Diseases	Plan and implement nutrition therapy for diseases.
3	Enteral & Parenteral Nutrition	Develop expertise in feeding methods for ICU patients.
4	Weight Management & Lifestyle Modification	Address obesity and metabolic disorders through diet.
5	Nutrigenomics & Personalized Diets	Explore genetic influence on dietary needs.
6	Research & Evidence-Based Practice	Analyze case studies and contribute to clinical research.

Credits & Assessment Methods

Total Credits: 40

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

Assessment Pattern



School of Medical Sciences & Technology

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Diet Planning & Nutritional Assessment – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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



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- **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:

- **Krause's Food & Nutrition Therapy** – L. Kathleen Mahan
- **Clinical Nutrition & Dietetics** – Nix Staci
- **Nutrition in Clinical Practice** – Marion Nestle
- **Modern Nutrition in Health & Disease** – Maurice Shils
- **Handbook of Nutrition & Dietetics** – Rowan Stewart

Journals & E-Resources:

- **Journal of Human Nutrition & Dietetics** – <https://onlinelibrary.wiley.com/journal/1365277x>
- **American Journal of Clinical Nutrition** – <https://academic.oup.com/ajcn>
- **British Journal of Nutrition** – <https://www.cambridge.org/core/journals/british-journal-of-nutrition>
- **World Health Organization (WHO) Nutrition Guidelines** – <https://www.who.int/nutrition/en/>
- **Academy of Nutrition & Dietetics** – <https://www.eatright.org/>



Fellowship in Sleep Medicine

Course Overview

The **Fellowship in Sleep Medicine** is a **one-year** advanced training program designed to equip healthcare professionals with expertise in diagnosing and managing sleep disorders. The program focuses on sleep physiology, sleep-related breathing disorders, insomnia, parasomnias, and circadian rhythm disturbances. It includes hands-on training in sleep studies (polysomnography), cognitive-behavioral therapy for insomnia (CBT-I), and multidisciplinary approaches to sleep disorders.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD/DNB in Internal Medicine, Pulmonology, Neurology, Psychiatry, ENT, or related fields
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand **sleep physiology, sleep architecture, and circadian rhythms**.
- Develop expertise in **diagnosing and managing sleep disorders** such as insomnia, sleep apnea, and restless leg syndrome.
- Learn **sleep study interpretation**, including **polysomnography, home sleep testing, and actigraphy**.
- Gain proficiency in **pharmacological and non-pharmacological interventions** for sleep disorders.
- Master **cognitive-behavioral therapy for insomnia (CBT-I)** and behavioral sleep medicine approaches.
- Conduct **clinical research on sleep disorders and emerging treatment modalities**.
- Implement **public health strategies for sleep hygiene and awareness**.



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Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.

Semester 1: Fundamentals of Sleep Medicine

Module	Topics Covered
Sleep Physiology & Neurobiology	Sleep cycles, circadian rhythms, neurotransmitters in sleep
Classification of Sleep Disorders	ICSD-3 classification, DSM-5 criteria
Diagnosis & Assessment of Sleep Disorders	Sleep history taking, sleep questionnaires (Epworth, Berlin)
Polysomnography & Home Sleep Testing	PSG interpretation, AHI scoring, EEG, EOG, EMG analysis
Insomnia & Cognitive-Behavioral Therapy (CBT-I)	Behavioral interventions, sleep hygiene techniques
Obstructive Sleep Apnea (OSA) & CPAP Therapy	Pathophysiology, screening tools, CPAP/BiPAP management
Restless Leg Syndrome & Narcolepsy	Dopaminergic dysfunction, genetic factors, MSLT interpretation
Clinical Rotations – Sleep Labs, Pulmonology & Neurology Clinics	Hands-on training in sleep disorder management

Semester 2: Advanced Sleep Medicine & Research

Module	Topics Covered
Parasomnias & REM Behavior Disorder	Night terrors, sleepwalking, REM atonia dysfunction
Sleep & Neurological Disorders	Sleep in Parkinson's, epilepsy-related sleep disorders
Circadian Rhythm Sleep Disorders	Delayed sleep phase syndrome, jet lag, shift work



School of Medical Sciences & Technology

Module	Topics Covered
	disorder
Pediatric Sleep Disorders	Sleep disordered breathing, behavioral insomnia in children
Sleep & Psychiatry	Depression, anxiety, PTSD, bipolar disorder & sleep disturbances
Advanced Sleep Study Techniques	Actigraphy, multiple sleep latency test (MSLT), MWT
Sleep & Cardiovascular Health	Hypertension, stroke, metabolic syndrome in sleep disorders
Clinical Research & Case Studies	Evidence-based practice, sleep trials, systematic reviews

Program Outcomes

Sr. No.	Program Outcome	Description
1	Comprehensive Knowledge of Sleep Medicine	Apply sleep physiology and diagnostic tools in clinical settings.
2	Expertise in Sleep Study Interpretation	Analyze polysomnography, MSLT, actigraphy results.
3	Pharmacological & Non-Pharmacological Sleep Management	Optimize medication & behavioral interventions.
4	Multidisciplinary Approach to Sleep Disorders	Collaborate with pulmonologists, neurologists, psychiatrists.
5	Pediatric & Geriatric Sleep Medicine	Manage sleep disturbances across different age groups.
6	Research & Evidence-Based Practice	Conduct and apply research in sleep disorders.
7	Public Health & Sleep Awareness	Develop community programs promoting



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Sr. No.	Program Outcome	Description
		sleep health.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Understanding of Sleep Physiology	Explain sleep architecture, circadian rhythms, and neurotransmitters.
2	Clinical Diagnosis of Sleep Disorders	Use validated sleep questionnaires and PSG findings.
3	Management of Sleep-Related Breathing Disorders	Implement CPAP/BiPAP therapy, weight loss interventions.
4	Treatment of Insomnia & Circadian Disorders	Apply CBT-I, melatonin therapy, lifestyle adjustments.
5	Sleep & Psychiatric Comorbidities	Address sleep disturbances in mental health disorders.
6	Research & Evidence-Based Practice	Analyze case studies and contribute to sleep medicine research.

Credits & Assessment Methods

Total Credits: 40

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



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Component	Credits
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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Sleep Study Interpretation & Treatment Planning – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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)



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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:

- **Principles & Practice of Sleep Medicine** – Meir H. Kryger
- **Atlas of Clinical Sleep Medicine** – Meir H. Kryger
- **The Sleep Medicine Handbook** – Alon Y. Avidan
- **Sleep Disorders: Diagnosis & Treatment** – Paul R. Carney
- **Cognitive Behavioral Treatment of Insomnia** – Michael Perlis

Journals & E-Resources:

- **Journal of Clinical Sleep Medicine** – <https://jcsleep.aasm.org>
- **Sleep Medicine Journal – Elsevier** – <https://www.journals.elsevier.com/sleep-medicine>
- **American Academy of Sleep Medicine (AASM)** – <https://aasm.org>
- **National Sleep Foundation** – <https://www.sleepfoundation.org>
- **Up-to-date – Sleep Medicine** – <https://www.uptodate.com>



Fellowship in Sports Medicine

Course Overview

The **Fellowship in Sports Medicine** is a **one-year** advanced training program designed to equip healthcare professionals with expertise in the prevention, diagnosis, treatment, and rehabilitation of sports-related injuries. The program covers musculoskeletal assessment, sports rehabilitation, performance enhancement, exercise physiology, and injury prevention strategies. It integrates hands-on training in sports injury management and exercise prescription for athletes.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD/DNB in Orthopedics, Physical Medicine & Rehabilitation, General Medicine, or related fields
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand **the biomechanics of sports injuries and musculoskeletal assessment techniques.**
- Develop expertise in **diagnosing and managing acute and chronic sports injuries.**
- Gain skills in **sports rehabilitation, physiotherapy, and injury prevention.**
- Learn **exercise prescription, performance enhancement, and nutrition for athletes.**
- Master **minimally invasive procedures for sports injuries**, including PRP therapy and arthroscopy.
- Conduct **clinical research in sports medicine and rehabilitation techniques.**
- Implement **public health and community programs for injury prevention and athlete wellness.**

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



School of Medical Sciences & Technology

Semester 1: Fundamentals of Sports Medicine

Module	Topics Covered
Introduction to Sports Medicine	Scope, history, and importance in athlete health
Exercise Physiology & Biomechanics	Muscle function, joint movement, kinematics, kinetics
Musculoskeletal Injuries in Sports	Strains, sprains, fractures, overuse injuries
Assessment of Sports Injuries	Clinical examination, imaging, diagnostic techniques
Sports Pharmacology & Anti-Doping Regulations	WADA guidelines, performance-enhancing drugs
Rehabilitation & Physiotherapy	Manual therapy, electrotherapy, therapeutic exercises
Sports Nutrition & Hydration	Macronutrient balance, hydration strategies, supplements
Clinical Rotations – Orthopedic & Sports Injury Clinics	Hands-on training in injury management

Semester 2: Advanced Sports Medicine & Research

Module	Topics Covered
Minimally Invasive Techniques for Sports Injuries	PRP therapy, ultrasound-guided injections, arthroscopy
Concussion & Head Injuries in Sports	Pathophysiology, return-to-play protocols
Strength & Conditioning for Athletes	Strength training, endurance development, injury prevention
Cardiac Screening in Athletes	Sudden cardiac arrest, ECG, stress testing



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Module	Topics Covered
Pediatric & Geriatric Sports Medicine	Growth-related issues, osteoarthritis in active aging
Sports Psychology & Mental Conditioning	Anxiety management, performance motivation
Public Health & Injury Prevention Programs	Community-based interventions, school athlete wellness
Clinical Research & Case Studies	Evidence-based practice, sports injury trials

Program Outcomes

Sr. No.	Program Outcome	Description
1	Comprehensive Knowledge of Sports Medicine	Apply sports science principles in clinical settings.
2	Expertise in Musculoskeletal Injury Management	Diagnose and treat sports injuries effectively.
3	Rehabilitation & Physiotherapy Techniques	Implement rehabilitation protocols for athletes.
4	Exercise Prescription & Performance Enhancement	Develop individualized training programs.
5	Sports Nutrition & Hydration Strategies	Optimize diet plans for peak performance.
6	Research & Evidence-Based Practice	Conduct and apply research in sports medicine.
7	Public Health & Injury Prevention	Develop community programs for injury prevention.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Understanding of Exercise Physiology	Explain biomechanics and metabolic adaptations.
2	Clinical Diagnosis of Sports Injuries	Use imaging and clinical tools for diagnosis.
3	Pharmacological & Non-Pharmacological Management	Apply appropriate medications and physical therapy.
4	Concussion & Head Trauma Management	Implement return-to-play protocols.
5	Sports Nutrition & Endurance Optimization	Plan nutrition and hydration strategies.
6	Research & Evidence-Based Practice	Analyze case studies and contribute to sports medicine research.

Credits & Assessment Methods

Total Credits: 40

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



School of Medical Sciences & Technology

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Sports Injury Management & Treatment Planning – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Brunker & Khan's Clinical Sports Medicine** – Peter Brunker
- **Sports Injury Prevention & Rehabilitation** – David Joyce
- **The IOC Manual of Sports Injuries** – Roald Bahr
- **Exercise Physiology: Nutrition, Energy, and Human Performance** – William D. McArdle
- **The Sports Medicine Bible** – Lyle J. Micheli

Journals & E-Resources:

- **British Journal of Sports Medicine** – <https://bjsm.bmj.com>
- **The American Journal of Sports Medicine** – <https://journals.sagepub.com/home/ajs>
- **National Strength & Conditioning Association (NSCA)** – <https://www.nsca.com>
- **International Olympic Committee (IOC) Sports Science** – <https://www.olympic.org/sports-science>
- **UpToDate – Sports Medicine** – <https://www.uptodate.com>



Fellowship in Laboratory Medicine

Course Overview

The **Fellowship in Laboratory Medicine** is a **one-year** specialized program designed to train healthcare professionals in advanced laboratory diagnostics, clinical pathology, molecular diagnostics, quality assurance, and laboratory management. The course covers hematology, microbiology, biochemistry, immunology, and emerging diagnostic technologies.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD Pathology / MD Biochemistry / MD Microbiology / M.Sc. Medical Lab Technology / M.Sc. Biochemistry / M.Sc. Microbiology
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand **the principles of clinical laboratory testing and quality control**.
- Gain expertise in **hematology, clinical biochemistry, microbiology, and molecular diagnostics**.
- Learn **emerging techniques in laboratory medicine, including genetic and immunological testing**.
- Develop skills in **lab automation, quality assurance, and regulatory compliance**.
- Master the interpretation of **biochemical, hematological, and microbiological test results**.
- Conduct **clinical research in diagnostic laboratory sciences**.
- Implement **standardized protocols for laboratory management and accreditation**.



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Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.

Semester 1: Fundamentals of Laboratory Medicine

Module	Topics Covered
Clinical Biochemistry	Enzymology, metabolic disorders, toxicology, endocrinology assays
Hematology & Coagulation Studies	Complete blood count (CBC), coagulation profiles, anemia studies
Medical Microbiology	Bacteriology, virology, parasitology, antimicrobial sensitivity testing
Immunology & Serology	Autoimmune disorders, immunoassay techniques, allergy diagnostics
Molecular Diagnostics & Genetic Testing	PCR, Next-Generation Sequencing (NGS), RT-PCR applications
Quality Assurance & Accreditation	NABL, CAP, CLIA, ISO standards, proficiency testing
Clinical Rotations – Pathology & Microbiology Labs	Hands-on training in sample processing and diagnostics

Semester 2: Advanced Laboratory Medicine & Research

Module	Topics Covered
Point-of-Care Testing (POCT) & Rapid Diagnostics	Glucose monitoring, troponin testing, CRP
Histopathology & Cytopathology	Biopsy techniques, FNAC, immunohistochemistry
Advanced Molecular Diagnostics	Gene expression analysis, pharmacogenomics,



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Module	Topics Covered
	forensic testing
Automation & Artificial Intelligence in Lab Medicine	Automated analyzers, AI-driven diagnosis
Clinical Research & Case Studies	Evidence-based diagnostics, lab-based investigations
Lab Information Systems & Data Management	LIS integration, digital pathology, telepathology
Public Health & Infectious Disease Surveillance	Epidemiological monitoring, outbreak management

Program Outcomes

Sr. No.	Program Outcome	Description
1	Comprehensive Knowledge of Laboratory Medicine	Understand laboratory-based diagnostics and clinical correlations.
2	Expertise in Clinical Pathology	Perform and interpret hematology, biochemistry, and microbiology tests.
3	Molecular & Genetic Testing	Apply modern molecular diagnostic techniques.
4	Quality Assurance & Laboratory Accreditation	Ensure standardization in laboratory operations.
5	Laboratory Automation & AI Integration	Implement automation and AI in diagnostics.
6	Research & Evidence-Based Practice	Conduct clinical research in laboratory sciences.
7	Public Health & Surveillance	Contribute to infectious disease monitoring and epidemiology.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Clinical Biochemistry & Toxicology	Analyze biochemical markers for disease detection.
2	Hematology & Coagulation Testing	Perform and interpret blood and clotting studies.
3	Microbiological Testing & Infectious Disease Diagnostics	Identify pathogens and antibiotic resistance patterns.
4	Molecular & Genetic Testing	Utilize advanced molecular biology techniques.
5	Laboratory Quality Management & Accreditation	Implement quality control measures in diagnostic labs.
6	Research & Case Studies	Conduct and interpret lab-based clinical research.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Lab-Based Diagnostics & Quality Control – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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



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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:

- **Tietz Textbook of Clinical Chemistry & Molecular Diagnostics** – Carl Burtis
- **Henry's Clinical Diagnosis & Management by Laboratory Methods** – Richard McPherson
- **Medical Laboratory Science Review** – Robert Harr
- **Clinical Laboratory Diagnostics** – Lothar Thomas
- **Principles & Practice of Laboratory Medicine** – Lawrence Kaplan

Journals & E-Resources:

- **Clinical Chemistry Journal** – <https://academic.oup.com/clinchem>
- **Journal of Clinical Pathology** – <https://jcp.bmj.com>
- **American Society for Clinical Pathology (ASCP)** – <https://www.ascp.org>
- **World Health Organization (WHO) Laboratory Guidelines** – <https://www.who.int/lab-guidelines>
- **International Federation of Clinical Chemistry (IFCC)** – <https://www.ifcc.org>



Fellowship in Blood Banking

Course Overview

The **Fellowship in Blood Banking** is a **one-year** advanced training program designed to provide in-depth knowledge of transfusion medicine, blood component separation, immunohematology, donor screening, and regulatory guidelines. The course includes hands-on training in blood collection, processing, storage, and transfusion protocols, ensuring safe and effective blood transfusion practices.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD Pathology / MD Transfusion Medicine / MD Immunohematology / M.Sc. Medical Lab Technology
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Gain expertise in **blood banking procedures, including donor screening and component separation.**
- Understand **blood transfusion reactions, hemovigilance, and immunohematology.**
- Learn **advanced techniques in blood typing, crossmatching, and antibody screening.**
- Master **plasma fractionation, apheresis, and stem cell banking.**
- Understand the **regulatory framework of transfusion medicine, including WHO and AABB guidelines.**
- Develop skills in **blood bank management, quality control, and accreditation.**
- Conduct **research in transfusion medicine and blood safety.**

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Blood Banking & Transfusion Medicine

Module	Topics Covered
Blood Donation & Donor Screening	Donor eligibility, deferral criteria, counseling
Blood Collection & Processing	Phlebotomy techniques, anticoagulants, storage conditions
Blood Component Separation	Packed RBCs, fresh frozen plasma (FFP), platelets, cryoprecipitate
Immunohematology & Blood Grouping	ABO & Rh typing, crossmatching, antibody screening
Blood Transfusion Reactions & Hemovigilance	Adverse transfusion reactions, management, reporting
Quality Control in Blood Banking	Calibration, validation, internal & external QC
Clinical Rotations – Blood Bank & Transfusion Services	Hands-on training in donor screening, crossmatching, and transfusion

Semester 2: Advanced Blood Banking & Transfusion Practices

Module	Topics Covered
Apheresis & Plasma Exchange	Therapeutic plasma exchange, platelet & leukocyte apheresis
Stem Cell Banking & Cellular Therapies	Hematopoietic stem cell transplantation, cord blood banking
Transfusion in Special Conditions	Neonatal, intrauterine, massive transfusion protocol
Molecular Blood Typing & Genotyping	DNA-based typing techniques, HLA matching
Blood Bank Information Systems (BBIS)	Digital blood bank management, donor-recipient tracking



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Module	Topics Covered
Regulatory & Legal Aspects of Blood Banking	FDA, AABB, NABH, WHO guidelines
Research in Transfusion Medicine & Case Studies	Evidence-based practice, emerging transfusion trends

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Blood Transfusion Services	Ensure safe and effective transfusion practices.
2	Advanced Immunohematology	Master blood typing, crossmatching, and antibody identification.
3	Plasma & Cellular Therapy Applications	Understand apheresis, plasma exchange, and stem cell transplantation.
4	Hemovigilance & Transfusion Reactions	Monitor and manage adverse transfusion reactions.
5	Blood Bank Quality Control & Accreditation	Implement quality control and compliance with global standards.
6	Research & Innovation in Transfusion Medicine	Conduct clinical research and case-based studies.
7	Public Health & Blood Donation Campaigns	Organize and manage blood donation drives.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Donor Selection & Screening	Identify suitable donors and implement screening protocols.
2	Blood Collection & Processing	Perform blood collection, component separation, and storage.
3	Immunohematology & Compatibility Testing	Ensure transfusion safety through proper blood typing and crossmatching.
4	Blood Transfusion Reaction Management	Diagnose and manage adverse transfusion reactions.
5	Apheresis & Plasma Therapy	Utilize therapeutic apheresis and plasma exchange techniques.
6	Transfusion Medicine Research	Conduct studies on blood transfusion efficacy and innovations.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Lab-Based Blood Bank Procedures – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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



School of Medical Sciences & Technology

- **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:

- **Modern Blood Banking & Transfusion Practices** – Denise Harmening
- **AABB Technical Manual** – American Association of Blood Banks
- **Practical Transfusion Medicine** – Michael Murphy
- **Clinical Guide to Transfusion Medicine** – Mark Yazer
- **Immunohematology: Principles & Practice** – Eva D. Quinley

Journals & E-Resources:

- **Transfusion Journal (AABB)** – <https://onlinelibrary.wiley.com/journal/15372995>
- **Journal of Blood Transfusion** – <https://www.hindawi.com/journals/jbt>
- **World Health Organization (WHO) Blood Safety Guidelines** – <https://www.who.int/bloodsafety>
- **National Blood Transfusion Council (India)** – <https://nbtc.naco.gov.in>
- **International Society of Blood Transfusion (ISBT)** – <https://www.isbtweb.org>



Fellowship in Infectious Diseases

Course Overview

The **Fellowship in Infectious Diseases** is a **one-year** specialized program designed to provide in-depth training in the epidemiology, diagnosis, treatment, and prevention of infectious diseases. The curriculum covers bacterial, viral, fungal, and parasitic infections, antimicrobial stewardship, emerging infectious diseases, and public health strategies for infection control. The program integrates **clinical practice, laboratory training, and research** to equip fellows with expertise in managing infectious diseases in both hospital and community settings.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, Microbiology, Pulmonology, Tropical Medicine, Community Medicine) / M.Sc. Microbiology / M.Sc. Medical Lab Technology
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Develop expertise in **diagnosing and managing bacterial, viral, fungal, and parasitic infections**.
- Understand **epidemiology and outbreak control of infectious diseases**.
- Learn **infection prevention and control strategies in healthcare settings**.
- Gain knowledge of **antimicrobial resistance and stewardship programs**.
- Master **laboratory diagnostics in infectious diseases, including molecular and serological testing**.
- Conduct **clinical research on emerging infectious diseases**.
- Implement **public health strategies for infection control and vaccination programs**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Infectious Diseases

Module	Topics Covered
General Principles of Infectious Diseases	Microbial pathogenesis, host immunity, transmission
Bacterial Infections	Tuberculosis, pneumonia, sepsis, meningitis, STIs
Viral Infections	HIV/AIDS, hepatitis, influenza, COVID-19, arboviruses
Fungal & Parasitic Infections	Candidiasis, cryptococcosis, malaria, leishmaniasis
Nosocomial Infections & Infection Control	Hospital-acquired infections, hand hygiene, sterilization
Antimicrobial Stewardship	Rational use of antibiotics, antifungal, antiviral therapies
Clinical Rotations – Infectious Disease Ward & ICU	Hands-on patient management, case discussions

Semester 2: Advanced Infectious Disease Management & Research

Module	Topics Covered
Emerging & Re-Emerging Infectious Diseases	Zoonotic infections, bioterrorism agents, pandemics
Infection Control in Immunocompromised Patients	HIV/AIDS, transplant recipients, oncology patients
Vaccination & Public Health Strategies	Vaccine schedules, herd immunity, global immunization programs
Tropical & Travel Medicine	Dengue, chikungunya, leptospirosis, travel advisories
Laboratory Diagnostics in Infectious	PCR, ELISA, blood cultures, antimicrobial



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Module	Topics Covered
Diseases	sensitivity testing
Epidemiology & Outbreak Investigation	Surveillance, epidemic modeling, disease mapping
Clinical Research & Case Studies	Evidence-based management, clinical trials in infectious diseases

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Infectious Disease Diagnosis	Develop diagnostic accuracy in bacterial, viral, fungal, and parasitic infections.
2	Advanced Antimicrobial Management	Implement antimicrobial stewardship programs effectively.
3	Epidemiology & Public Health	Contribute to infectious disease surveillance and outbreak response.
4	Infection Control & Hospital Management	Develop protocols for hospital infection prevention and control.
5	Clinical Research in Infectious Diseases	Conduct research on emerging infectious diseases and novel treatments.
6	Public Health Interventions & Vaccination Programs	Plan and execute large-scale infection prevention strategies.
7	Laboratory Techniques in Infectious Diseases	Gain hands-on experience with molecular diagnostics and serology.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Diagnosis & Management of Bacterial Infections	Identify and treat common and drug-resistant bacterial infections.
2	Treatment of Viral Infections	Apply antiviral therapies in HIV, hepatitis, and respiratory viruses.
3	Antimicrobial Resistance & Stewardship	Implement rational antibiotic use and resistance monitoring.
4	Infection Prevention & Hospital Hygiene	Develop hospital infection control protocols.
5	Epidemiology & Outbreak Investigation	Respond effectively to infectious disease outbreaks.
6	Research & Evidence-Based Practice	Conduct clinical studies in infectious disease treatment.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Infectious Disease Management & Antimicrobial Stewardship – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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



School of Medical Sciences & Technology

- **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:

- **Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases** – John E. Bennett
- **Clinical Infectious Diseases: A Practical Approach** – Richard K. Root
- **Infectious Diseases: A Clinical Short Course** – Frederick S. Southwick
- **Tropical Infectious Diseases: Principles, Pathogens & Practice** – Richard L. Guerrant
- **Antimicrobial Therapy Guide** – Sanford Guide

Journals & E-Resources:

- **Journal of Infectious Diseases (JID)** – <https://academic.oup.com/jid>
- **Clinical Infectious Diseases (CID)** – <https://academic.oup.com/cid>
- **WHO Guidelines for Infectious Disease Control** – <https://www.who.int/infectious-diseases>
- **Centers for Disease Control and Prevention (CDC)** – <https://www.cdc.gov>
- **International Society for Infectious Diseases (ISID)** – <https://www.isid.org>



Fellowship in Allergy & Immunology

Course Overview

The **Fellowship in Allergy & Immunology** is a **one-year** specialized training program designed to provide healthcare professionals with expertise in the diagnosis, management, and treatment of allergic and immunological disorders. The program covers **asthma, anaphylaxis, food allergies, drug hypersensitivity, autoimmune diseases, and immunodeficiency disorders**. It integrates **clinical training, laboratory diagnostics, and research** to equip fellows with cutting-edge knowledge in allergy and immunotherapy.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, Pulmonology, Dermatology, Pediatrics, Microbiology) / M.Sc. Immunology / M.Sc. Medical Microbiology
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Gain expertise in **allergic and immune system disorders**.
- Learn the **pathophysiology of hypersensitivity reactions and immune dysfunction**.
- Develop skills in **allergy testing, immunotherapy, and desensitization protocols**.
- Understand **autoimmune diseases, immunodeficiency syndromes, and inflammatory conditions**.
- Master the use of **biologic therapies and monoclonal antibodies in immunological conditions**.
- Conduct **clinical research on allergy and immune-based disorders**.
- Implement **preventive and therapeutic strategies in allergic disease management**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Allergy & Immunology

Module	Topics Covered
Immunology & Hypersensitivity Mechanisms	Innate & adaptive immunity, immunoglobulins, cytokines
Allergic Rhinitis & Sinusitis	Pathogenesis, diagnosis, pharmacological & non-pharmacological management
Asthma & Chronic Respiratory Allergies	Pulmonary function testing (PFT), inhaler therapy, biologics
Food Allergies & Anaphylaxis	IgE-mediated reactions, emergency management, epinephrine use
Drug Hypersensitivity & Adverse Reactions	Drug desensitization, cross-reactivity, beta-lactam allergy
Allergy Testing & Immunotherapy	Skin prick tests, patch tests, serum IgE assays
Clinical Rotations – Allergy & Immunology Clinic	Hands-on patient evaluation, case discussions

Semester 2: Advanced Immunology & Research

Module	Topics Covered
Autoimmune Diseases & Connective Tissue Disorders	Lupus, rheumatoid arthritis, Sjögren's syndrome
Immunodeficiency Disorders	Primary & secondary immunodeficiencies, HIV, congenital syndromes
Biologic Therapies & Immunomodulators	Anti-IgE, IL-5 inhibitors, TNF inhibitors
Immunotherapy & Desensitization Strategies	Sublingual, subcutaneous immunotherapy, venom desensitization
Infection & Immunosuppression	Immune response in chronic infections, post-



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Module	Topics Covered
	transplant immunology
Epidemiology & Public Health in Allergy & Immunology	Vaccination strategies, immune tolerance induction
Clinical Research & Case Studies	Evidence-based treatment, clinical trials in immunotherapy

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Allergy Diagnosis & Treatment	Diagnose and manage common allergic conditions effectively.
2	Expertise in Autoimmune & Immunodeficiency Disorders	Recognize and treat immune system dysfunctions.
3	Advanced Skills in Allergy Testing & Immunotherapy	Perform allergy skin testing, immunotherapy, and desensitization.
4	Biologic & Monoclonal Antibody Therapies	Utilize cutting-edge biologic drugs for allergy and immune disorders.
5	Research & Innovation in Immunology	Conduct studies on immune mechanisms and novel treatments.
6	Public Health & Preventive Immunology	Implement large-scale allergy prevention and vaccination programs.
7	Hands-on Clinical Training in Immunology	Develop skills in lab-based and patient-based immunology.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Clinical Evaluation of Allergic Disorders	Diagnose and manage allergic rhinitis, asthma, and urticaria.
2	Laboratory Diagnosis of Immunological Disorders	Perform ELISA, flow cytometry, and immunoglobulin assays.
3	Autoimmune Disease Management	Treat lupus, rheumatoid arthritis, and inflammatory syndromes.
4	Immunotherapy & Desensitization Techniques	Implement effective desensitization and allergy treatment strategies.
5	Infection Control in Immunosuppressed Patients	Prevent infections in patients with immunodeficiencies.
6	Research & Evidence-Based Immunology	Conduct trials in allergy and immunomodulatory therapies.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Allergy Testing & Immunotherapy Administration – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Middleton's Allergy: Principles and Practice** – A. Wesley Burks
- **Clinical Immunology: Principles and Practice** – Robert R. Rich
- **Patterson's Allergic Diseases** – Leslie C. Grammer
- **Atlas of Allergic Diseases** – Bobby Lanier
- **Basic Immunology: Functions and Disorders of the Immune System** – Abul K. Abbas

Journals & E-Resources:

- **Journal of Allergy and Clinical Immunology (JACI)** – <https://www.jacionline.org>
- **Clinical & Experimental Allergy Journal** – <https://onlinelibrary.wiley.com/journal/13652222>
- **World Allergy Organization (WAO)** – <https://www.worldallergy.org>
- **American Academy of Allergy, Asthma & Immunology (AAAAI)** – <https://www.aaaai.org>
- **European Academy of Allergy & Clinical Immunology (EAACI)** – <https://www.eaaci.org>



Fellowship in Ultrasonography

Course Overview

The **Fellowship in Ultrasonography** is a **one-year** advanced training program designed for medical professionals seeking expertise in diagnostic and interventional ultrasound techniques. The program focuses on **abdominal, obstetric, gynecological, musculoskeletal, vascular, and interventional ultrasound procedures**. It provides hands-on clinical training, theoretical knowledge, and research exposure to develop proficiency in **image interpretation, Doppler studies, and ultrasound-guided interventions**.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD / MS (Radiology, Obstetrics & Gynecology, Internal Medicine, Emergency Medicine) / M.Sc. Medical Imaging Technology
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Master the **principles of ultrasonography and image acquisition techniques**.
- Develop expertise in **diagnosing abdominal, pelvic, vascular, and musculoskeletal conditions using ultrasound**.
- Gain proficiency in **Doppler ultrasound for vascular imaging and fetal monitoring**.
- Learn **ultrasound-guided interventions such as biopsies, aspirations, and therapeutic procedures**.
- Understand **the safety, physics, and bioeffects of ultrasound**.
- Conduct **research in ultrasound imaging and its applications in clinical practice**.
- Implement **quality control and ethical guidelines in ultrasonography**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Diagnostic Ultrasonography

Module	Topics Covered
Basics of Ultrasonography	Ultrasound physics, instrumentation, artifacts
Abdominal Ultrasound	Liver, gallbladder, kidneys, pancreas, spleen
Obstetric & Gynecological Ultrasound	Fetal growth assessment, fetal anomalies, ovarian pathologies
Vascular Doppler Studies	Carotid, arterial, venous Doppler, deep vein thrombosis (DVT) evaluation
Musculoskeletal Ultrasound	Joint effusion, ligament injuries, soft tissue masses
Ultrasound Safety & Bioeffects	ALARA principle, patient safety protocols
Clinical Rotations – Ultrasound Labs & Radiology Department	Hands-on scanning, real-time diagnosis

Semester 2: Advanced Ultrasonography & Interventional Techniques

Module	Topics Covered
Echocardiography	Basic cardiac ultrasound, ejection fraction, valvular assessment
Small Parts Ultrasonography	Thyroid, breast, testicular ultrasound
Interventional Ultrasound Procedures	FNAC, biopsies, fluid aspiration, nerve blocks
Emergency & Trauma Ultrasound (FAST Protocol)	Point-of-care ultrasound (POCUS), focused assessment with sonography for trauma (FAST)
Fetal Doppler & High-Risk Pregnancy Imaging	Placental function, umbilical artery Doppler



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Module	Topics Covered
3D & 4D Ultrasound Technology	Advanced imaging techniques in obstetrics and fetal medicine
Clinical Research & Case Studies	Ultrasound in novel clinical applications

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Diagnostic Ultrasound	Proficiency in ultrasound imaging and interpretation.
2	Doppler Imaging & Hemodynamics	Skill in vascular and fetal Doppler studies.
3	Interventional Ultrasonography	Perform ultrasound-guided biopsies, aspirations, and injections.
4	Musculoskeletal & Small Parts Ultrasound	Diagnose soft tissue, joint, and glandular disorders.
5	Emergency & Critical Care Ultrasound	Apply ultrasound in trauma and emergency settings.
6	Research & Innovation in Sonography	Conduct studies on new ultrasound techniques.
7	Quality Assurance & Ethics in Ultrasound	Implement safety protocols and quality control in imaging.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Ultrasonography	Understand ultrasound physics and instrumentation.
2	Abdominal & Pelvic Imaging	Diagnose liver, kidney, pancreas, and reproductive organ pathologies.
3	Obstetric & Fetal Imaging	Assess fetal development and high-risk pregnancies.
4	Doppler & Vascular Imaging	Analyze blood flow in arteries and veins.
5	Interventional & Emergency Ultrasound	Perform ultrasound-guided procedures and trauma imaging.
6	Research & Evidence-Based Practice	Conduct and apply research in diagnostic ultrasound.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Ultrasound Scanning & Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Textbook of Diagnostic Ultrasonography** – Sandra L. Hagen-Ansert
- **Ultrasound in Obstetrics & Gynecology** – Peter W. Callen
- **The Physics and Technology of Diagnostic Ultrasound** – Robert Gill
- **Fundamentals of Musculoskeletal Ultrasound** – Jon A. Jacobson
- **Emergency Ultrasound** – Michael Blaivas

Journals & E-Resources:

- **Journal of Ultrasound in Medicine (JUM)** – <https://www.jultrasoundmed.org>
- **Radiographics: Ultrasound Special Issue** – <https://pubs.rsna.org/journal/radiographics>
- **World Federation for Ultrasound in Medicine and Biology (WFUMB)** – <https://www.wfumb.org>
- **American Institute of Ultrasound in Medicine (AIUM)** – <https://www.aium.org>
- **European Federation of Societies for Ultrasound in Medicine and Biology (EFSUMB)** – <https://efsumb.org>



Fellowship in Clinical Cardiology

Course Overview

The **Fellowship in Clinical Cardiology** is a **one-year** advanced training program designed for medical professionals to gain expertise in the **diagnosis, management, and treatment of cardiovascular diseases**. The curriculum includes **non-invasive and invasive cardiology, ECG interpretation, echocardiography, stress testing, cardiac emergencies, and preventive cardiology**. It integrates **clinical training, hands-on procedural experience, and research** to equip fellows with **evidence-based knowledge in cardiology practice**.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (General Medicine, Internal Medicine, Emergency Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Gain expertise in **diagnosing and managing ischemic heart diseases, arrhythmias, heart failure, and valvular disorders**.
- Develop skills in **ECG interpretation, echocardiography, and stress testing**.
- Learn **advanced techniques in non-invasive and interventional cardiology**.
- Understand **cardiac pharmacology and therapeutic strategies**.
- Manage **hypertension, dyslipidemia, and cardiovascular risk factors**.
- Handle **cardiac emergencies, including myocardial infarction and cardiac arrest**.
- Conduct **research in cardiology and develop clinical guidelines**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Clinical Cardiology

Module	Topics Covered
Basic Cardiac Anatomy & Physiology	Cardiac cycle, conduction system, hemodynamics
ECG & Arrhythmias	ECG interpretation, tachycardia, bradycardia, heart blocks
Hypertension & Cardiovascular Risk Management	Diagnosis, lifestyle modifications, pharmacotherapy
Ischemic Heart Disease	Angina, myocardial infarction, STEMI/NSTEMI management
Heart Failure & Cardiomyopathies	Diagnosis, staging, pharmacological & device therapy
Cardiac Pharmacology	Antiarrhythmic drugs, anticoagulants, lipid-lowering agents
Clinical Rotations – Cardiology OPD & CCU	Hands-on patient evaluation, case discussions

Semester 2: Advanced Cardiology & Research

Module	Topics Covered
Echocardiography & Imaging Modalities	2D Echo, Doppler, cardiac MRI, CT angiography
Valvular Heart Diseases	Aortic stenosis, mitral regurgitation, surgical interventions
Congenital Heart Diseases in Adults	Cyanotic & acyanotic congenital conditions
Interventional Cardiology Basics	Coronary angiography, angioplasty, pacemakers
Cardiac Emergencies & ACLS Protocols	Management of cardiac arrest, acute MI, cardiogenic shock



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Module	Topics Covered
Preventive & Rehabilitation Cardiology	Lifestyle interventions, cardiac rehabilitation programs
Clinical Research & Case Studies	Evidence-based cardiology, clinical trials

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Cardiovascular Diagnostics	Expertise in ECG, echocardiography, and stress testing.
2	Proficiency in Managing Cardiac Emergencies	Handle acute myocardial infarction, cardiac arrest, and heart failure crises.
3	Expertise in Hypertension & Dyslipidemia Management	Optimize pharmacological and non-pharmacological treatments.
4	Understanding of Interventional Cardiology	Learn angiography, pacemaker insertion, and catheter-based interventions.
5	Research & Innovation in Cardiology	Conduct clinical studies in cardiology advancements.
6	Preventive & Lifestyle Cardiology	Implement lifestyle and risk-factor modification strategies.
7	Hands-on Training in Clinical Cardiology	Develop real-world clinical skills in cardiology practice.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Cardiac Electrophysiology	Understand cardiac conduction and arrhythmia mechanisms.
2	Diagnosis & Management of Ischemic Heart Diseases	Treat angina, myocardial infarction, and revascularization strategies.
3	Heart Failure Management	Apply pharmacologic and non-pharmacologic therapies in heart failure.
4	Advanced Imaging & Cardiac Interventions	Learn echocardiography and basic interventional techniques.
5	Management of Valvular & Congenital Heart Diseases	Diagnose and treat valvular and congenital heart disorders.
6	Research & Evidence-Based Practice in Cardiology	Conduct clinical research in cardiovascular medicine.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Cardiac Diagnostics & ECG Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Braunwald's Heart Disease: A Textbook of Cardiovascular Medicine** – Douglas L. Mann
- **Hurst's The Heart** – Valentin Fuster
- **The ECG Made Easy** – John R. Hampton
- **Feigenbaum's Echocardiography** – William F. Armstrong
- **Cardiac Pharmacology & Therapeutics** – Lionel H. Opie

Journals & E-Resources:

- **Journal of the American College of Cardiology (JACC)** – <https://www.jacc.org>
- **Circulation: Journal of the American Heart Association** – <https://www.ahajournals.org/journal/circ>
- **European Society of Cardiology (ESC)** – <https://www.escardio.org>
- **American Heart Association (AHA) Guidelines** – <https://www.heart.org>
- **Cardiosource by ACC** – <https://www.acc.org>



Fellowship in Clinical Neurology

Course Overview

The **Fellowship in Clinical Neurology** is a **one-year** advanced training program designed for healthcare professionals to develop expertise in the **diagnosis, management, and treatment of neurological disorders**. The program covers **stroke management, epilepsy, neurodegenerative diseases, neuromuscular disorders, neuroimaging, and electrophysiological studies**. It provides **clinical exposure, hands-on training, and research opportunities** to equip fellows with the latest advancements in neurology.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, Emergency Medicine, Psychiatry) / DNB (Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Gain expertise in **neurological examination and diagnosis**.
- Develop skills in **stroke assessment, prevention, and rehabilitation**.
- Master **EEG, EMG, and nerve conduction studies**.
- Learn the **management of epilepsy, movement disorders, and multiple sclerosis**.
- Understand **neurocritical care and emergency neurological interventions**.
- Gain exposure to **neuroimaging techniques such as MRI & CT scans**.
- Conduct **clinical research in neurological disorders and treatment protocols**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Clinical Neurology

Module	Topics Covered
Neuroanatomy & Neurophysiology	Brain and spinal cord anatomy, neurotransmitters, motor and sensory pathways
Stroke & Cerebrovascular Diseases	Ischemic & hemorrhagic stroke, transient ischemic attacks (TIA), rehabilitation
Epilepsy & Seizure Disorders	Types, EEG interpretation, antiepileptic drugs, surgical options
Headache & Facial Pain Syndromes	Migraine, tension-type headache, trigeminal neuralgia
Demyelinating & Autoimmune Disorders	Multiple sclerosis, Guillain-Barré syndrome, myasthenia gravis
Neuroimaging & Diagnostic Techniques	MRI, CT, PET scans in neurological disorders
Clinical Rotations – Neurology OPD & Stroke Unit	Case discussions, hands-on diagnosis

Semester 2: Advanced Neurology & Research

Module	Topics Covered
Movement Disorders & Parkinson's Disease	Diagnosis, deep brain stimulation, botulinum toxin therapy
Neurodegenerative Diseases	Alzheimer's, Huntington's disease, ALS, dementia
Neuromuscular & Peripheral Nerve Disorders	Neuropathy, myopathy, motor neuron disease
Neurocritical Care & Emergencies	Status epilepticus, coma, traumatic brain injury
Pain Management in Neurology	Chronic pain, neuropathic pain, neurostimulation
Sleep Disorders & Neuropsychiatric	Insomnia, narcolepsy, psychiatric comorbidities in



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Module	Topics Covered
Conditions	neurology
Clinical Research & Case Studies	Translational research in neurological sciences

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Neurological Examination & Diagnosis	Expertise in clinical evaluation of neurological disorders.
2	Stroke & Neurovascular Disease Management	Diagnose and manage acute stroke, TIA, and post-stroke rehabilitation.
3	Expertise in EEG & Neurophysiological Testing	Interpret EEG, EMG, and nerve conduction studies.
4	Management of Epilepsy & Seizure Disorders	Apply pharmacological and surgical treatment strategies.
5	Research & Innovation in Neurology	Conduct clinical research in neurodegenerative and autoimmune diseases.
6	Emergency Neurology & Neurocritical Care	Handle neurological emergencies and critical care cases.
7	Hands-on Training in Neuroimaging & Interventional Techniques	Develop expertise in CT, MRI, PET scans, and neurostimulation techniques.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Neurophysiology	Understand brain and spinal cord functions.
2	Diagnosis & Management of Stroke	Apply thrombolysis, rehabilitation, and secondary prevention strategies.
3	EEG & EMG Interpretation	Analyze neurophysiological studies for diagnostic accuracy.
4	Treatment of Neurodegenerative Disorders	Implement pharmacologic and rehabilitative therapies.
5	Pain & Sleep Disorder Management	Apply therapies for neuropathic pain and sleep-related neurological conditions.
6	Research & Evidence-Based Practice in Neurology	Conduct clinical trials and publish research findings.

Credits & Assessment Methods

Total Credits: 40

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



School of Medical Sciences & Technology

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Neuroimaging & EEG Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Adams and Victor's Principles of Neurology** – Allan H. Ropper
- **Bradley's Neurology in Clinical Practice** – Robert B. Daroff
- **Merritt's Neurology** – Elan D. Louis
- **Atlas of EEG in Critical Care** – Lawrence Hirsch
- **Neurology Secrets** – Joseph S. Kass

Journals & E-Resources:

- **Journal of Neurology, Neurosurgery & Psychiatry (JNNP)** – <https://jnnp.bmj.com>
- **Neurology (American Academy of Neurology)** – <https://www.neurology.org>
- **European Journal of Neurology** – <https://onlinelibrary.wiley.com/journal/14681331>
- **Brain: A Journal of Neurology** – <https://academic.oup.com/brain>
- **Neuroscience Research** – <https://www.sciencedirect.com/journal/neuroscience-research>



Fellowship in Clinical Nephrology

Course Overview

The **Fellowship in Clinical Nephrology** is a **one-year** advanced training program designed for medical professionals specializing in **kidney diseases, hypertension, dialysis, and renal transplantation**. The program provides in-depth knowledge of **acute and chronic kidney diseases (CKD), glomerular disorders, electrolyte imbalances, nephrotoxins, hemodialysis, peritoneal dialysis, and post-transplant care**. Clinical rotations, hands-on dialysis training, and research opportunities ensure a comprehensive learning experience.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, General Medicine) / DNB (Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Develop expertise in **diagnosing and managing acute kidney injury (AKI) and chronic kidney disease (CKD)**.
- Gain proficiency in **electrolyte and acid-base balance disorders**.
- Master **dialysis techniques (hemodialysis, peritoneal dialysis, CRRT)**.
- Learn **post-kidney transplant management and immunosuppressive therapy**.
- Understand **hypertension-related kidney complications and nephroprotective strategies**.
- Perform **renal biopsy interpretation and histopathological correlation**.
- Conduct **clinical research in nephrology**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



School of Medical Sciences & Technology

Semester 1: Fundamentals of Nephrology

Module	Topics Covered
Renal Physiology & Pathophysiology	Glomerular filtration, tubular function, renal hemodynamics
Acute Kidney Injury (AKI)	Causes, staging, biomarkers, management
Chronic Kidney Disease (CKD) & Progression	Risk factors, staging, nephroprotective therapy
Electrolyte & Acid-Base Imbalances	Sodium, potassium, calcium, acid-base homeostasis
Hypertension & Renal Disorders	Primary vs. secondary hypertension, nephropathy
Glomerular & Tubular Disorders	Nephrotic & nephritic syndromes, genetic disorders
Clinical Rotations – Nephrology OPD & Dialysis Units	Hands-on dialysis and patient management

Semester 2: Advanced Nephrology & Research

Module	Topics Covered
Dialysis & Renal Replacement Therapy	Hemodialysis, peritoneal dialysis, CRRT
Renal Transplantation & Immunosuppression	Pre- & post-transplant care, rejection management
Diabetic Nephropathy & Metabolic Kidney Disorders	Risk factors, treatment, renal protective strategies
Renal Imaging & Biopsy Interpretation	CT, MRI, Doppler studies, histopathology
Nephrotoxic Drugs & Renal Pharmacology	Drug-induced kidney injury, dose adjustments



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Module	Topics Covered
Pediatric Nephrology & Rare Kidney Diseases	Congenital & genetic kidney diseases
Clinical Research & Case Studies	Translational research in nephrology

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Renal Disease Diagnosis	Proficiency in evaluating kidney disorders and electrolyte imbalances.
2	Expertise in Dialysis & CRRT	Hands-on experience in hemodialysis, peritoneal dialysis, and CRRT.
3	Hypertension & Kidney Disease Management	Optimize blood pressure control in CKD and AKI.
4	Proficiency in Kidney Transplant Care	Pre- and post-transplant management, immunosuppressive therapy.
5	Research & Innovation in Nephrology	Conduct studies in renal disease progression and treatment.
6	Acute & Chronic Kidney Disease Management	Implement therapies to slow CKD progression.
7	Hands-on Training in Renal Biopsy & Imaging	Develop expertise in biopsy techniques and imaging modalities.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Renal Pathophysiology	Understand kidney structure and function in disease states.
2	Diagnosis & Management of CKD & AKI	Apply guidelines for staging and treating kidney diseases.
3	Dialysis Techniques & Complications	Manage dialysis patients and prevent complications.
4	Kidney Transplantation & Immunosuppression	Optimize transplant outcomes and manage rejection.
5	Nephrotoxic Drug Monitoring	Adjust medication dosages for renal impairment.
6	Research & Evidence-Based Practice in Nephrology	Conduct clinical studies in kidney disorders.

Credits & Assessment Methods

Total Credits: 40

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



School of Medical Sciences & Technology

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Dialysis & Renal Biopsy Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Brenner & Rector's The Kidney** – Maarten W. Taal
- **Comprehensive Clinical Nephrology** – Richard J. Johnson
- **Handbook of Dialysis** – John T. Daugirdas
- **Nephrology Secrets** – David A. Sousa
- **Principles and Practice of Dialysis** – William L. Henrich

Journals & E-Resources:

- **American Journal of Kidney Diseases (AJKD)** – <https://www.ajkd.org>
- **Journal of the American Society of Nephrology (JASN)** – <https://jasn.asnjournals.org>
- **Kidney International** – <https://www.kidney-international.org>
- **National Kidney Foundation (NKF) Guidelines** – <https://www.kidney.org>
- **Nephrology Dialysis Transplantation (NDT)** – <https://academic.oup.com/ndt>



Fellowship in Medical Gastroenterology

Course Overview

The **Fellowship in Medical Gastroenterology** is a **one-year** advanced training program focused on the **diagnosis, management, and treatment of gastrointestinal (GI) diseases**. The program provides expertise in **hepatology, inflammatory bowel disease (IBD), pancreatic disorders, endoscopic procedures, GI cancers, and nutritional aspects of digestive health**. Fellows gain hands-on training in **endoscopy, colonoscopy, ERCP, and advanced imaging techniques**.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, General Medicine) / DNB (Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Develop expertise in **evaluating and managing gastrointestinal disorders**.
- Gain proficiency in **upper and lower GI endoscopy, biopsy techniques, and capsule endoscopy**.
- Understand **hepatology and liver diseases, including cirrhosis, hepatitis, and liver transplantation**.
- Learn to diagnose and treat **IBD, celiac disease, and irritable bowel syndrome (IBS)**.
- Master **pancreatic and biliary disorders, including acute & chronic pancreatitis**.
- Perform **diagnostic and therapeutic procedures such as ERCP, endoscopic ultrasound (EUS), and polypectomy**.
- Conduct **clinical research in gastroenterology**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



School of Medical Sciences & Technology

Semester 1: Fundamentals of Gastroenterology

Module	Topics Covered
GI Anatomy & Physiology	Digestive system structure, motility, absorption
Acid-Peptic Disorders	GERD, peptic ulcer disease, Zollinger-Ellison syndrome
Hepatology & Liver Diseases	Hepatitis, liver cirrhosis, fatty liver disease
Gastrointestinal Infections	H. pylori, viral & bacterial gastroenteritis, parasitic infections
Inflammatory Bowel Disease (IBD)	Ulcerative colitis, Crohn's disease, immunotherapy
Pancreatic & Biliary Diseases	Acute & chronic pancreatitis, gallstones, cholestasis
Clinical Rotations – GI OPD & Endoscopy Labs	Case-based learning, hands-on endoscopy

Semester 2: Advanced Gastroenterology & Research

Module	Topics Covered
GI Cancers & Screening	Esophageal, gastric, colorectal, liver, and pancreatic cancers
Endoscopic & Colonoscopic Techniques	Biopsy, polypectomy, hemostasis, variceal banding
Functional & Motility Disorders	Achalasia, gastroparesis, small intestinal bacterial overgrowth (SIBO)
Malabsorption & Nutritional Disorders	Celiac disease, short bowel syndrome, enteral & parenteral nutrition
Liver Transplantation & Post-Transplant Care	Indications, rejection management, immunosuppressive therapy
Neuro-Gastroenterology & Gut-Brain Axis	Stress-related gut disorders, functional GI diseases



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Module	Topics Covered
Clinical Research & Case Studies	Evidence-based gastroenterology research

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in GI Disease Diagnosis	Expertise in evaluating digestive diseases and related conditions.
2	Endoscopic & Colonoscopic Proficiency	Hands-on experience in upper & lower GI endoscopy, biopsy techniques.
3	Hepatology & Liver Disease Management	Diagnose and treat hepatitis, cirrhosis, and liver failure.
4	Management of IBD & Functional GI Disorders	Apply therapies for Crohn's disease, IBS, and other chronic conditions.
5	Research & Innovation in Gastroenterology	Conduct clinical studies in digestive diseases.
6	Acute & Chronic Pancreatic Disease Management	Manage pancreatitis, pancreatic insufficiency, and neoplasms.
7	Hands-on Training in ERCP & EUS	Develop expertise in advanced GI diagnostic procedures.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Digestive Physiology	Understand GI motility, digestion, and absorption.
2	Diagnosis & Management of Peptic Ulcers	Apply pharmacologic and endoscopic therapies for ulcer diseases.
3	Liver Disease & Transplantation Care	Optimize treatments for liver diseases and post-transplant management.
4	Advanced Endoscopy & Colonoscopy	Learn interventional procedures in GI endoscopy.
5	Functional & Motility Disorders	Manage gastroparesis, achalasia, and motility-related syndromes.
6	Research & Evidence-Based Practice in Gastroenterology	Conduct clinical trials and gastroenterology studies.

Credits & Assessment Methods

Total Credits: 40

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



School of Medical Sciences & Technology

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Endoscopic & Colonoscopic Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Sleisenger and Fordtran's Gastrointestinal and Liver Disease** – Mark Feldman
- **Yamada's Textbook of Gastroenterology** – Tadataka Yamada
- **Atlas of Clinical Gastrointestinal Endoscopy** – Charles Mel Wilcox
- **Harrison's Gastroenterology and Hepatology** – Dan Longo
- **Principles of Clinical Gastroenterology** – Tadataka Yamada

Journals & E-Resources:

- **American Journal of Gastroenterology (AJG)** – <https://journals.lww.com/ajg>
- **Gastroenterology Journal** – <https://www.gastrojournal.org>
- **Journal of Hepatology** – <https://www.journal-of-hepatology.eu>
- **World Journal of Gastroenterology** – <https://www.wjgnet.com>
- **American Association for the Study of Liver Diseases (AASLD)** – <https://www.aasld.org>





Fellowship in Clinical Endocrinology

Course Overview

The **Fellowship in Clinical Endocrinology** is a **one-year** advanced training program designed to provide comprehensive knowledge in the **diagnosis, management, and treatment of endocrine disorders**. This program covers **diabetes, thyroid diseases, adrenal and pituitary disorders, metabolic bone diseases, and reproductive endocrinology**. The fellowship provides **hands-on training in hormonal assays, endocrine imaging, diabetes technology, and metabolic disorders management**.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, General Medicine) / DNB (Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Gain expertise in **hormonal regulation and endocrine gland functions**.
- Develop skills in **diagnosing and treating diabetes mellitus and its complications**.
- Master the management of **thyroid disorders, adrenal insufficiency, and pituitary tumors**.
- Learn **endocrine imaging techniques and dynamic hormonal testing**.
- Understand **reproductive endocrinology, polycystic ovary syndrome (PCOS), and infertility**.
- Develop proficiency in **osteoporosis and calcium metabolism disorders**.
- Conduct **clinical research in endocrinology**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



School of Medical Sciences & Technology

Semester 1: Fundamentals of Endocrinology

Module	Topics Covered
Endocrine Physiology & Hormonal Regulation	Pituitary, adrenal, thyroid, pancreatic hormones
Diabetes Mellitus & Metabolic Syndrome	Type 1 & Type 2 diabetes, insulin therapy, continuous glucose monitoring (CGM)
Thyroid Disorders	Hypothyroidism, hyperthyroidism, thyroid nodules, thyroid cancer
Adrenal & Pituitary Disorders	Cushing's syndrome, Addison's disease, acromegaly, prolactinoma
Calcium & Bone Metabolism Disorders	Osteoporosis, hyperparathyroidism, vitamin D deficiency
Endocrine Hypertension & Electrolyte Disorders	Primary aldosteronism, pheochromocytoma, diabetes insipidus
Clinical Rotations – Endocrine OPD & Diabetes Clinics	Case discussions, patient management

Semester 2: Advanced Endocrinology & Research

Module	Topics Covered
Reproductive Endocrinology & Infertility	PCOS, hypogonadism, hormonal contraception
Pediatric Endocrinology	Growth disorders, congenital adrenal hyperplasia, precocious puberty
Obesity & Metabolic Disorders	Lipid metabolism, bariatric endocrinology, metabolic syndrome
Endocrine Neoplasms & MEN Syndromes	Multiple endocrine neoplasia, neuroendocrine tumors



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Module	Topics Covered
Hormonal Testing & Endocrine Imaging	MRI, CT, ultrasound, functional hormone assays
Endocrine Emergencies	Thyroid storm, adrenal crisis, hypercalcemic crisis
Clinical Research & Case Studies	Translational research in endocrinology

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Hormonal Disorders	Expertise in diagnosing and treating endocrine dysfunctions.
2	Diabetes Management & Technological Integration	Use of CGM, insulin pumps, and AI-based diabetes care.
3	Thyroid & Adrenal Disorders Proficiency	Implement evidence-based treatment for thyroid and adrenal diseases.
4	Expertise in Endocrine Imaging & Lab Testing	Conduct and interpret endocrine function tests and imaging.
5	Research & Innovation in Endocrinology	Conduct clinical studies on metabolic and hormonal disorders.
6	Management of Osteoporosis & Calcium Metabolism	Develop strategies for bone health and fracture prevention.
7	Hands-on Training in Endocrine Emergencies	Rapid intervention in endocrine crisis situations.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Endocrine Physiology	Understand the function of endocrine glands and hormonal pathways.
2	Diagnosis & Treatment of Diabetes	Apply lifestyle, pharmacological, and technological interventions.
3	Advanced Thyroid & Adrenal Disease Management	Treat hyperthyroidism, hypothyroidism, adrenal insufficiency.
4	Reproductive & Pediatric Endocrinology	Manage PCOS, infertility, and growth disorders.
5	Endocrine Oncology & MEN Syndromes	Identify and treat endocrine tumors and genetic syndromes.
6	Research & Evidence-Based Practice in Endocrinology	Conduct trials and publish findings on metabolic disorders.

Credits & Assessment Methods

Total Credits: 40

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



School of Medical Sciences & Technology

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Endocrine Imaging & Hormonal Assays Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Williams Textbook of Endocrinology** – Shlomo Melmed
- **Endocrinology: Adult & Pediatric** – J. Larry Jameson
- **Practical Endocrinology & Diabetes in Children** – Malcolm D.C. Donaldson
- **Greenspan's Basic & Clinical Endocrinology** – David G. Gardner
- **Handbook of Clinical Endocrinology** – John A.H. Wass

Journals & E-Resources:

- **The Journal of Clinical Endocrinology & Metabolism (JCEM)** – <https://academic.oup.com/jcem>
- **Endocrine Reviews** – <https://academic.oup.com/edrv>
- **Diabetes Care (ADA Journal)** – <https://diabetesjournals.org/care>
- **European Journal of Endocrinology** – <https://ejo.bioscientifica.com>
- **Endocrinology (Endocrine Society Journal)** – <https://academic.oup.com/endo>



Fellowship in Clinical Rheumatology

Course Overview

The **Fellowship in Clinical Rheumatology** is a **one-year** advanced training program that provides in-depth knowledge of **autoimmune and inflammatory joint diseases, connective tissue disorders, vasculitis, and musculoskeletal medicine**. The program includes **clinical training, hands-on experience in musculoskeletal ultrasound, immunological testing, and rheumatologic procedures** such as joint aspiration and intra-articular injections.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, General Medicine) / DNB (Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Develop expertise in **diagnosing and managing autoimmune and inflammatory rheumatic diseases**.
- Gain proficiency in **musculoskeletal examination, joint aspiration, and intra-articular injections**.
- Understand **the immunopathogenesis of rheumatoid arthritis, lupus, scleroderma, and vasculitis**.
- Learn to **interpret immunological tests and radiological findings in rheumatic diseases**.
- Master the use of **biologic agents and disease-modifying antirheumatic drugs (DMARDs)**.
- Understand **metabolic bone diseases such as osteoporosis and osteomalacia**.
- Conduct **clinical research in rheumatology and musculoskeletal medicine**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



School of Medical Sciences & Technology

Semester 1: Fundamentals of Rheumatology

Module	Topics Covered
Musculoskeletal Anatomy & Physiology	Joint structure, synovial fluid, inflammatory pathways
Autoimmune Diseases & Immunopathology	Role of cytokines, autoantibodies, genetic predisposition
Rheumatoid Arthritis & Seronegative Spondyloarthropathies	Ankylosing spondylitis, psoriatic arthritis
Lupus & Connective Tissue Disorders	Systemic lupus erythematosus (SLE), Sjögren's syndrome, scleroderma
Osteoarthritis & Metabolic Bone Diseases	Osteoporosis, osteomalacia, vitamin D deficiency
Vasculitis & Inflammatory Myopathies	Giant cell arteritis, polymyositis, dermatomyositis
Clinical Rotations – Rheumatology OPD & Infusion Therapy Units	Case discussions, biologic therapy exposure

Semester 2: Advanced Rheumatology & Research

Module	Topics Covered
Diagnostic Imaging in Rheumatology	X-ray, MRI, ultrasound, CT scan interpretation
Musculoskeletal Ultrasound & Procedures	Joint aspiration, synovial fluid analysis, intra-articular injections
Biologic Agents & Targeted Therapies	TNF inhibitors, IL-6 blockers, JAK inhibitors
Pediatric Rheumatology	Juvenile idiopathic arthritis, Kawasaki disease
Fibromyalgia & Chronic Pain Syndromes	Diagnosis, management strategies, rehabilitation



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Module	Topics Covered
Research & Evidence-Based Rheumatology	Clinical trials, systematic reviews, case studies
Clinical Research & Case Studies	Translational research in autoimmune rheumatic diseases

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Rheumatic Disease Diagnosis	Mastery in evaluating autoimmune and inflammatory disorders.
2	Skills in Musculoskeletal Examination & Ultrasound	Proficiency in clinical assessment and imaging interpretation.
3	Advanced Rheumatologic Therapeutics	Experience in biologic therapies and immunosuppressive agents.
4	Management of Connective Tissue & Vasculitic Disorders	Competence in diagnosing and treating complex rheumatic conditions.
5	Research & Innovation in Rheumatology	Conduct clinical studies in autoimmune diseases.
6	Hands-on Training in Joint Procedures	Develop expertise in aspiration and intra-articular injections.
7	Management of Osteoarthritis & Chronic Pain	Implement rehabilitation and pain management strategies.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Autoimmune Pathology	Understand immune-mediated joint and connective tissue diseases.
2	Diagnosis & Treatment of Rheumatoid Arthritis	Apply DMARDs, biologics, and rehabilitation strategies.
3	Advanced Imaging in Rheumatology	Interpret X-ray, MRI, and ultrasound findings.
4	Pediatric & Geriatric Rheumatology	Manage autoimmune conditions across different age groups.
5	Vasculitis & Spondyloarthropathies	Differentiate between inflammatory joint disorders.
6	Research & Evidence-Based Practice in Rheumatology	Conduct clinical trials and case-control studies.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Joint Aspiration & Musculoskeletal Ultrasound Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Kelley's Textbook of Rheumatology** – Gary S. Firestein
- **Oxford Textbook of Rheumatology** – Richard A. Watts
- **Rheumatology Secrets** – Sterling G. West
- **The Lupus Book** – Daniel J. Wallace
- **Musculoskeletal Ultrasound in Rheumatology** – Minna J. Kohler

Journals & E-Resources:

- **Annals of the Rheumatic Diseases (ARD)** – <https://ard.bmj.com>
- **Arthritis & Rheumatology (ACR Journal)** – <https://onlinelibrary.wiley.com/journal/23265205>
- **The Journal of Rheumatology** – <https://www.jrheum.org>
- **Autoimmunity Reviews** – <https://www.journals.elsevier.com/autoimmunity-reviews>
- **American College of Rheumatology Guidelines** – <https://www.rheumatology.org>



Fellowship in Liver & Biliary Diseases

Course Overview

The **Fellowship in Liver & Biliary Diseases** is a **one-year** specialized training program designed to provide in-depth knowledge in the **diagnosis, management, and treatment of liver and biliary disorders**. The fellowship covers **hepatology, liver transplantation, viral hepatitis, cirrhosis, portal hypertension, hepatobiliary cancers, and advanced imaging & interventional techniques**. Fellows gain hands-on training in **liver biopsy, endoscopic procedures, and hepatobiliary imaging**.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, General Medicine) / DNB (Medicine) / DM (Gastroenterology)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Develop expertise in **diagnosing and managing liver and biliary disorders**.
- Gain proficiency in **liver function tests, liver biopsy, and hepatobiliary imaging**.
- Understand the **pathophysiology and management of viral hepatitis (HBV, HCV, HDV, HEV)**.
- Learn to manage **cirrhosis, portal hypertension, and complications like hepatic encephalopathy**.
- Master **liver transplantation, indications, donor selection, and post-transplant care**.
- Understand **biliary tract diseases, cholestatic liver disorders, and gallbladder pathologies**.
- Conduct **clinical research in hepatology and liver diseases**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Hepatology & Biliary Diseases

Module	Topics Covered
Liver Anatomy & Physiology	Hepatic circulation, bile secretion, liver regeneration
Liver Function Tests & Diagnostic Modalities	LFTs, transient elastography, MRCP, liver biopsy
Viral Hepatitis	Hepatitis A, B, C, D, and E; antiviral therapies
Cirrhosis & Its Complications	Ascites, hepatic encephalopathy, spontaneous bacterial peritonitis (SBP)
Portal Hypertension & Variceal Bleeding	Endoscopic band ligation, transjugular intrahepatic portosystemic shunt (TIPS)
Metabolic & Genetic Liver Diseases	Wilson's disease, hemochromatosis, NAFLD/NASH
Clinical Rotations – Hepatology OPD & Transplant Clinics	Case-based learning, hepatobiliary imaging

Semester 2: Advanced Hepatology & Research

Module	Topics Covered
Liver Transplantation & Post-Transplant Care	Immunosuppression, graft rejection, liver transplant ICU management
Autoimmune & Cholestatic Liver Diseases	Autoimmune hepatitis, primary biliary cholangitis, primary sclerosing cholangitis
Hepatobiliary Malignancies & Liver Tumors	Hepatocellular carcinoma, cholangiocarcinoma, liver metastases
Alcoholic Liver Disease & Toxic Hepatitis	Alcoholic cirrhosis, acute liver failure, drug-induced liver injury (DILI)
Biliary Tract Disorders	Gallstones, cholecystitis, biliary strictures, cholangitis



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Module	Topics Covered
Interventional Hepatology	ERCP, percutaneous transhepatic cholangiography (PTC), liver elastography
Clinical Research & Case Studies	Evidence-based hepatology research

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Hepatic Disease Diagnosis	Expertise in evaluating and managing liver diseases.
2	Hands-on Training in Hepatobiliary Imaging	Interpretation of MRI, MRCP, and FibroScan.
3	Advanced Liver Transplantation Management	Understanding pre & post-transplant care and immunosuppression.
4	Expertise in Endoscopic & Interventional Hepatology	Proficiency in ERCP, liver biopsy, and TIPS.
5	Research & Innovation in Hepatology	Conduct clinical studies in liver and biliary diseases.
6	Management of Cirrhosis & Portal Hypertension	Treating complications like variceal bleeding and hepatic encephalopathy.
7	Autoimmune & Genetic Liver Disease Management	Expertise in rare liver disorders and metabolic syndromes.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Liver Physiology & Pathophysiology	Understanding liver metabolism and function tests.
2	Diagnosis & Management of Viral Hepatitis	Application of antiviral therapies and hepatitis screening.
3	Advanced Techniques in Hepatic Imaging	MRI, MRCP, FibroScan for liver assessment.
4	Interventional Hepatology Procedures	Training in ERCP, liver biopsy, and portal hypertension management.
5	Hepatic Oncology & Liver Transplantation	Treating hepatocellular carcinoma and transplantation care.
6	Research & Evidence-Based Hepatology	Conducting trials and publishing hepatology research.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Liver Biopsy & Endoscopic Interpretation – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Zakim and Boyer's Hepatology** – ArunSanyal
- **Sleisenger and Fordtran's Gastrointestinal and Liver Disease** – Mark Feldman
- **Hepatology: A Textbook of Liver Disease** – J.L. Boyer
- **Liver Transplantation: Update & Clinical Insights** – Juan Carlos Garcia-Pagan
- **Sherlock's Diseases of the Liver and Biliary System** – James S. Dooley

Journals & E-Resources:

- **Hepatology (AASLD Journal)** – <https://aasldpubs.onlinelibrary.wiley.com/journal/15273350>
- **Journal of Hepatology (EASL Journal)** – <https://www.journal-of-hepatology.eu>
- **Liver International** – <https://onlinelibrary.wiley.com/journal/14783231>
- **Clinical Gastroenterology & Hepatology** – <https://www.cghjournal.org>





Fellowship in Diabetic Neurology (Autonomic Neuropathy)

Course Overview

The **Fellowship in Diabetic Neurology (Autonomic Neuropathy)** is a **one-year specialized training program** focused on understanding, diagnosing, and managing **diabetic neuropathy**, particularly **autonomic dysfunction**. The program covers **the pathophysiology of diabetic neuropathy**, **diagnostic techniques (nerve conduction studies, autonomic function tests)**, and **therapeutic interventions (pharmacological and lifestyle-based approaches)**. Fellows receive **hands-on training in neurophysiology labs, clinical case studies, and research methodologies**.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (General Medicine, Neurology, Endocrinology) / DNB (Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand **the pathophysiology and classification of diabetic neuropathy**.
- Master **diagnostic techniques** including nerve conduction studies (NCS), autonomic function tests, and small-fiber neuropathy testing.
- Learn **therapeutic interventions**, including pharmacologic management, physical therapy, and neuromodulation.
- Identify and manage **complications of diabetic autonomic neuropathy**, including **cardiovascular, gastrointestinal, and urogenital dysfunction**.
- Conduct **clinical research and case studies** on diabetic neuropathy.
- Gain **hands-on experience** with advanced diagnostic modalities such as **quantitative sensory testing (QST) and heart rate variability (HRV) analysis**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Diabetic Neuropathy

Module	Topics Covered
Neuroanatomy & Physiology of Peripheral Nerves	Nerve conduction, autonomic nervous system (ANS) pathways
Pathophysiology of Diabetic Neuropathy	Hyperglycemia-induced nerve damage, oxidative stress, microvascular complications
Types of Diabetic Neuropathy	Peripheral, autonomic, proximal, and focal neuropathies
Diagnostic Techniques in Neuropathy	Nerve conduction studies (NCS), electromyography (EMG), skin biopsy
Autonomic Function Tests	Heart rate variability (HRV), tilt-table testing, quantitative sudomotor axon reflex test (QSART)
Clinical Rotations – Neurology & Endocrinology OPD	Case-based learning in diabetic neuropathy clinics

Semester 2: Advanced Neuropathy Management & Research

Module	Topics Covered
Cardiovascular Autonomic Neuropathy (CAN)	Postural hypotension, silent myocardial ischemia, HRV analysis
Gastrointestinal & Genitourinary Autonomic Neuropathy	Gastroparesis, diabetic diarrhea, erectile dysfunction
Pain Management in Diabetic Neuropathy	Pharmacologic therapies (anticonvulsants, antidepressants, opioids), nerve blocks
Rehabilitation & Lifestyle Interventions	Physiotherapy, dietary management, yoga & exercise
Neuromodulation & Emerging Therapies	Transcutaneous electrical nerve stimulation (TENS), spinal cord stimulation



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Module	Topics Covered
Research & Evidence-Based Neuropathy Care	Clinical trials, case studies, systematic reviews

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Diagnosing Diabetic Neuropathy	Mastery in autonomic function tests, nerve conduction studies, and clinical examination.
2	Hands-on Training in Electrophysiology & Imaging	NCS, EMG, HRV analysis, QSART.
3	Advanced Management of Autonomic Dysfunction	Mastery in pharmacologic and non-pharmacologic treatment strategies.
4	Research & Clinical Studies in Diabetic Neurology	Ability to conduct clinical trials and case-control studies.
5	Hands-on Training in Neuromodulation	Exposure to advanced treatment modalities like spinal cord stimulation.
6	Management of Diabetic Complications	Special focus on cardiovascular, gastrointestinal, and genitourinary neuropathies.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Peripheral Nerve Disorders	Understanding nerve conduction and autonomic regulation.
2	Diagnosis & Treatment of Diabetic Neuropathy	Expertise in neurodiagnostic tools and therapies.
3	Advanced Techniques in Autonomic Testing	HRV analysis, tilt-table testing, QSART interpretation.
4	Pain & Symptom Management in Neuropathy	Comprehensive knowledge of pharmacological and alternative pain relief approaches.
5	Rehabilitation Strategies	Implementation of exercise, physical therapy, and lifestyle modifications.
6	Research & Evidence-Based Neuropathy Care	Conducting and publishing research on diabetic neuropathy.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Nerve Conduction Study & Autonomic Function Testing – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Peripheral Neuropathy: When the Numbness, Weakness, and Pain Won't Stop** – Norman Latov
- **Bradley's Neurology in Clinical Practice** – Joseph Jankovic
- **Diabetic Neuropathy: Advances in Pathogenesis and Treatment** – Roy Freeman
- **Clinical Autonomic Disorders** – Phillip A. Low
- **Atlas of Autonomic Neuroscience** – David Robertson

Journals & E-Resources:

- **Diabetes Care (ADA Journal)** – <https://diabetesjournals.org/care>
- **Journal of Neurology, Neurosurgery & Psychiatry** – <https://jnnp.bmj.com>
- **Clinical Autonomic Research** – <https://www.springer.com/journal/10286>
- **Neurology (AAN Journal)** – <https://n.neurology.org>
- **American Academy of Neurology Guidelines** – <https://www.aan.com>



Fellowship in Diabetic Nephrology

Course Overview

The **Fellowship in Diabetic Nephrology** is a **one-year specialized program** that provides in-depth training in the **diagnosis, management, and treatment of diabetic kidney disease (DKD)**. The course covers **diabetic nephropathy, acute and chronic kidney injury, dialysis management, renal transplantation, and advanced nephrological interventions**. The program integrates **clinical training, laboratory work, and research opportunities** in diabetic nephrology.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Internal Medicine, Nephrology, Endocrinology) / DNB (Medicine, Nephrology)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand the **pathophysiology, progression, and complications of diabetic kidney disease (DKD)**.
- Gain proficiency in **diagnostic techniques** such as kidney function tests, urine microalbumin, eGFR estimation, and renal biopsy interpretation.
- Learn **treatment protocols**, including **glycemic control, antihypertensive therapy, and nephroprotective strategies**.
- Develop expertise in **dialysis management** (hemodialysis, peritoneal dialysis) and **renal transplantation in diabetic patients**.
- Understand the **role of metabolic control, lifestyle interventions, and dietary management** in diabetic nephropathy.
- Gain hands-on experience in **vascular access management, fluid & electrolyte balance, and acute kidney injury (AKI) management**.
- Conduct **clinical research in diabetic nephropathy, dialysis outcomes, and transplant nephrology**.



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Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.

Semester 1: Fundamentals of Diabetic Nephrology

Module	Topics Covered
Renal Physiology & Pathophysiology	Kidney function, glomerular filtration rate (GFR), renal hemodynamics
Diabetic Nephropathy: Epidemiology & Risk Factors	Genetic predisposition, hyperglycemia, hypertension, dyslipidemia
Diagnostic Tools in Diabetic Kidney Disease (DKD)	Serum creatinine, eGFR, urine microalbumin, renal imaging
Pathology of Diabetic Nephropathy	Glomerulosclerosis, tubulointerstitial damage, vascular changes
Hypertension & Cardiovascular Risk in Diabetic Nephropathy	RAAS inhibitors, calcium channel blockers, sodium-glucose cotransporter-2 (SGLT2) inhibitors
Clinical Rotations – Nephrology OPD & Dialysis Units	Case-based learning in nephrology clinics

Semester 2: Advanced Nephrology & Research

Module	Topics Covered
Dialysis in Diabetic Patients	Hemodialysis, peritoneal dialysis, vascular access
Renal Transplantation in Diabetics	Selection criteria, immunosuppression, rejection management
Acute Kidney Injury (AKI) & Fluid-Electrolyte Management	Pre-renal, intrinsic, post-renal AKI, metabolic acidosis
Dietary & Nutritional Management in	Protein restriction, electrolyte balance, low-



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Module	Topics Covered
Diabetic Nephropathy	potassium diets
Nephroprotective Strategies & Pharmacotherapy	SGLT2 inhibitors, GLP-1 agonists, ACE inhibitors, ARBs
Clinical Research & Case Studies in Diabetic Nephrology	Evidence-based treatment and clinical trials

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Diagnosis & Management of DKD	Mastery in nephrological assessments, kidney function tests, and biopsy interpretation.
2	Hands-on Training in Dialysis & Transplant Nephrology	Hemodialysis, peritoneal dialysis, and post-transplant care.
3	Advanced Therapeutic Strategies	Use of nephroprotective agents and metabolic control strategies.
4	Research & Clinical Studies in Diabetic Nephrology	Conducting observational studies and trials in DKD.
5	Management of DKD Complications	Expertise in cardiovascular risk, hypertension, and electrolyte disorders.
6	Patient Counseling & Lifestyle Interventions	Implementation of dietary modifications and glycemic control strategies.



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Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Renal Function & Pathophysiology	Understanding renal physiology and DKD progression.
2	Diagnostic Modalities in Diabetic Nephropathy	Mastery in renal function tests and imaging techniques.
3	Management of End-Stage Renal Disease (ESRD)	Dialysis techniques, transplantation, and CKD progression control.
4	Hypertension & Cardiovascular Risk in Diabetic Nephropathy	Management of hypertension and cardiovascular complications.
5	Role of Nutrition in Nephropathy Management	Dietary interventions for renal protection and metabolic control.
6	Research & Evidence-Based Practice	Conducting nephrology-focused clinical research.

Credits & Assessment Methods

Total Credits: 40

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



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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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Dialysis & Renal Function Testing – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Brenner & Rector's The Kidney** – Maarten W. Taal
- **Comprehensive Clinical Nephrology** – Richard J. Johnson
- **Diabetic Kidney Disease: Advances in Pathophysiology & Treatment** – A. K. Sharma
- **Clinical Nephrology** – David A. Kershaw
- **Oxford Handbook of Dialysis** – Jeremy Levy

Journals & E-Resources:

- **American Journal of Kidney Diseases** – <https://www.ajkd.org>
- **Clinical Journal of the American Society of Nephrology (CJASN)** – <https://cjasn.asnjournals.org>
- **Kidney International** – <https://www.kidney-international.org>
- **Nephrology Dialysis Transplantation (NDT)** – <https://academic.oup.com/ndt>
- **National Kidney Foundation Guidelines** – <https://www.kidney.org>



Fellowship in Diabetic Foot Management

Course Overview

The **Fellowship in Diabetic Foot Management** is a **one-year specialized training program** focused on **early diagnosis, prevention, and treatment of diabetic foot complications**. This program covers **pathophysiology, advanced wound care techniques, infection control, vascular interventions, and reconstructive foot surgeries**. It integrates **clinical training, hands-on workshops, and research opportunities** to equip fellows with **expertise in diabetic foot care**.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (General Medicine, Endocrinology) / MS (General Surgery, Orthopedics) / DNB (Medicine, Surgery) / Podiatrists
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand the **pathophysiology of diabetic foot ulcers and peripheral neuropathy**.
- Develop expertise in **diagnostic techniques** such as **vascular Doppler studies, ABI (Ankle-Brachial Index), and foot pressure mapping**.
- Learn **advanced wound care management**, including **negative pressure wound therapy (NPWT), offloading techniques, and hyperbaric oxygen therapy (HBOT)**.
- Master **surgical and non-surgical treatment** of diabetic foot infections and ulcers.
- Understand the **role of vascular interventions**, including **angioplasty and bypass surgeries**, in managing diabetic foot complications.
- Gain expertise in **limb salvage techniques, reconstructive foot surgeries, and prosthetic rehabilitation**.
- Conduct **clinical research on diabetic foot complications and management strategies**.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Diabetic Foot Management

Module	Topics Covered
Anatomy & Pathophysiology of the Diabetic Foot	Peripheral neuropathy, microangiopathy, macroangiopathy
Diabetic Foot Risk Assessment & Classification	Wagner's classification, University of Texas Staging System
Diagnostic Techniques in Diabetic Foot Care	ABI, toe pressure measurement, transcutaneous oxygen pressure
Infection Control & Antibiotic Stewardship	Management of diabetic foot infections, biofilm control
Offloading Techniques in Foot Ulcers	Total contact casting, custom orthotics, footwear modifications
Clinical Rotations – Diabetic Foot Clinics	Hands-on training in assessment and wound care

Semester 2: Advanced Foot Care & Surgical Management

Module	Topics Covered
Advanced Wound Healing & Dressing Techniques	NPWT, bioengineered skin substitutes, growth factor therapy
Surgical Management of Diabetic Foot	Debridement, amputations, reconstructive surgeries
Vascular Interventions in Diabetic Foot	Angioplasty, bypass surgery, endovascular interventions
Hyperbaric Oxygen Therapy (HBOT) in Diabetic Foot Care	Mechanism, indications, and clinical applications
Prosthetics & Rehabilitation in Diabetic Foot Amputees	Gait training, customized prosthetics, rehabilitation programs



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Module	Topics Covered
Clinical Research & Case Studies in Diabetic Foot	Data collection, research methodologies, publication preparation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Diabetic Foot Ulcer Management	Mastery in assessment, diagnosis, and treatment protocols.
2	Hands-on Training in Wound Healing Techniques	NPWT, offloading, hyperbaric oxygen therapy, and bioengineered skin.
3	Advanced Vascular Interventions	Angioplasty, bypass surgery, and vascular reconstruction techniques.
4	Surgical & Limb Salvage Procedures	Debridement, amputations, and reconstructive foot surgery.
5	Research & Clinical Trials in Diabetic Foot Care	Conducting and publishing research on foot ulcer management.
6	Prosthetic & Rehabilitation Strategies	Designing rehabilitation programs for amputees.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Diabetic Foot Anatomy & Pathology	Understanding the impact of diabetes on foot health.
2	Diagnostic Tools & Imaging Techniques	Doppler ultrasound, ABI, and foot pressure assessment.
3	Management of Diabetic Foot Infections	Antibiotic therapy, infection control, and



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Sr. No.	Course Outcome	Description
		surgical debridement.
4	Wound Healing & Tissue Regeneration	Bioengineered skin substitutes, growth factor therapy.
5	Limb Salvage & Reconstructive Foot Surgery	Techniques for preserving limb functionality.
6	Rehabilitation & Preventive Strategies	Designing prosthetics and rehabilitation plans.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Clinical Training	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%



School of Medical Sciences & Technology

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Wound Debridement & Surgical Management – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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:

- **Diabetic Foot: A Clinical Atlas** – SharadPendsey
- **Management of Diabetic Foot Complications** – AristidisVeves
- **Diabetic Foot: A Global Perspective** – David Armstrong
- **Surgical Treatment of the Diabetic Foot** – Thomas Zgonis
- **Comprehensive Wound Management for the Diabetic Foot** – BijanNajafi

Journals & E-Resources:

- **International Journal of Lower Extremity Wounds** – <https://journals.sagepub.com/home/ilx>
- **Journal of Diabetes and Its Complications** – <https://www.jdcjournal.com>
- **American Diabetes Association: Foot Care Guidelines** – <https://www.diabetes.org>
- **Wound Repair and Regeneration** – <https://onlinelibrary.wiley.com/journal/1524475x>
- **Diabetic Foot Journal** – <https://www.diabeticfootjournal.com>





Fellowship InDiabetic Retinal Sciences

Course Overview

The **Fellowship in Diabetic Retinal Sciences** is a **one-year specialized program** designed for medical professionals to develop expertise in the **diagnosis, treatment, and management of diabetic retinopathy (DR) and other diabetes-related eye diseases**. The program integrates **clinical training, surgical skills, imaging techniques, and research opportunities** to enhance patient care and treatment outcomes.

Prerequisites

Criteria	Details
Eligibility	MBBS / MS (Ophthalmology) / DNB (Ophthalmology)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand the pathophysiology, progression, and complications of diabetic retinopathy (DR).
- Gain proficiency in advanced diagnostic tools, including fundus fluorescein angiography (FFA), optical coherence tomography (OCT), and electroretinography (ERG).
- Develop expertise in medical and surgical management of DR, including intravitreal injections, laser photocoagulation, and vitrectomy.
- Learn about systemic diabetes control and its impact on ocular health.
- Understand retinal vascular complications in diabetes, including macular edema, neovascularization, and retinal detachment.
- Acquire skills in preventive screening, early detection, and patient counseling.
- Engage in research and evidence-based practice in diabetic retinal diseases.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Diabetic Retinal Diseases

Module	Topics Covered
Anatomy & Physiology of the Retina	Retinal vasculature, blood-retina barrier, metabolic processes
Pathophysiology of Diabetic Retinopathy	Hyperglycemia-induced microvascular damage, ischemia, VEGF-mediated angiogenesis
Classification & Staging of DR	Non-proliferative DR (NPDR), proliferative DR (PDR), diabetic macular edema (DME)
Diagnostic Imaging in DR	Fundus photography, OCT, FFA, ultrasonography
Systemic Diabetes Management & Retinal Health	Glycemic control, hypertension, dyslipidemia
Clinical Rotations – Diabetic Eye Clinics	Hands-on training in retinal screening and diagnosis

Semester 2: Advanced Interventions & Research in Diabetic Retinal Sciences

Module	Topics Covered
Medical Management of DR	Anti-VEGF therapy, intravitreal steroids, systemic drugs
Laser & Surgical Management	Focal/grid laser photocoagulation, pan-retinal photocoagulation (PRP), vitrectomy
Complications & Management of Advanced DR	Tractional retinal detachment, neovascular glaucoma
Retinal Vascular Disorders in Diabetes	Diabetic macular ischemia, retinal vein occlusion
Preventive Screening & Patient Counseling	Risk factor control, early intervention strategies
Clinical Research & Case Studies	Data collection, research methodologies, publication



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Module	Topics Covered
in DR	preparation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Diagnosing & Managing DR	Mastery in retinal imaging, staging, and treatment protocols.
2	Hands-on Training in Advanced Retinal Procedures	Laser photocoagulation, intravitreal injections, and vitrectomy.
3	Comprehensive Understanding of Systemic Diabetes Control	Link between diabetes management and ocular complications.
4	Research & Clinical Trials in Diabetic Retinopathy	Conducting and publishing studies on DR treatment outcomes.
5	Preventive Strategies & Patient Education	Implementation of DR screening and early intervention programs.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Retinal Anatomy & Pathophysiology	Understanding diabetes-related retinal damage.
2	Diagnostic Imaging & Retinal Assessments	Mastery in OCT, FFA, and fundus examination.
3	Pharmacologic & Laser Interventions in DR	Anti-VEGF therapy, corticosteroids, and laser techniques.



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Sr. No.	Course Outcome	Description
4	Surgical Approaches in Advanced DR	Techniques for vitrectomy and managing retinal detachment.
5	Research & Evidence-Based Practice	Conducting studies on new treatment methods in DR.

Credits & Assessment Methods

Total Credits: 40

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



School of Medical Sciences & Technology

Theory Examination

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

Practical Examination

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Laser & Intravitreal Injection Procedures – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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

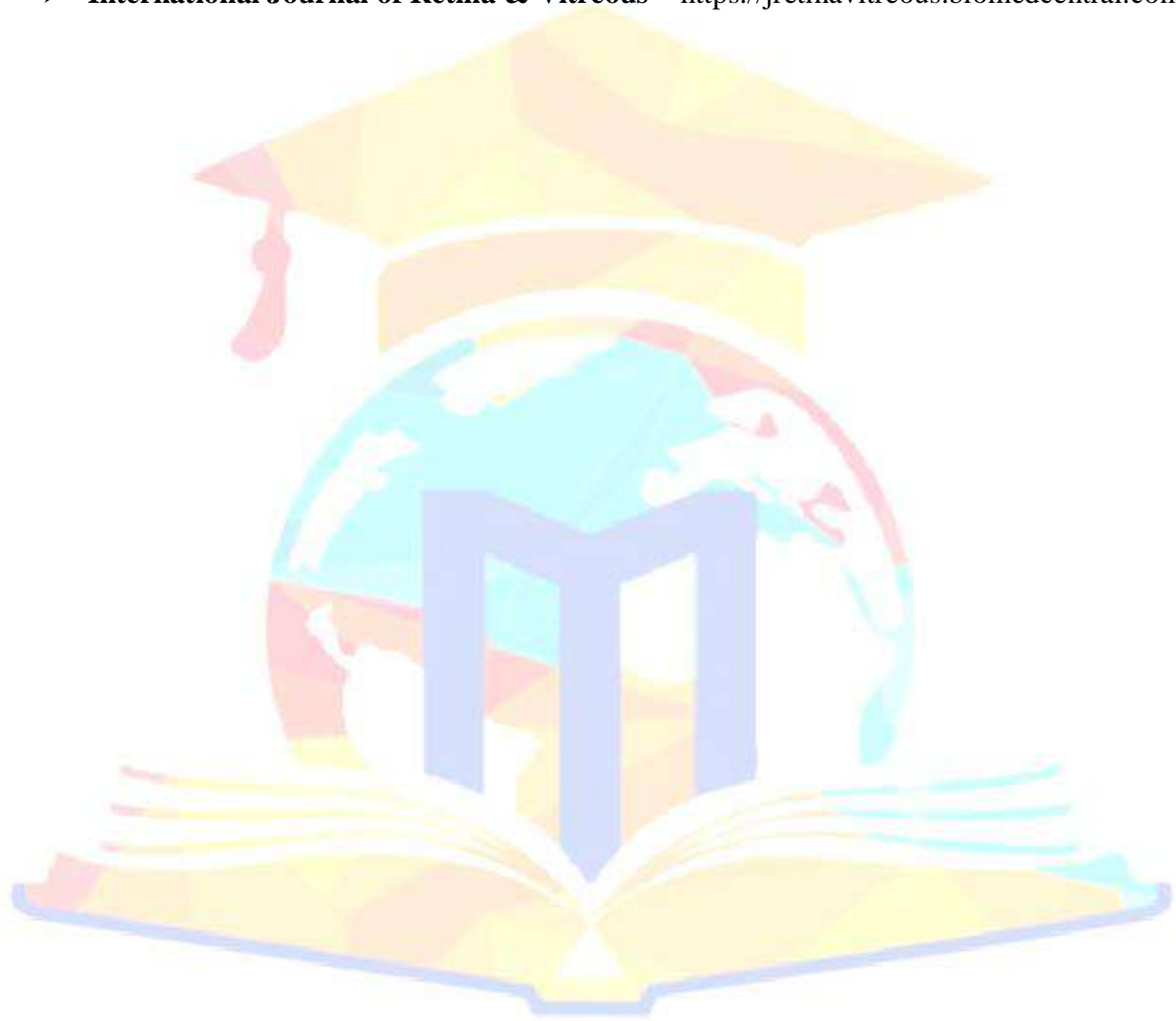
Textbooks:

- **Retina** – Stephen J. Ryan
- **Diabetic Retinopathy: Evidence-Based Management** – Elia Duh
- **Medical Retina** – Frank G. Holz
- **Practical Retina: A Retinal Physician's Guide** – Peter Kaiser
- **Retinal Vascular Disease** – A. J. Augustin



Journals & E-Resources:

- **Investigative Ophthalmology & Visual Science (IOVS)** – <https://iovs.arvojournals.org>
- **American Academy of Ophthalmology (AAO) Guidelines** – <https://www.aao.org>
- **Diabetes Care (Retinopathy Section)** – <https://diabetesjournals.org/care>
- **British Journal of Ophthalmology** – <https://bjo.bmj.com>
- **International Journal of Retina & Vitreous** – <https://jretinavitreous.biomedcentral.com>





Fellowship InEpilepsy

Course Overview

The **Fellowship in Epilepsy** is a **one-year specialized program** designed to train medical professionals in the **diagnosis, treatment, and management of epilepsy and seizure disorders**. The program integrates **clinical neurology, neurophysiology, pharmacological and surgical interventions, and advanced EEG techniques** to enhance patient care and treatment strategies.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Neurology, Internal Medicine) / DM (Neurology) / DNB (Neurology)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand the pathophysiology and classification of epilepsy, including focal and generalized seizures.
- Develop expertise in neurophysiological diagnostic tools, including EEG (electroencephalography), video EEG monitoring, and neuroimaging.
- Master pharmacological treatment strategies, including antiepileptic drugs (AEDs), their mechanisms, side effects, and drug interactions.
- Gain experience in pre-surgical evaluation for drug-resistant epilepsy, including intracranial EEG and functional neuroimaging.
- Understand the role of epilepsy surgery, neurostimulation, and ketogenic diet therapy in managing refractory epilepsy.
- Recognize and manage epilepsy-related comorbidities, such as psychiatric disorders, cognitive impairments, and sudden unexpected death in epilepsy (SUDEP).
- Engage in clinical research and contribute to advancements in epilepsy treatment and diagnosis.



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Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.

Semester 1: Fundamentals of Epilepsy & Diagnostic Tools

Module	Topics Covered
Neurophysiology & Pathophysiology of Epilepsy	Mechanisms of seizure generation, neuronal excitability
Classification of Epilepsy & Seizure Types	ILAE classification, focal vs. generalized seizures
EEG & Video EEG Monitoring	Interpretation of EEG patterns, spike-wave discharges
Neuroimaging in Epilepsy	MRI, PET, SPECT, functional neuroimaging
Pharmacological Management of Epilepsy	AED mechanisms, side effects, drug resistance
Clinical Rotations – Epilepsy Clinics	Hands-on training in seizure assessment

Semester 2: Advanced Epilepsy Management & Research

Module	Topics Covered
Refractory Epilepsy & Drug-Resistant Seizures	Criteria for drug resistance, alternative therapies
Surgical Management of Epilepsy	Epilepsy surgery, laser ablation, Vagus Nerve Stimulation (VNS)
Psychosocial Aspects of Epilepsy	Cognitive impairment, depression, SUDEP risk assessment
Dietary & Lifestyle Modifications in Epilepsy	Ketogenic diet, lifestyle modifications
Clinical Research & Case Studies in Epilepsy	Data collection, research methodologies, publication preparation



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Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Epilepsy Diagnosis & Treatment	Mastery in EEG interpretation, neuroimaging, and pharmacological management.
2	Hands-on Training in Advanced Epilepsy Management	Surgical and dietary interventions, neuromodulation therapies.
3	Research & Clinical Trials in Epilepsy	Conducting and publishing research on seizure disorders.
4	Preventive Strategies & Patient Education	Counseling on lifestyle changes and seizure prevention.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Neurophysiology & Seizures	Understanding neuronal excitability and seizure generation.
2	Diagnostic Tools in Epilepsy	Mastery in EEG, MRI, and PET scans.
3	Pharmacologic & Surgical Interventions	AEDs, epilepsy surgery, and VNS therapy.
4	Psychological & Social Impacts of Epilepsy	Addressing mental health and quality of life in epilepsy patients.
5	Research & Evidence-Based Practice	Conducting studies on new treatment approaches.



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Credits & Assessment Methods

Total Credits: 40

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **EEG Interpretation & Neuromodulation Techniques – 40 Marks**

Research Project



School of Medical Sciences & Technology

- Dissertation Submission & Defense (20 Marks)

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:

- **Epilepsy: A Comprehensive Textbook** – Jerome Engel Jr.
- **Seizures and Epilepsy: Questions and Answers** – Steven C. Schachter
- **Epilepsy and the Functional Anatomy of the Human Brain** – Wilder Penfield
- **Atlas of Electroencephalography in Epilepsy** – Hans Lüders
- **Epilepsy Surgery: Principles and Controversies** – A. Arzimanoglou

Journals & E-Resources:

- **Epilepsia** – <https://onlinelibrary.wiley.com/journal/15281167>
- **Journal of Clinical Neurophysiology** – <https://journals.lww.com/clinicalneurophys>
- **Epilepsy Research** – <https://www.journals.elsevier.com/epilepsy-research>
- **International League Against Epilepsy (ILAE) Guidelines** – <https://www.ilae.org>
- **American Epilepsy Society** – <https://www.aesnet.org>



Fellowship In Andrology & Male Infertility

Course Overview

The **Fellowship in Andrology & Male Infertility** is a **one-year specialized program** that provides comprehensive training in the **evaluation, diagnosis, and management of male reproductive disorders**. This program integrates **clinical and laboratory training in andrology, assisted reproductive techniques (ART), microsurgical interventions, and hormonal therapies** to enhance reproductive health and fertility outcomes.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Reproductive Medicine, Urology, Endocrinology, Obstetrics & Gynecology) / MS (Urology) / DNB (Urology, Reproductive Medicine)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- Understand the **physiology and endocrinology of male reproductive health**.
- Develop expertise in semen analysis, sperm function tests, and andrology laboratory techniques.
- Master hormonal, medical, and surgical management of male infertility.
- Gain proficiency in assisted reproductive techniques (ART), including ICSI, sperm retrieval, and cryopreservation.
- Understand the **genetic and environmental factors contributing to male infertility**.
- Develop skills in **microsurgical procedures**, such as varicocelelectomy, testicular sperm extraction (TESE), and vasectomy reversal.
- Engage in research and evidence-based practice to advance male infertility treatment.

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Male Reproductive Health

Module	Topics Covered
Male Reproductive Anatomy & Physiology	Testicular function, spermatogenesis, hormonal control
Semen Analysis & Sperm Function Tests	WHO guidelines, sperm motility, viability, morphology assessment
Hormonal Regulation & Endocrinopathies	Testosterone, FSH, LH, prolactin, hypogonadism
Causes & Classification of Male Infertility	Obstructive vs. non-obstructive azoospermia, genetic factors
Diagnostic Imaging in Andrology	Scrotal ultrasound, Doppler studies, testicular biopsy
Clinical Rotations – Andrology Clinics	Hands-on training in semen analysis and patient evaluation

Semester 2: Advanced Interventions & Research in Male Infertility

Module	Topics Covered
Medical & Hormonal Management of Male Infertility	Clomiphene, hCG, testosterone replacement therapy
Surgical Interventions in Andrology	Varicocelectomy, TESE, microsurgical sperm retrieval
Assisted Reproductive Techniques (ART) in Male Infertility	ICSI, sperm cryopreservation, testicular tissue freezing
Genetic & Epigenetic Factors in Male Infertility	Y-chromosome microdeletions, Klinefelter syndrome
Psychosocial Aspects of Male Infertility	Counseling, sexual dysfunction, lifestyle modifications
Clinical Research & Case Studies in	Data collection, research methodologies,



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Module	Topics Covered
Andrology	publication preparation

Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Male Infertility Diagnosis & Treatment	Mastery in semen analysis, endocrinology, and ART techniques.
2	Hands-on Training in Andrology & ART Procedures	ICSI, TESE, sperm cryopreservation, and microsurgical interventions.
3	Research & Clinical Trials in Andrology	Conducting and publishing research on male infertility treatments.
4	Preventive Strategies & Patient Education	Counseling on lifestyle changes and reproductive health.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Male Reproductive Endocrinology	Understanding hormonal control of spermatogenesis.
2	Diagnostic Tools in Andrology	Semen analysis, sperm function tests, and genetic screening.
3	Pharmacologic & Surgical Interventions in Male Infertility	Hormonal therapies, varicocele, and TESE.
4	Assisted Reproductive Techniques (ART)	Advanced techniques in sperm retrieval, ICSI, and cryopreservation.



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Sr. No.	Course Outcome	Description
5	Research & Evidence-Based Practice	Conducting studies on emerging treatments in male infertility.

Credits & Assessment Methods

Total Credits: 40

Component	Credits
Theory & Lectures	10
Clinical Rotations & Case Studies	10
Hands-on Clinical Training	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)



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

Practical Examination

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Semen Analysis & ART Techniques – 40 Marks**

Research Project

- **Dissertation Submission & Defense (20 Marks)**

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

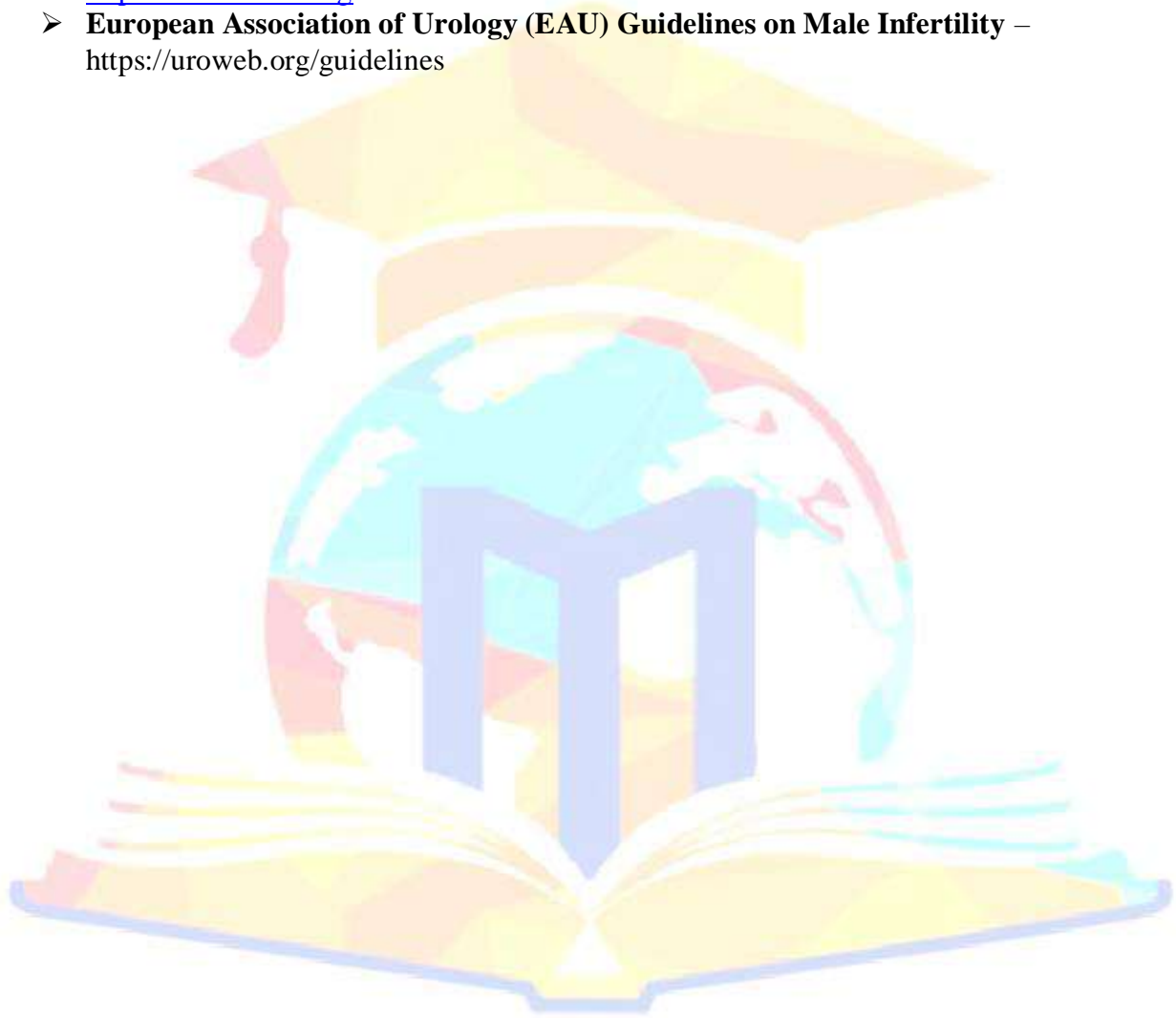
Textbooks:

- **Infertility in the Male** – Larry Lipshultz
- **Clinical Andrology: EAU Guidelines** – Lars Björndahl
- **Male Reproductive Health** – Richard Sharpe
- **Assisted Reproductive Technology in Andrology** – Steven T. Nakajima
- **Microsurgery in Andrology** – Marc Goldstein



Journals & E-Resources:

- **Human Reproduction** – <https://academic.oup.com/humrep>
- **Fertility and Sterility** – <https://www.fertstert.org>
- **International Journal of Andrology** – <https://onlinelibrary.wiley.com/journal/13652605>
- **American Society for Reproductive Medicine (ASRM) Guidelines** – <https://www.asrm.org>
- **European Association of Urology (EAU) Guidelines on Male Infertility** – <https://uroweb.org/guidelines>





Fellowship InPain Management

Course Overview

The **Fellowship in Pain Management** is a **one-year specialized program** designed to provide advanced training in the **assessment, diagnosis, and treatment of acute and chronic pain conditions**. This program integrates **multidisciplinary approaches, including pharmacological, interventional, rehabilitative, and psychological techniques**, to enhance patient care and pain relief strategies.

Prerequisites

Criteria	Details
Eligibility	MBBS / MD (Anesthesiology, Neurology, Physical Medicine & Rehabilitation, Internal Medicine, Orthopedics) / DNB (Pain Medicine, Neurology)
Duration	1 Year
Mode of Study	Clinical, Theoretical, Hands-on Training
Assessment	Theory, Practical Exams, Clinical Logbook, Research Presentation

Course Objectives

- **Understand the pathophysiology and mechanisms of acute and chronic pain.**
- **Gain expertise in multimodal pain management, including pharmacological, interventional, and psychological approaches.**
- **Master interventional pain procedures, such as nerve blocks, radiofrequency ablation, and spinal cord stimulation.**
- **Develop skills in musculoskeletal and neuropathic pain management, including low back pain, fibromyalgia, and complex regional pain syndrome (CRPS).**
- **Understand opioid and non-opioid pharmacotherapy for pain management and their safe use.**
- **Learn about palliative pain care and rehabilitation strategies for cancer and terminally ill patients.**
- **Engage in clinical research and evidence-based practice in pain medicine.**

Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, covering theoretical knowledge, clinical training, and research.



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Semester 1: Fundamentals of Pain Medicine

Module	Topics Covered
Pain Physiology & Neuroanatomy	Peripheral and central pain pathways, nociceptive mechanisms
Classification of Pain Syndromes	Acute vs. chronic pain, nociceptive vs. neuropathic pain
Assessment & Diagnosis of Pain	Pain scales, patient-reported outcomes, diagnostic imaging
Pharmacological Pain Management	Opioids, NSAIDs, adjuvant drugs, opioid-sparing techniques
Non-Interventional Therapies	Physical therapy, cognitive behavioral therapy, acupuncture
Clinical Rotations – Pain Clinics	Hands-on training in patient assessment and treatment planning

Semester 2: Advanced Interventions & Research in Pain Management

Module	Topics Covered
Interventional Pain Procedures	Epidural injections, facet joint blocks, nerve ablation
Neuropathic Pain & CRPS Management	Diabetic neuropathy, trigeminal neuralgia, phantom limb pain
Spinal Cord Stimulation & Neuromodulation	Indications, procedural techniques, patient selection
Cancer Pain & Palliative Care	Management of pain in terminal illnesses, opioid rotation
Rehabilitation Strategies in Chronic Pain	Multidisciplinary rehabilitation, functional restoration
Clinical Research & Case Studies in Pain Medicine	Data collection, research methodologies, publication preparation



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Program Outcomes

Sr. No.	Program Outcome	Description
1	Expertise in Pain Assessment & Diagnosis	Proficiency in identifying different pain syndromes and causes.
2	Hands-on Training in Pain Management Techniques	Skill development in pharmacological, interventional, and rehabilitative pain relief strategies.
3	Research & Clinical Trials in Pain Medicine	Conducting and publishing research on pain interventions.
4	Multidisciplinary Approach to Pain Care	Collaboration with specialists for a holistic pain management strategy.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Fundamentals of Pain Physiology	Understanding nociceptive pathways and pain mechanisms.
2	Diagnostic & Therapeutic Approaches to Pain	Mastery in pain assessment and multimodal treatment.
3	Pharmacologic & Interventional Pain Management	NSAIDs, opioids, nerve blocks, radiofrequency ablation.
4	Psychological & Rehabilitative Pain Management	Cognitive-behavioral therapy, physical therapy, palliative pain care.
5	Research & Evidence-Based Practice	Conducting studies on emerging pain treatment methods.



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Credits & Assessment Methods

Total Credits: 40

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

- **Case Presentation & Viva (30 Marks)**
- **OSCE (Objective Structured Clinical Examination) – 30 Marks**
- **Pain Procedure Demonstration (Nerve Blocks, Epidurals) – 40 Marks**



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Research Project

- Dissertation Submission & Defense (20 Marks)

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:

- **Bonica's Management of Pain** – Scott Fishman
- **Wall & Melzack's Textbook of Pain** – Stephen McMahon
- **Pain Medicine: A Comprehensive Review** – Rajiv R. Shah
- **Practical Management of Pain** – Honorio Benzon
- **Atlas of Interventional Pain Management** – Steven Waldman

Journals & E-Resources:

- **Pain (International Association for the Study of Pain - IASP)** – <https://journals.lww.com/pain>
- **Journal of Pain Research** – <https://www.dovepress.com/journal-of-pain-research-journal>
- **Clinical Journal of Pain** – <https://journals.lww.com/clinicalpain>
- **American Academy of Pain Medicine Guidelines** – <https://painmed.org>
- **British Pain Society Guidelines** – <https://www.britishpainsociety.org>



Fellowship InPalliative Care

Course Overview

The **Fellowship in Palliative Care** is a **one-year specialized program** designed for healthcare professionals interested in providing **comprehensive care to patients with serious, life-limiting illnesses**. This program offers an in-depth understanding of **palliative medicine**, focusing on the **physical, emotional, spiritual, and social aspects** of patient care. It emphasizes the **multidisciplinary approach**, integrating pain and symptom management, ethical considerations, and psychological support for both patients and their families.

Prerequisites

Criteria	Details
Eligibility	MBBS, MD (General Medicine, Internal Medicine, Anesthesiology, Pediatrics, Oncology, Geriatrics, etc.) / DNB
Duration	1 Year
Mode of Study	Clinical Training, Theoretical Classes, Research
Assessment	Written Exams, Practical Exams, Clinical Logbook, Research Dissertation

Course Objectives

- **Provide in-depth knowledge** of palliative care, including symptom management for terminally ill patients.
- **Develop expertise in managing pain** and other distressing symptoms like nausea, fatigue, breathlessness, and psychological distress.
- **Understand ethical issues** in end-of-life care, including decision-making and advanced care planning.
- **Enhance communication skills** for delivering difficult news and counseling patients and families.
- **Integrate holistic care** approaches, including psychological, social, and spiritual support for patients and families.
- **Gain hands-on experience** in palliative care settings such as inpatient palliative units, home care, and hospice care.
- **Develop the skills for multidisciplinary teamwork** involving physicians, nurses, social workers, and chaplains.



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Curriculum with Semester-wise Syllabus & Modules

The **one-year** program consists of **two semesters**, with a balanced approach between theoretical learning, clinical exposure, and research.

Semester 1: Introduction to Palliative Care

Module	Topics Covered
Introduction to Palliative Care	Definition, history, and principles of palliative care.
Pain and Symptom Management	Assessment and management of pain, nausea, dyspnea, and other symptoms.
Ethics in Palliative Care	End-of-life decision-making, autonomy, advanced care planning, and ethical dilemmas.
Psychosocial Aspects of Palliative Care	Psychological distress, depression, anxiety, family dynamics.
Palliative Care in Special Populations	Pediatric palliative care, geriatric care, cancer patients.
Clinical Rotations – Palliative Care Units	Hands-on exposure in hospice and palliative care settings.

Semester 2: Advanced Palliative Care & Research

Module	Topics Covered
Advanced Pain Management	Opioid use, adjuvants, nerve blocks, and interventional therapies.
Communication in Palliative Care	Breaking bad news, family meetings, shared decision-making.
Spiritual Care & Cultural Sensitivity	Addressing spiritual needs, cultural differences in care.
End-of-Life Care & Hospice	End-of-life care approaches, hospice care models, bereavement support.
Multidisciplinary Team Approach	Collaborative care with physicians, nurses, social



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Module	Topics Covered
	workers, and chaplains.
Clinical Research & Evidence-Based Practice	Research in palliative care, publication of findings, and ongoing trials.

Program Outcomes

Sr. No.	Program Outcome	Description
1	Mastery in Symptom Management	Expertise in pain relief, breathlessness management, and symptom control.
2	Ethical Decision-Making in End-of-Life Care	Proficiency in managing ethical challenges in palliative care.
3	Holistic Patient Care	Integration of physical, emotional, spiritual, and social care.
4	Multidisciplinary Collaboration	Skills to work effectively in a team for comprehensive care.

Course Outcomes

Sr. No.	Course Outcome	Description
1	Pain & Symptom Control	Mastery in using pharmacological and non-pharmacological treatments.
2	Communication Skills	Proficiency in breaking bad news, advanced care planning, and family support.
3	Ethical and Legal Aspects	Navigating ethical dilemmas, patient autonomy, and end-of-life decisions.



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Sr. No.	Course Outcome	Description
4	Research in Palliative Care	Conducting research on symptom management and improving patient quality of life.

Credits & Assessment Methods

Total Credits: 40

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

Assessment Pattern

Assessment Type	Weightage
Theory Examination (MCQs, Long & Short Answer)	30%
Practical Examination (Clinical Skills, Case Discussions)	30%
Clinical Logbook & Case Reports	20%
Research Dissertation & Presentation	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)



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Practical Examination

- Case Presentation & Viva (30 Marks)
- Clinical Skills & OSCE (Objective Structured Clinical Examination) – 30 Marks
- Patient Interaction & Counseling – 40 Marks

Research Dissertation

- Dissertation Submission & Defense (20 Marks)

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:

- **Oxford Textbook of Palliative Medicine** – David Doyle, Geoffrey Hanks
- **Palliative Care: The Essentials** – Philip Larkin, Anne Macmillan
- **Clinical Pain Management: A Practical Guide** – Peter D. MacDonald
- **Palliative Care: A Patient-Centered Approach** – Deborah L. K. Zewdie, Sara N. Remedios
- **Textbook of Palliative Care** – Russell K. Portenoy, Shari L. Kessel

Journals & E-Resources:

- **Journal of Palliative Medicine** – <https://journals.lww.com/palliative>
- **Palliative Care & Hospice Journal** – <https://www.hospicejournal.com>
- **International Journal of Palliative Nursing** – <https://www.magonlinelibrary.com>
- **Palliative Care Research** – <https://www.journals.elsevier.com/palliative-care-research>

