IILM UNIVERSITY

Greater Noida

Ph.D. Program

SCHOOL OF SCIENCES (SoSc)

Ph.D. (Mathematics)

NEP (National Education Policy) 2020 - enabled curriculum

Department of Mathematics

List of faculty members

Sr. No	Name	Designation	Research Expertise
1	Dr. Rakhi Trivedi	Professor & HOD	Operations research, inventory modeling, mathematical modeling and statistics.
2	Dr. Pankaj	Professor	Differential Geometry and Cosmology
3	Dr. Narendra Kumar	Professor	Mathematical modelling, artificial intelligence, and data-driven management systems
4	Dr. Sunil Bhardwaj	Associate Professor	Reliability Engineering & primarily focuses of reliability analysis of mechanical systems
5	Dr. Rahul Singh	Associate Professor	Hypergeometric Functions, a prominent class within Special Functions, with wide-ranging applications across pure and applied mathematical disciplines
6	Dr. Vinti Dhaka	Associate Professor	Inventory, Production Planning Control, Supply Chain Management, Trade Credit, Two Warehousing, Bayesian Approach, Genetic Algorithm, Fuzzy Logic.
7	Dr. Jayanta Biswas	Associate Professor	General Topology (Point Set Topology) and Non-Linear Dynamics
8	Dr. Manoj Kumar	Assistant Professor	Delay differential Equations, Traffic Congestion, Deep Learning
9	Dr. Shivani Saini	Assistant Professor	Optimality conditions, duality theory, nonlinear and multiobjective programming, fractional, robust and Bilevel programming problem
10	Dr. Prince Solanki	Assistant Professor	Operations Research, nature-inspired optimization techniques, evolutionary algorithms, soft computing, and machine learning
11	Dr. Surbhi	Assistant Professor	Mathematical Modeling, Ecological Modeling, Population Dynamics and Non-Linear Dynamical Systems with a focus on predator-prey models
12	Dr. Anshika	Assistant Professor	Inventory theory, supply chain management, and sustainability
13	Dr. Nidhi Singh	Assistant Professor	Computational fluid dynamics, hydrodynamic stability, and fluid flow in porous media
14	Dr. Jaya Bisht	Assistant Professor	Pure and applied mathematics and optimization
15	Dr. Ravinder Kumar Sharma	Assistant Professor	Functional equations
16	Dr. Aastha Panwar	Assistant Professor	Inventory and supply chain management, fuzzy logic, and Bayesian methods
17	Dr. Mukesh Kumar	Assistant Professor	Bio-heat transfer and mathematical modelling
18	Dr. Dev Karan Singh	Assistant Professor	Lie algebras, including multiplicative Lie algebras, cohomology, and non-abelian extension theory
19	Dr. Shubham Kumar	Assistant Professor	Optimization, particularly numerical techniques for uncertain multiobjective optimization problems
20	Dr. Gaurav Upadhyay	Assistant Professor	Hyperbolic partial differential equations, conservation laws, Riemann problems, nonlinear wave propagation, shock waves, and magnetohydrodynamics, with applications in computational fluid dynamics
21	Dr. Abhishek Kumar	Assistant Professor	Real analysis and approximation theory

IILM University, Greater Noida

IILM University provide students with an education that is both intellectually stimulating and practically relevant. We equip learners with the knowledge, skills, and experiences needed to achieve their full potential and make a meaningful difference in the world. Through a wide range of innovative programs, we prepare students for successful careers while inspiring them to create a positive social impact. True to our values, we foster an inclusive and diverse learning community that is deeply committed to responsibility, leadership, and lifelong learning.

School of Sciences

The School of Sciences at IILM University, Greater Noida offers a unique blend of academic rigor, interdisciplinary learning, and industry relevance. With programs such as B.Sc., M.Sc., and Ph.D. in various streams of Physics, Chemistry, Mathematics and Forensic Science, the school equips students with strong theoretical foundations and practical skills. Supported by modern laboratories, research opportunities, internships, and skill-based workshops, students gain real-world exposure and hands-on experience from the very beginning of their academic journey.

Set in a vibrant 26-acre green campus, the School fosters holistic development through cultural events, student clubs, sports, and leadership activities. Highly qualified faculty with PhD backgrounds bring both academic expertise and industry insights to the classroom, while strong industry linkages, global alumni connections, and a legacy of 30+ years ensure excellent career pathways. In essence, the School of Sciences is where curiosity meets innovation and students are empowered to become scientists, researchers, and leaders of tomorrow.

About the Program

The Ph.D. in Mathematics program at the Department of Mathematics, School of Sciences, IILM University, Greater Noida, is designed to develop advanced research skills and in-depth knowledge across fundamental and applied areas of mathematics. This doctoral program emphasizes original research that contributes to the advancement of mathematical theory and its applications in science, engineering, and technology.

Under the guidance of experienced faculty, scholars engage in rigorous research in diverse areas such as **analysis, algebra, topology, differential equations, dynamical systems, numerical analysis, optimization, and interdisciplinary domains including data science and computational mathematics**. The program fosters critical thinking,

logical reasoning, and the application of modern analytical and computational techniques to address complex theoretical and real-world problems.

The program promotes interdisciplinary research in areas such as **mathematical modelling, complex systems, financial mathematics, cryptography, and data-driven approaches**, with increasing emphasis on computational and AI-supported methodologies. With a strong focus on innovation, high-quality publications, and real-world applications, the department provides a dynamic research environment supported by expert faculty and modern computational resources, preparing scholars for successful careers in academia, research institutions, and industry.

Graduates of the Ph.D. program are well-equipped for careers in academia, advanced research institutions, high-technology industries, and leadership roles in government and private sectors. The program aims to cultivate highly skilled researchers and subject experts who contribute to mathematical advancement and address global scientific and technological challenges.

Course Eligibility

M.Sc. Mathematics / related domain with 55% marks or M.Phil. with 55% marks

Duration

Minimum 3 years (1 Year Course Work + 2 Years Research Work)

Mode of Selection

Selection to the Ph.D. Programme in Mathematics shall be made through a two-stage process:

- **Entrance Examination:** Eligible candidates shall be required to appear in the University Entrance Examination / accepted national-level eligibility test as per UGC norms.
- **Interview / Viva-Voce:** Candidates shortlisted on the basis of the entrance examination shall be called for a personal interview / viva-voce before the duly constituted Selection Committee.

The final selection shall be based on the combined performance in the entrance examination and interview, in accordance with UGC regulations and University norms.

Program Highlights

Major Types of Course to be taught

- The Ph.D. coursework shall comprise University Core Courses in **Semester I**, focusing on Research Methodology, Research and Publication Ethics, and Statistics and Computer Application.
- Semester II shall include **domain-specific courses in Mathematics**, covering advanced concepts and recent developments in areas such as **Real and Functional Analysis, Algebra, Topology, Differential Equations, Dynamical Systems, Numerical Analysis, and other emerging interdisciplinary fields** aligned with the candidate's research specialization.

The coursework will be designed in accordance with UGC guidelines, which mandate a minimum of 14 credits, to ensure strong research aptitude and subject expertise before commencement of doctoral research.

Career Option

The Ph.D. in Mathematics program provides advanced opportunities in research, academia, and industry. Graduates acquire deep theoretical knowledge and strong analytical and problem-solving skills, enabling them to undertake independent research and assume leadership roles in scientific and technological domains.

They can work as **Mathematicians, Research Scientists, Academic Faculty, Data Scientists, and Consultants** in diverse sectors. They may also pursue specialized roles in areas such as **mathematical modelling, dynamical systems, optimization, data science, and cryptography**. Ph.D. graduates are employed in universities, research institutions, national laboratories, government organizations, and private sector industries including R&D, finance, and emerging technology firms.

The program equips candidates for independent research, innovation, consultancy, and advisory roles, contributing to scientific advancement and technological development at both national and global levels.