



Doctor of Philosophy (Mathematics)

INFORMATION BROCHURE

**The LNM Institute of Information Technology
Jaipur-302031**

Introduction

The Department of Mathematics, LNM Institute of Information Technology is part of the LNMIIT since its inception year 2003-04. The Department has a vision to establish a centre for research and teaching excellence in Mathematics of international repute.

It has always shared the vision of the Institute in striving for excellence in research and teaching and has succeeded in this endeavor to a large extent. Over the years, the department has evolved as one of the premier departments in the country providing excellent teaching and research in Mathematical Sciences and Statistics. The vibrant academic environment is nurtured by strongly motivated faculty and provides an opportunity to pursue research in frontline areas of basic as well as interdisciplinary areas of science and technology. The Department currently has 7 faculty members who are engaged in research and teaching in various areas of Pure Mathematics, Applied Mathematics, Statistics and Theoretical Computer Science. The faculty members of the Department aim to achieve high quality research and teaching standards in various disciplines of Mathematics with a flavor of unified approach towards both pure and applied aspects and are ever responsive towards the growing demands of new and emerging areas of research and teaching. As Mathematics has penetrated into many areas of human endeavors, an updating of the curricula is regularly undertaken to keep abreast with the latest developments and to bring innovations.

Why LNMIIT Jaipur?

The LNMIIT Jaipur is a young dynamic deemed university located in one of most beautiful, cultured and heritage rich city of India in the lap of nature surrounded by Aravali Hills. From its very beginning, LNMIIT Jaipur proved itself as a leading technical institute and place of learning and research. The LNMIIT is now well known and widely recognized for the quality of its undergraduate, graduate and research programs.

LNMIIT has huge infrastructural facility with respect to the state of the art laboratories, computing facilities, academics buildings, equipments etc. Extensive library facilities are available in the Central Library. The institute hosts a High Performance Computing (HPC) server for parallel computations which is powered by HP (Hewlett-Packard) Corporation and based the latest Intel ivy-bridge processors. The server has 240 computing cores on 7 nodes with a total memory of 796 GB. The institute also offers GPU computing facilities to its students and employees via GPU server powered by hp having two NVIDIA K4200 4GB Cards (with $1344*2=2688$ CUDA cores) which delivers incredible 3D application performance and capability, allowing users to take advantage of dual copy-engines for seamless data movement within GPU memory-all in a flexible, single-slot form factor. 4 GB of GDDR5 GPU memory with ultra-fast bandwidth is ideal for creating and rendering large, complex models.

The faculty members constitute our major resource. The faculty members of department of Mathematics are highly qualified and energetic, who have already raised the standard of the department through teaching and research. To make students acquainted with the latest developments, the department keeps on updating its teaching and research methodology periodically and introduces new courses, which are aligned with the need to tackle real life challenging problems in science and technology.

The Department of Mathematics has designed the syllabi incorporating interdisciplinary and applied sciences, suitable for the prevailing scenario of Science and Technology. Due to fast changing scenario on Science & Technology, importance of Applied Science has been increased to a great extent.

The aspirants for Ph.D. programme may opt for LNMIIT Jaipur as this Institute is already visible on the horizon and is going to match with other leading universities/institutes in India in near future.

Name of the Program

Doctor of Philosophy (Ph. D.) Mathematics

Facilities

The LNMIIT host a number of state of the art servers, high end Linux and Windows labs and application software. The Institute provides E-mail, Web, DNS, FTP, Internet access, high performance computing facilities and other services for 24 hours and 365 days a year. The state of the art parallel and multi-processor computer servers cater to the computational needs of the LNMIIT community. All PCs have advanced configurations (Core i7 and Core 2 Quad processors) and some latest and advanced software. LNMIIT Jaipur has a large Central Library. This library is one of the best libraries of its kind in India with an excellent collection of books and periodicals. There is a generous allocation from the Institute towards library funding for Mathematics. The library is fully automated and provides CD-Rom computer aided referral services. The Department maintains its own library with a good collection of text books and reference books. It is run by the Ph.D. students of the Department. The Institute provides B/W Laser printing facility to all PhD students for their research use and to all UG and other PG students on request basis. The institute conference/seminar room is well-equipped with Top-mounted projectors, cordless Microphone and other Audio-Visual support. Every research scholar has his own cabin (cubical) with advanced computers available for use.

Ph.D. PROGRAMME

In addition to the two year M. Sc. Program in Applicable Mathematics the Department offers Ph.D. programme in Mathematics. Admission to the Ph.D. programs require a valid GATE score in MA paper or a valid UGC/CSIR JRF/NET rank in Mathematical Sciences or a qualifying certificate of NBHM / INSPIRE fellowship etc. The admissions

are done through a written test and interview. The programs attract good students from all over India. Research work leading to the Ph.D. degree in Mathematics is carried out in various areas indicated under faculty specialization. In the first two semesters, every Ph.D. student is required to do minimum specified courses during his/her course work. These courses are intended to familiarize the students with the modern aspects of Mathematics and initiate the students to the chosen area of research.

Apart from training related to the fundamental principles of Mathematics, the scopes of these comprehensive and flexible programs include interaction with allied areas from other departments of the Institute. Such an interaction, while maintaining the identity of the Department, is unique to the curricula. The doctoral program aims to prepare motivated researchers in frontline areas. Regular seminars keep everyone charged and updated. Ph.D. students are required to actively participate in the tutoring of U.G students (from B. Tech. and two-year M. Sc. program) in core and elective courses. They also conduct voluntary helping sessions for the benefit of the U.G. students. This helps them in tuning their communication and teaching skills.

Focus Research Areas

Differential Equations, Numerical Analysis, Finite/Spectral Element Methods, Parallel/Scientific Computing, Cryptography, Graph Theory, Computational Fluid Dynamics, Stochastic Partial Differential Equations, Theoretical Computer Science.

Eligibility Criteria

- A first class (minimum 60% or equivalent on CPI/CGPA scale) M.Sc./M.A. or equivalent degree in Mathematics, Applied Mathematics or in a related subject (such as Physics, Computer Science etc.).
- A relaxation in CGPA/CPI may be extended to the candidates belonging to physically handicapped (PH) category as decided by the institute. The students whose qualifying exam results are awaited are also eligible to apply.
- Department may specify additional requirements over and above these minimum requirements.

Admission Procedure

- Applicants satisfying minimum eligibility criteria will be called for written test and personal Interview. Date, Time and Venue for the Test and Interview will be notified through Institute website.
- Candidates who have already qualified Graduate Aptitude Test in Engineering (GATE), National Eligibility Test/Junior Research Fellowship (NET/JRF), NBHM or any other national level examination, will be exempted from written test for admission and will be called directly for personal interview.
- We may also accept the score of international qualifying exams or an equivalent standard for admission of Indian/foreign nationals.

How to Apply

All eligible candidates need to apply online through the PG admission link <http://www.lnmiit.ac.in/admissions/postgraduatea.html>. The online application will be begin on May 05, 2015.

Financial Support

1. Scholarships

The institute has provisions of scholarships (subject to availability) for the first semester in the form of full/partial tuition fee waiver to the meritorious and outstanding students on the basis of their rank (AIR) in the national level qualifying examinations such as Joint Admission Test for M.Sc. (JAM), etc. In all subsequent semesters a student has to satisfy a minimum specified CGPA requirement to avail the scholarship. Institute also offers other merit, merit-cum-means scholarships to the needy and deserving students. Further details are available on the Institute/Department website.

2. Assistantships

Some assistant-ships would be available for the students admitted to Ph.D. programme for conducting tutorials, evaluating examination papers of UG/PG students.

Admission of Sponsored Candidates to the Ph.D. Programme

A candidate who is sponsored by his/her employer and who meets the additional conditions specified below may be admitted through a separate selection committee appointed specifically for the purpose.

A sponsored candidate must have been in service of the sponsoring organization for at least two years at the time of admission. The sponsoring organization must specifically undertake to provide full salary to the candidate and to relieve him/her to pursue the programme for its full duration.

Fulfillment of GATE eligibility requirement may be waived for such candidates. However, the sponsored candidates who have not taken GATE will be called for interview and may in addition be asked to take a written test.