

One-Day Seminar

on

NUMBER THEORY AND CRYPTOGRAPHY

23 August 2024

Organised By

Department of Mathematics,
Manipur Technical University, Imphal
Takyel, Imphal-West, Manipur - 795004

www.mtu.ac.in



ABOUT THE SEMINAR

The seminar is organised by the Department of Mathematics, Manipur Technical University to help students explore the fundamental concepts of number theory and their applications in modern cryptography and engineering. Participants will gain insights into fundamental concepts from number theory. These include divisibility, prime numbers, and modular arithmetic. These mathematical principles underpin many cryptographic algorithms. We'll also delve into RSA (Rivest-Shamir-Adleman) encryption, a widely used public-key cryptosystem. Understanding its mathematical foundations is essential for secure communication. Participants will also learn about the Diffie-Hellman key exchange, which enables secure key sharing between parties. It relies on number theory principles. Discussing potential attacks on cryptosystems is crucial. We will explore vulnerabilities and countermeasures.

OBJECTIVE OF THE SEMINAR

The primary goal is to introduce participants to cryptosystems and their significance. Cryptosystems are essential for secure communication and data privacy.

WHO CAN PARTICIPATE

The programme is open to all the engineering students of Manipur Technical University.

ABOUT THE UNIVERSITY

Manipur Technical University (MTU) is the first technical university in the state established under *The Manipur Technical University Act, 2016* on 23 April 2016. It is included in the UGC list of universities under section 2(f) of The University Grants Commission Act, 1956, and empowered to award degrees under section 22 of the act through its departments. The university has engaged itself in the process of capacity building, both in terms of infrastructure and human resource development. It has mounted tremendous efforts in developing itself into a modern university incorporating all elements from the contemporary scientific and socio-cultural milieu. At present, the university is located in the Government Polytechnic Campus, Takyelpat, Imphal West District, Manipur. For more details, please visit www.mtu.ac.in.

ABOUT THE DEPARTMENT

The Department of Mathematics was established in the year 2016. The department is committed to impart high-quality education in mathematics at undergraduate and postgraduate levels. The department aims to impart our students

1. an appreciation of mathematics as a driving force in society, culture and history;
2. an understanding of mathematics and its applications; and
3. the ability to reason and communicate mathematically as well as to assimilate new mathematical ideas.

Currently, the department has four regular faculty members. The active areas of research include, but not limited to, fixed-point theory, group theory, topology, dynamical systems, number theory, operations research, etc.

ORGANISING COMMITTEE

Chief Patron

H. Gyan Prakash (Vice-Chancellor, MTU)

Coordinators

Thokchom Chhatrajit Singh

Anand Jyoti Sanasam

Huidrom Malemnganbi

P. Ramwungzan

RESOURCE PERSON

Prof. Shanta Laishram

Head of the Theoretical Statistics and Mathematics Unit
Indian Statistical Institute (ISI), New Delhi, India.

Area of Research Interests

Number Theory and Cryptography.

Education Details

Ph.D. Mathematics, 2007, School of Mathematics, Tata Institute of Fundamental Research (TIFR), Mumbai

M.Sc. (by Research) Mathematics, 2004, TIFR/University of Mumbai, Mumbai

B.Sc. (Mathematics Hons'), 2001, DM College of Science, Manipur University, Imphal

DATE AND TIME

Date: 23 August 2024

Time: 12 pm - 2 pm.

CONTACT DETAILS

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