



सत्यमेव जयते

Ministry of Education
Government of India



धियो यो नः प्रचोदयात्

About IIT Ropar



IIT Ropar, established in 2008 in Punjab, India, is a premier institute offering undergraduate, postgraduate, and doctoral programs in engineering, sciences, and interdisciplinary fields. Known for its state-of-the-art infrastructure and cutting-edge research, the institute emphasizes innovation, sustainability, and global collaborations, creating a vibrant academic environment.

About the Department

The Computer Science and Engineering (CSE) Department at IIT Ropar is known for its excellence in research and education, offering programs in emerging fields like AI, machine learning, and cybersecurity. With state-of-the-art facilities and a focus on innovation, it provides a collaborative environment that nurtures talent and fosters global partnerships.

Who can Attend

- Executives, engineers, and researchers from allied fields in Computer Science and Engineering, as well as professionals from service sectors, government organizations, and R&D labs.
- Students at all levels (BTech, MSc, MTech, PhD) and faculty from esteemed academic and technical institutions.

Registration Fee

INR 1000	Students (M.Sc/ M.tech Students/ Ph.D. Scholars/ Postdocs)
INR 5000	Academic Institutions (First 25 participants will get 50% discounts in registration fees)
INR 3000	Industry/ Research Organizations
US \$500	Participants from abroad

The fee includes food, instructional materials, computer use, and lab equipment charges.

Accommodation is available for an additional cost.

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GLOBAL INITIATIVE OF ACADEMIC NETWORKS

Chain of Things: A Course on Blockchain & IoT

Organised by

Department of Computer Science and Engineering, IIT Ropar
Rupnagar, Punjab

31.03.25 - 04.04.25

How to Register?

To register click [here](#) or Scan

Registration Deadline

Jan 15, 2025



01881-232166 sujata@iitrpr.ac.in

Course Instructor



Prof. Sushmita Ruj, a Senior Lecturer at UNSW Sydney's School of Computer Science and Engineering and part of the IFCYBER, specializes in applied cryptography, blockchains, post-quantum cryptography, and privacy technologies. She has held roles at IIT Indore, ISI, and CSIRO Data61, earning prestigious grants like the Samsung GRO and IBM Research Grant. A Senior Member of IEEE and ACM, she is an Associate Editor for IEEE Transactions on Information Forensics and Security.

Course Co-ordinator



Dr. Sujata Pal, an Associate Professor at IIT Ropar's CSE Department, earned her Ph.D. from IIT Kharagpur as a TCS Scholar. She was a recipient of the Schlumberger Faculty for the Future Fellowship and a Postdoctoral Fellow at the University of Waterloo, Canada. Her research interests are IoT, blockchain, WBANs, SDNs, and mobile networks. Her research was widely published in top tier journals and conferences. She is a Senior Member of IEEE and ACM.

Course Overview

Blockchain technology, initially designed to secure and verify cryptocurrency transactions, has grown to be applicable in numerous fields. In the realm of the Internet of Things (IoT), the integration of blockchain and IoT offers a potent solution to address security, privacy, and data integrity concerns. This overview delves into the key concepts and benefits of integrating blockchain with IoT.

Course participants will learn these topics through lectures and hands-on experiments. Building in confidence and capability amongst the participants in the application of integrations of blockchain and IoT technologies.



Course Contents

Day 1

- **Lecture 1** : Introduction to Blockchain Technology
- **Lecture 2** : Fundamentals of IoT
- **Tutorial/Lab 1**

Day 2

- **Lecture 3** : Use of Blockchains in Internet of Things
- **Lecture 4** : Consensus protocols for Blockchain
- **Tutorial/Lab 2**

Day 3

- **Lecture 5** : Scalable Blockchain-based Access Management for IoT
- **Lecture 6** : Decentralised Oracles
- **Tutorial/Lab 3**

Day 4

- **Lecture 7** : Different types of attacks in Blockchain
- **Lecture 8** : Layer-2 Protocols for scaling blockchains for IoT applications
- **Tutorial/Lab 4**

Day 5

- **Lecture 9** : Blockchain-based solutions for enhancing Security of Smart Home IoT networks
- **Lecture 10** : Secure Mutual Authentication for Smart Homes using Blockchains
- **Tutorial/Lab 5**

Date of Examination: 04.04.2025