Blockchain Evolution and its Applications

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Overview

Blockchain has been evolved from the exchange of cryptocurrencies such as Bitcoin and Ethereum to various applications in public and private sectors. It enables the trust among the untrusted entities in the distributed environment without involvement of regulatory. Blockchain adds business values by providing various advantages like distributed ledger of records with append-only functionality, immutability of records, traceability of records, no single point of failure, virtual asset creation and distribution, trust establishment in the untrusted distributed environment and support of smart contracts. However, it faces some challenges like partnership and ecosystem management/governance, technology implementation and integration with the existing system, security, privacy and operational risk, system duplication, change management, project failure/risk assessment etc. Therefore, it is required to explore the suitable applications of blockchain technology further and addressing the challenges for its wider acceptance in many of the public and private sectors as it gives promising outputs.

This course aims at exploring blockchain from its technical foundations to current state of art for Industry and Government applications. In this course, participants will learn the technical insights of blockchain and well known cryptocurrencies with their working in detail. Participants will understand a detailed working of the different blockchains from V1.0 to V4.0. In addition, different consensus mechanisms and smart contracts with their performance and security features will be explored. Further, this course leads participants to explore vulnerabilities, security risks and solution directives in different blockchains and smart contracts. In addition, blockchain based applications, case studies and conceptual frameworks in different sectors will be explored. This will help participants to understand the importance of blockchain in various applications and it will make participants to identify new use cases and reinvestigate the existing frameworks. The primary focus of this course will be on the fundamentals of blockchains with their current implementations, applications/case studies, challenges and involved risks. In addition, tutorials and lab sessions will help for capacity building in the domains of blockchain and its applications.

Modules	
	Course Duration : **10-20 March, 2025** A: **Foundations of Blockchain** : **10-11 March, 2025** B: **Blockchain/DLT, Smart Contracts and DApps** : **11-12 March, 2025** C: **Consensus Mechanisms and Challenges** : **13-15 March, 2025** D: **Blockchain Applications** : **17-19 March, 2025** E: **Advanced Topics** : **20 March, 2025** **Date of Examination: March 20, 2025** *Number of participants for the course will be limited to fifty.* *All modules are compulsory to attend.*
You Should Attend If…	▪ you are an executive, engineer and researcher from industry and government organizations, including R&D laboratories interested in learning of blockchain concepts, their applications, challenges and blockchain based developments through hands-on as well. ▪ you are a student at all levels (B.Tech/M.Sc/M.Tech/Ph.D) or Faculty from the reputed academic institutions interested in pursuing research in blockchain domain.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $500** **Industry/ Research Organizations: INR 15000 + 18% GST** **Academic Institutions: INR 10,000 + 18% GST** **Students: INR 2,000 + 18% GST** The above fee includes all instructional material, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty

Prof. Roman Vitenberg (https://folk.uio.no/romanvi/) is a Professor in the Department of Informatics, University of Oslo, Norway. His research interests lie broadly in the area of blockchain/DLT, distributed applications, middleware and algorithms; span modeling, design, analysis, software engineering, implementation, and performance evaluation. Prior to working at the University of Oslo, he spent three years at IBM Research. He was a postdoctoral research associate at the Computer Science Department of the University of California, Santa Barbara. He also held shorter visiting researcher positions at the University of Rome, Polytechnical University of Madrid, and INRIA/IRISA in Rennes. He received Ph.D. from the Department of Computer Science, Technion (Israel Institute of Technology). He received M.Sc. from Institute of Computer Science and Engineering at the Hebrew University of Jerusalem. Prof. Roman is an active researcher is the area of blockchain/DLT, and developed practical tutorials and courses on blockchain. The details of his research projects are available at https://folk.universitetetioslo.no/romanvi/projects.html. Apart from publishing many papers in reputed journals and conferences, he received most influential paper award at DEBS 2007, Best paper award at ACM DEBS 2016, Best demo award at ACM DEBS 2014 and Best paper award at ACM SAC 2013.

Dr. Modi Chirag Navinchandra is an Associate Professor in the Department of Computer Science and Engineering at National Institute of Technology Goa. His research interest includes Blockchain, Information Security and Privacy, Network Security and Smart Grid Energy Management Security. He has published many papers in the reputed journals and international conference proceedings, which have good number of citations. Since last few years, he has explored various blockchains and possible applications.

Dr. C. Vyjayanthi is an Associate Professor in the Department of Electrical and Electronics Engineering at National Institute of Technology Goa. Her research interest includes Smart Electric Grids and Cyber Security. She has published many papers in reputed journals and international conference proceedings. She is currently working in the field of IoT, Cloud Computing and blockchain for Smart grids.

Venue:

Department of Computer Science and Engineering
National Institute of Technology Goa
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Course Co-ordinators:

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Registration Details:

Last date for registration: 24/02/2025

Link for registration fee payment:

https://pmny.in/LrbqNFCV9iZB

After paying the registration fee, participants are requested to complete online registration process by filling details at below link.

https://forms.gle/W5nLxyaimScWXGmNA

Please note that the Registration fee is Non-refundable. Students have to attach bonafide certificate or photocopy of their valid identity card along with registration form.

Selected participants will be informed through Email.

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https://gian.iith.ac.in/