

**TEQIP-III sponsored
Two Weeks
Short Term Training Programme
(STTP)
On**

**“Cyber Security & Blockchain
Technologies”**

**1st to 12th May, 2020
(Excluding Sunday)**

Registration Fee & Other Details:

- **Course Registration is free for all participants**
- **Registration is through online mode only.**
- **Use following link for online registration:**
<http://tiny.cc/j0oxkz>

Targeted Participants:

- **Final & Pre-final (U.G.) students**

Important Dates:

- **Last date of Registration on or before 27-04-2020.**
- **Confirmation of participation to selected participants only on or before 30-04- 2020 through E-mail only.**
- **STTP is scheduled from 1-05-2020 to 12-05-2020.**

Chief Patron

Prof. A. M. Rawani
Director, NIT Raipur

Patron

Prof. Samir Bajpai
Head, CDC, NIT Raipur

Chairman

Prof. Subhashis Sanyal
TEQIP-III Coordinator, NIT Raipur

Course Coordinators

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Assistant Professor
Department of Information Technology

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Two Weeks**

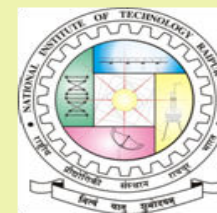
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Organized by



**Department of Information Technology
National Institute of Technology
Raipur-492 010 (Chhattisgarh)**

About the Institute:

National Institute of Technology Raipur situated in the capital of Chhattisgarh, has proven to be "avant-grade" in the field of science and technology over past few decades in this region. With sweet memory of foundation ceremony by our president Hon'ble Dr. Rajendra Prasad on 14th September 1956, the institute started with two departments namely Metallurgical and Mining Engineering. Later the inauguration of the Institute building was done by our Prime Minister Hon'ble Pt. Jawahar Lal Nehru on 14th March 1963. From 1st December 2005, the institute has become the National Institute of Technology. It is well connected with Mumbai, Delhi and all metro cities by regular flights and is on the main Howrah-Mumbai railway route. The institute is 5 km from the Raipur railways station and 18 km from airport on NH-6, the Great Eastern Road.

About Department: The **Department of Information Technology** came into existence in year 2000. IT department is the study, research and work place of approximately 300 students from the 28 states across India. The department provides an outstanding research environment and offers academic program leading to the award of B.Tech., M.Tech. and Ph.D. degree.

Speakers:

Expert lectures will be delivered by the faculties of the various branches of the institute and the experts from the industries

Objectives of the Course:

Aim of this STTP is to provide up-gradation of knowledge and skills for students/research scholars/faculties/scientists involved in active research in the area of **Cyber Security & Blockchain Technologies**. The course will provide in depth exposure to them. The lectures will be delivered by distinguished experts from IIT/NIT and Software Industries. This one week FDP course will include lectures, special case studies in the areas of Cyber Security & Blockchain Technology along with the hands-on experiments using distributed platform such as Ethereum and Hyperledger Composer, etc.

Topics to be covered:

- Fundamentals of Computer Networks
- Protocols & Cyber Security Vulnerabilities
- Cyber Security, Cryptography, and Firewalls
- System and Server Security
- Malware Concepts and Cyber Security Management
- Blockchain Technology
- Hyperledger Composer Framework
- Ethereum Framework

Note: A detail course contents are attached with this **Broucher**.

Other Important Information for participants:

- **Course Registration is free for all participants**
- Seats are limited to only 50 and the participants are selected by organizers on first come first serve basis.
- Certificates will be issued to the participants only after attending the complete course.
- A Workshop Kit will be provided to the participants.
- Food Coupon and tea during sessions will be provided to the participants.

Note: It is mandatory for all the participants to appears in training assessment and certification through **SSC NASSCOM**.

CURRICULUM: Cyber Security & Blockchain Technologies

DURATION :10 Days

60 Hours (40:Lectures [L], 20:Lab sessions [C])

Pre-Requisites:

- Basic understanding of Information Technology/Computer Science fundamentals.
- Basic expertise in using software tools.
- Hands on knowledge of at least one programming language.

➤ Contents:

Unit No.	Title	Topics	Duration
1	Fundamentals of Computer Networks	Basic concepts of computer networks, Client Server architecture, Peer-to-Peer Architecture. Working of WWW, E-Mail, TELNET, FTP, Secure Shell, DNS, BitTorrent, and some other applications. Basic services used and provided by Physical Layer, Data link layer, network layer, transport layer, application layer. Types of devices constituting a network. Concept of Internet Service Providers (ISPs) and overall conceptual view of the Internet. Routing fundamentals. Different types of networks such as LAN, WAN, VPN, etc. Introduction to Network defense tools.	4 hrs (Theory) 1 hr (Lab)
2	Protocols & Cyber Security Vulnerabilities	Hyper Text Transfer Protocol (HTTP) and corresponding cyber security vulnerabilities- XSS Attack . TCP, UDP and corresponding security vulnerabilities. MAC, IPv4, IPv6. Cyber Security Concepts, OPENSSL & essential	5 hrs(Theory) 1 hrs (Lab)

		terminologies, open source tools. Various concepts of number theory. The OSI security architecture. Active and Passive attacks.	
3	Cyber Security, Cryptography, and Firewalls	Various concepts of Cryptography, Block ciphers, Public key Encryption. Authentication and Hash functions. Kerberos, X.509 Authentication service. Overview of firewalls, security protocols, security at transport and network layer, open source tools, infrastructure and network security basics. Network Tools Firewall.	5 hrs(Theory) 2 hrs (Lab)
4	System and Server Security	Various concepts of system and server security, intrusion detection and prevention, various tools and experiments, Internet and cloud security, cyber security vulnerabilities, safeguards, various tools. Cyber threats and attacks, CSRF. Intrusion detection and prevention. Phishing detection and prevention. Network Tools : Intrusion Detection, and filters.	4 hrs (Theory) 2 hrs (Lab)
5	Malware Concepts and Cyber Security Management	Basics of Malware and its types, tools and experiments, Identity and access management, incident management, disaster management. Cyber laws and forensics, cyber security regulations, cyber forensics basics, SQL injection & some other useful tools.	4 hrs (Theory) 2 hrs (Lab)

6	Blockchain Technology	Introduction to Blockchain Technology, Basic Crypto Primitives, Bitcoin Basics, Blockchain Mining Consensus, Distributed Ledger, Security and Privacy, Blockchain Features, Enterprise Overview of Blockchain Technology,	4hrs (Theory)
7	Hyperledger Composer Framework	Overview of Hyperledger composer, Data types, Distributed Ledger, Wallet, Proof-of-Authority in Hyperledger Composer, Basics of Hyperledger Composer, Participant, Assets, and Transactions, chain-code, Hands-on Practice on Hyperledger composer, Working with Hyperledger Registry, Event generation, Transaction Mapping, Hands-on Practice on Hyperledger Registry and Event generation	6 hrs (Theory) 4 hrs (Lab)
8	Ethereum Framework	Overview of Ethereum Remix, Data Types , visibility types, function definition, constructor in solidity, working on testrpc HD wallet, adding modifier in solidity, designing smart contract using solidity, solidity mapping, solidity inheritance, integration of smart contract and web3.js UI, Business Applications using smart contract Ethereum and web3.js	8 hrs(Theory) 8 hrs (Lab)