AICTE Training And Learning (ATAL) Academy
Sponsored Programme on

Introduction to Blockchain Technology: Cryptocurrency and Beyond

December 14-18, 2019

Organized by
Dept. of Comp. Sc. & Engg.
Indian Institute of Technology Patna
Bihta-801106, Patna, Bihar

Course Coordinators
Dr. Raju Halder, IIT Patna
Dr. Jimson Mathew, IIT Patna

Introduction

Blockchain over recent years has been extolled as a revolutionary technology. Since the pioneer work in 2008, researchers have spent countless hours exploring its enormous potential, and today this new technology has become a source of new hope with its broad spectrum of applications. Examples include Supply-Chain, Insurance, KYC, E-voting, Land-Registry, Financial Services, IoT security, Healthcare, Copyright Protection, Smart Agriculture, E-governance and many more. A new addition to the power of blockchain technology comes with the support of smart contracts, an executable codes on blockchain, written in high-level turing complete language. The role of smart contract is to remove all intermediary untrusted third parties between the participating members and to automatically execute and enforce the terms of agreement between them.

Systematic and focussed introductory lectures, including hands-on sessions, will be delivered over five days, which helps participants to segue into this exciting field of emerging technology. This course has been specially designed for the students, researchers, faculties, and industry personnel to provide them with an introductory yet exhaustive knowledge. It is expected that the course will help in enabling the participants to contribute to the academics, researches and industry in the field of blockchain.

Broad Scope

The topics to be covered in the course will range from preliminaries, basic cryptographic primitives, distributed algorithms, blockchain basics, bitcoin and mining mechanisms, smart contract programming, and several real life case studies. The course features theory lectures as well as hands-on laboratory session on the development of various blockchain-based systems to solve real-world problems.

Target Audience

The course is suitable for Faculty Members, Research Scholars, Students and Industry Professionals.

How to apply

No registration fee will be charged from the participants.

To register, please visit:
https://docs.google.com/forms/d/e/1FAIpQLSc7YhUkgHc2VOkekEFYz32kIRhGwFQ2FDV_X2iwvGF8OALJyw/viewform

More Info: https://www.aicte-india.org/atal

Due to limited seats, applications will be considered on First Come First Serve basis.

Course Contents
❖ Introduction to Blockchain & Cryptocurrency
❖ Symmetric & Asymmetric Key Cryptography
❖ Cryptographic Hash/Digital Signature/ECC
❖ Introduction to Bitcoin, Bitcoin Transactions & Bitcoin Scripting Language
❖ Bitcoin Mining & Consensus
❖ Alternative Consensus
❖ Introduction to Smart Contract and Solidity Language
❖ Blockchain Characteristics, Categories, and Security/Privacy Issues
❖ Introduction to Hyperledger Fabric
❖ Hand-on Session on Ethereum Geth/ Truffle/Ganache/Remix
❖ Hands-on Session on Developing and Deployment of Smart Contracts
❖ Hands-on Session on Real Case Studies: Healthcare, Supply Chain, Asset Management, File Tracking System, etc.
❖ State-of-the-art Research Highlights

Accommodation

There is a limited availability of accommodation in IIT Patna hostels at an affordable rate, which will be offered on a first-come-first-served basis. Besides there are several hotels and guest-houses around IIT Patna where the participants may stay during the course.

Contact:
Dr. Raju Halder, Dept. of CSE, IIT Patna
Email: halder@iitp.ac.in

Dr. Jimson Mathew, Dept. of CSE, IIT Patna
Email: jimson@iitp.ac.in

About IIT Patna

IIT Patna is an institute of National importance by an Act of the Indian Parliament in 2008. It is ranked 108 among BRICS nations by the QS World University Rankings of 2018. It is ranked 22 among engineering colleges in India by the National Institutional Ranking Framework in 2019. IIT Patna's campus is located at Bihta, 35 km from Patna and 20 km from Ara, at a 501 acres site. The nearest railway station is Bihta, 2 km from the campus. IIT Patna has good road connectivity to and from Patna and Ara. Regular bus services have been provided by the Govt. of Bihar from Gandhi Maidan, Patna to IIT Patna campus. The nearest airport to reach IIT Patna campus is Jai Prakash Narayan Domestic Airport, Patna, which is located 5 km southwest Patna.

Course Schedule

Dates	10:00 AM to 11:30 AM	11:30 AM to 12.00 PM	12.00 PM to 1.30 PM	1.30 PM to 2:30 PM	2:30 PM to 4.00 PM	4:15 PM to 4:45 PM
14.12.2019 (Saturday)	Registration and Inauguration	High Tea	Session 1 **Introduction to Blockchain & Cryptocurrency**	Lunch	Session 2 **Symmetric & Asymmetric Key Cryptography**	Tea
15.12.2019 (Sunday)	Session 3 **Cryptographic Hash/ Digital Signature/ECC**	Tea	Session 4 **Introduction to Bitcoin, Bitcoin Transactions & Bitcoin Scripting Language**	Lunch	Session 5 **Hand-on Session on Ethereum Geth/ Truffle/Ganache/ Remix**	Tea
16.12.2019 (Monday)	Session 6 **Bitcoin Mining & Distributed Consensus**	Tea	Session 7 **Introduction to Smart Contract and Solidity Language**	Lunch	Session 8 **Hands-on Session on Developing and Deployment of Smart Contracts**	Tea
17.12.2019 (Tuesday)	Session 9 **Alternative Consensus, Introduction to Hyperledger Fabric**	Tea	Session 10 **Blockchain Characteristics, Categories, and Security/Privacy Issues**	Lunch	Session 11 **Hands-on Session on Real Case Studies**	Tea
18.12.2019 (Wednesday)	Session 12 **State-of-the-art Research Highlights**	Tea	Session 13 **Hands-on Session on Real Case Studies**	Lunch	Session 14 **Hands-on Session on Real Case Studies**	Valediction