



Government of Gujarat

Gujarat Technological University

(Accredited with A+ grade by NAAC)

Centre of Excellence in Blockchain Technology

(A Government of Gujarat Funded Project)

LECTURE SERIES IN THE DOMAIN OF BLOCKCHAIN TECHNOLOGY

A Report on Lecture 5

Foundations of Blockchain

(Date: 30th September, 2023)

The session was organized by GTU-Graduate School of Engineering and Technology under CoE in Blockchain Technology.

The resource person for this session was **Dr. Chirag N. Modi** who is Associate Professor & Dean (Research & Consultancy) at NIT-Goa.

Learning Objectives

- To provide understanding of blockchain and its workflow.
- To provide the insights of blockchain architecture.
- To get the practical exposure of smart contracts and its applications.

Participants

Around 40 participants including PG students, research scholars, faculty members from different institutes across the state had participated and took advantage of this session.

Content covered

1.	Blockchain understanding
2.	Distributed database vs blockchain
3.	Workflow of blockchain
4.	Blockchain structure
5.	Blockchain reference architecture
6.	Blockchain Key features
7.	Distributed consensus
8.	Blockchain Taxonomy
9.	Smart contracts
10.	Scope, application areas and use cases

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Participants

Type a name

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meeting guests

- PP Priya Patel (Guest) Meeting guest
- P Priyanshi (Guest) Meeting guest
- PP Prof S D Panchal (Guest) Meeting guest
- ST SHIVAM MAHES... (Guest) Meeting guest
- S sunny (Guest) Meeting guest

See more

Others invited (1)

- M mayank.devani@sal.edu.in Accepted

Others from chat (1)

- A ap_komal (Guest)

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Distributed Databases Vs Blockchains

Blockchain / distributed ledger

Source: <http://heim.ifi.uio.no>

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Blockchain Reference Architecture

Blockchain Enterprise Reference Architecture

Smart Contract Application

Finance Retail Manufacturing Supply Chain Logistics Healthcare

REST API Implementation SDK Client Tools SaaS

Smart Contract

Software Code Transactions Rules

Virtual Machine API Digital Tokens Containerization

Integration

Messaging Adapters Cloud Services AI Plugin IOT

Inter-Contract Messaging System integration

Distributed Ledger

Ledger A Ledger A Ledger A Ledger A

Node 1 Node 2 Node 3 Node 4

TXN TXN TXN TXN TXN TXN TXN

Block 1 Block 2 Block 3 Block 4 Block 5 Block 6 Block 7

Ledger Conduits

Security

CA Policy ACL Identity Mgmt Crypto Keys Encryption Signature

Source: <https://medium.com/@naveenbalani/blockchain-reference-architecture-a3df6843532c>

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Smart Contracts-Example

- A crowdfunding platform
 - × Product teams share their projects and collect money from supporters until a goal is reached
 - × If such a platform is centralized – like Kickstarter, third party between product teams and supporters who donate money
 - × Both sides need to trust Kickstarter and, in fact, pay an additional fee to Kickstarter to serve as an intermediary

SUPPORTERS → [Dollar Sign in Circle] → PRODUCT TEAM

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DM P
Dr. Chirag Modi... Priyanshi (...)
DM ST
Dr. P. S. Ma... SHIVAM M...
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DE ...
David Ehigi... View all
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Coordinated and Planned by Executive Committee Members

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Director, GTU-GSET and Coordinator CoE-BT

Prof. P. S. Pann
Asso. Prof., GTU-GSET

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