

Workshop on Blockchain (15th Dec, 2022)

Blockchain is a decentralized and immutable digital ledger technology that enables secure and transparent recording of transactions across multiple parties. It operates on a network of computers, ensuring that no single entity has complete control over the data. Each transaction, or "block," is linked to previous blocks in a chronological and encrypted manner, forming a "chain." Blockchain offers numerous benefits, including enhanced security, transparency, and immutability, making it ideal for applications like cryptocurrency, supply chain management, voting systems, and smart contracts. By eliminating the need for intermediaries and enabling trustless transactions, blockchain has the potential to revolutionize various industries and redefine how we store, share, and verify information. The Eureka Prize Problems society, under the mentorship of Dr. Souvik Ganguli and Dr. Amit Kumar organized the online workshop on Blockchain on 15th Dec, 2022 in association with Pantech e Learning. The program link is shared for reference:

<https://www.youtube.com/watch?v=j9b1SMW3rmU&t=231s>

THAPAR INSTITUTE OF ENGINEERING & TECHNOLOGY
eureka!
Pantech e Learning
DIGITAL LEARNING SIMPLIFIED

WORKSHOP ON BLOCK CHAIN

THURSDAY
15TH DECEMBER 2022

TIME
4:00 PM

CONVENOR
DR. SOUVIK GANGULI
DEPT OF EEJE,
THAPAR INSTITUTE OF ENGINEERING AND TECHNOLOGY AND EUREKA PRIZE PROBLEMS

LIVE STREAM

Free Workshop on Block Chain in association with Thapar Institute of Engineering and Tec. **Pantech e Learning**
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WHAT IS BLOCK CHAIN TECHNOLOGY ?

- BLOCK CHAIN IS A SHARED, IMMUTABLE LEDGER THAT FACILITATES THE PROCESS OF RECORDING TRANSACTIONS AND TRACKING ASSETS IN A BUSINESS NETWORK. AN ASSET CAN BE TANGIBLE (A HOUSE, CAR, CASH, LAND) OR INTANGIBLE (INTELLECTUAL PROPERTY, PATENTS, COPYRIGHTS, BRANDING), VIRTUALLY ANYTHING OF VALUE CAN BE TRACKED AND TRADED ON A BLOCK CHAIN NETWORK, REDUCING RISK AND CUTTING COSTS FOR ALL INVOLVED.

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WHY IT IS IMPORTANT ?

- BUSINESS RUNS ON INFORMATION. THE FASTER IT'S RECEIVED AND THE MORE ACCURATE IT IS, THE BETTER. BLOCKCHAIN IS IDEAL FOR DELIVERING THAT INFORMATION BECAUSE IT PROVIDES IMMEDIATE, SHARED AND COMPLETELY TRANSPARENT INFORMATION STORED ON AN IMMUTABLE LEDGER THAT CAN BE ACCESSED ONLY BY PERMISSIONED NETWORK MEMBERS. A BLOCKCHAIN NETWORK CAN TRACK ORDERS, PAYMENTS, ACCOUNTS, PRODUCTION AND MUCH MORE. AND BECAUSE MEMBERS SHARE A SINGLE VIEW OF THE TRUTH, YOU CAN SEE ALL DETAILS OF A TRANSACTION END TO END, GIVING YOU GREATER CONFIDENCE, AS WELL AS NEW EFFICIENCIES AND OPPORTUNITIES.

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HOW BLOCK CHAIN WORKS :-

- as each transaction occurs , it is recorded as a block of data.
- Each block is connected to the ones before and after it.
- Transactions are blocked together in an irreversible chain: a blockchain.

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BENEFITS OF BLOCK CHAIN :-

- Greater trust
- Greater security
- More efficient data is transferred.

```
import requests
from urllib.parse import urlparse

MINING_SENDER = "The Blockchain"
MINING_REWARD = 1
MINING_DIFFICULTY = 2

class Blockchain:

    def __init__(self):
        self.transactions = []
        self.chain = []
        self.nodes = set()
        self.node_id = str(uuid4()).replace('-', '')
        # Create the genesis block
        self.create_block(0, '00')

    def register_node(self, node_url):
        parsed_url = urlparse(node_url)
        if parsed_url.netloc:
            self.nodes.add(parsed_url.netloc)
        elif parsed_url.path:
```