Blockchain Programming

Introduction

Blockchain certification is designed with both elementary and specialized Blockchain concepts. It is a constantly growing technology that keeps a permanent record of all the transactions that have taken place in a secure, chronological and immutable way. It can be used to transfer contracts, money, and other assets securely without the need for a middleman like a bank or the government. Although the Blockchain is a software protocol, the internet is necessary for it to function. It consists of a series of blocks that each hold data. Each block serves as a permanent database for the Blockchain and records all of the most recent transactions. A new block is generated each time a block is finished. Blockchain technology has become popular because:

- **Time reduction:** In the financial industry, blockchain can allow the quicker settlement of trades. Verification, settlement, and clearance don't require a drawn-out procedure. It is because of a single version of agreed-upon data available between all stakeholders.
- **Unchangeable transactions:** Blockchain registers transactions in a chronological order which certifies the inalterability of all operations, which means when a new block is added to the chain of ledgers, it cannot be removed or modified.
- **Reliability:** The identities of all parties are certified and verified through the blockchain. This eliminates duplicate records, lowers rates, and speeds up transactions.
- **Security:** Blockchain ensures that the information is locked inside the blockchain by using very sophisticated cryptography. It makes use of distributed ledger technology, in which each party has a copy of the original chain, ensuring that the system will continue to function even if many other nodes are lost.
- **Collaboration:** It enables all parties to conduct business directly with one another without the need for a middleman.
- **Decentralized:** It is decentralized because there is no central authority supervising anything. There are standard rules on how every node exchange blockchain

information. This procedure makes sure that each transaction is examined for validity before adding each one one at a time.

REQUIREMENTS:

- Intermediate/O/A-level
- Basic Programming Skills
- Basic Computer Skills

CURRICULUM:

Week	Lecture	Topics
1	1	Introduction to the Blockchain, History, and Blockchain Versions
2	2	Bitcoin Concepts, the Role of Bitcoin Minors
3	3	Blockchain Hash Functions, Blockchain Block Hashing
4	4	Working on Blockchain Hash
5	5	Blockchain Distributed Ledger
6	6	The Basic Component of Bitcoin
7	7	Coinbase Transaction

Week	Lecture	Topics
8	8	Key Concepts in Blockchain
9	9	Blockchain Key Areas
10	10	Blockchain Cryptocurrency
11	11	Mid Term Paper
12	12	Blockchain DAO
13	13	Blockchain limitation
14	14	Blockchain Double Spending
15	15	Blockchain Merkle Tree
16	16	Bitcoin Forks and SedWit
17	17	Blockchain vs. Database
18	18	Blockchain Mitigating Attacks
19	19	Getting Started with Bitcoin Setting Bitcoin Price
20	20	Choosing Bitcoin Wallet
21	21	Sending and Receiving Bitcoin
22	22	Blockchain Data Management

Week	Lecture	Topics
23	23	Final Term Project
24	24	Final Term Presentation

Outcomes:

- Develop complete professional applications using Blockchain
- Work with secure transactions using Blockchain

BENEFITS:

- To develop applications in blockchain
- To become an expert in blockchain development

Affiliation & Collaboarations

PBTE PSDA