

# **Blockchain & Web3**

## **A. Blockchain Basics**

### **1. Core Concepts**

- Blocks
- Hashing

### **2. Distributed Ledger**

- Nodes
- Consensus

**Output:** Blockchain simulation

## **B. Ethereum & Solidity**

### **1. Solidity Syntax**

- Variables
- Functions

### **2. Smart Contracts**

- Deployment
- Gas fees

**Output:** First smart contract

## **C. DApp Development**

### **1. Web3.js**

- Contract interactions

### **2. MetaMask Integration**

- Wallet connection

**Output:** DApp UI + contract connection

## **D. NFTs & Token Standards**

### **1. ERC-20 Tokens**

### **2. ERC-721 NFTs**

- Minting
- Metadata

**Output:** Token/NFT creation

## **E. Blockchain Projects**

### **1. Use Case Development**

- Supply chain
- Identity verification

**Output:** Full blockchain project