

# **Blockchain Honor Minor Degree : Sem VIII**

## **HBCC801 : Decentralized Finance (DeFi)**

### **Module - 1: Introduction to Centralized & Decentralized Finance (2 Hours)**

**Instructors : Lifna C S**

*Department of Computer Engineering, VESIT, Mumbai*

# Topics to be covered

- Introduction to Centralized and Decentralized Finance
- Difference between Centralized and Decentralized Finance
  - Architecture
  - Payment and Clearance systems
  - Transaction Flow
  - Accessibility
  - Centralization and Transparency
  - Cost & Time Comparison
- Impact & Challenges of DeFi
- Comparison on DeFi with Traditional Finance in India

# Introduction to Centralized and Decentralized Finance

- **Traditional finance / Centralized Finance**

- relies on centralized institutions (banks)
- Centralized control
- Facilitate payments, deposits, loans
- **stability and regulation**
- Eg: ICBC, JP Morgan, Bank of America
- SWIFT: Global bank messaging network

Central banks and commercial banks

Custodial and permissioned systems

# Introduction to Centralized and Decentralized Finance

- **DeFi (Decentralized Finance)**

- uses Blockchain and smart contracts
- Removes intermediaries and increases transparency
- **openness and innovation**
- Eg : Ethereum: Blockchain platform for DeFi

Uniswap: Decentralized Exchange (DEX)

MakerDAO: Decentralized lending & stablecoin

## Traditional Financial Institution (Banks) / CeFi

- Central authority
- Custodial funds
- Limited transparency

## Decentralized Finance (DeFi)

- Decentralized network
- Non-custodial
- Fully transparent



## Traditional Financial Institution (Banks) / CeFi

- Uses SWIFT messaging network
- Multiple intermediaries
- High fees and slow settlement (2–5 days)

## Decentralized Finance (DeFi)

- Peer-to-peer transfers
- Smart contract execution
- Settlement in seconds to minutes

### **Note : *SWIFT (Society for Worldwide Interbank Financial Telecommunication)***

- Global messaging network
- enables banks to securely exchange financial transaction instructions.

# CeFi Vs DeFi w.r.t Transaction Flow

## Traditional Financial Institution (Banks) / CeFi

1. User requests transfer
2. Bank approval
3. Intermediary banks
4. Settlement delay

## Decentralized Finance (DeFi)

1. User signs transaction
2. Broadcast to blockchain
3. Smart contract execution
4. Instant settlement

## Traditional Financial Institution (Banks) / CeFi

### Accessibility:

- Requires KYC, documents
- Excludes unbanked

### Centralization & Transparency:

- Central points of failure
- Opaque operations

## Decentralized Finance (DeFi)

### Accessibility:

- Internet + wallet
- Open to everyone

### Centralization & Transparency:

- Open-source smart contracts
- Public blockchain auditability



# CeFi Vs DeFi w.r.t Cost & Time Comparison

## Traditional Financial Institution (Banks) / CeFi

- Sending \$1,000 from USA to Australia
  - Exchange rate markup: ~\$30
  - Outbound wire fee: ~\$25
  - Inbound wire fee: ~\$15
  - **Total fees: ~\$70**
- Settlement time: 2–5 business days

## Decentralized Finance (DeFi)

- Sending \$1,000 worth of crypto globally
  - Network (gas) fee: ~\$0.50 – \$5
  - No intermediary fees
  - **Total fees: <\$5**
- Settlement time: 15 seconds – 5 minutes

## Impact of DeFi

- Financial inclusion
- Faster and cheaper transactions
- Innovation in lending, trading, insurance

## Challenges of DeFi

- Smart contract risks
- Regulatory uncertainty
- Scalability and usability

Note : [Hybrid financial systems may dominate the future](#)

# Comparison on DeFi with Traditional Finance in India

Parameter	RTGS / NEFT	UPI	Crypto / DeFi
System Type	Traditional banking	Digital banking	Blockchain-based
Control	RBI & Banks	NPCI & Banks	Decentralized network
Settlement Mode	RTGS: Real-time NEFT: Batch-based	Real-time	Near real-time
Availability	Bank working hours (RTGS) 24×7 (NEFT)	24×7	24×7 / 365
Transaction Speed	Minutes to hours	Seconds	Seconds to minutes
Fees	NEFT: ₹2.5–₹25 RTGS: ₹25–₹55	Mostly free	Low network (gas) fee

# Comparison on DeFi with Traditional Finance in India

Parameter	RTGS / NEFT	UPI	Crypto / DeFi
Intermediaries	Banks, RBI	Banks, NPCI	No intermediaries
Geographic Reach	India only	India only	Global
Transparency	Limited	Limited	High (public blockchain)
Security Model	Trust-based	Trust-based	Cryptography & smart contracts
Example	Bank transfer	Google Pay, PhonePe	Ethereum, Polygon, Uniswap