

Blockchain Honor Minor Degree : Sem VIII

HBCC801 : Decentralized Finance (DeFi)

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

Instructors : Lifna C S

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

- **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

- **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



Courtesy :

- [DeFi - The Future of Finance. Campbell et.al](#)
- [İlker ZORLU](#)

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.

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

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) 24x7 (NEFT)	24x7	24x7 / 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

Courtesy :

[DeFi - The Future of Finance. Campbell et. al](#)

Department of Computer Engineering, VESIT, Mumbai

HBCC 801 : DeFi