



GUJARAT TECHNOLOGICAL UNIVERSITY

Centre of Excellence – Blockchain Technology

Internship Title:	02 Weeks UG Internship on “Blockchain Technology and Applications”
Duration [contact hours]:	02 weeks [05 Days/week, Max. 30 hours]
Mode:	Face to Face [10:30 am – 01:30 pm]
Fee:	Rs. 2360 /- [Course Fee Rs. 2000 + Rs. 360 (18% GST)]
Max batch size:	20 students.
Prerequisite:	Basic knowledge of Java script.

Course Content:

Module	Content	No of Hours	Faculty/Instructor
1.	Introduction: History behind Blockchain, Understanding blockchain technology, blockchain fundamentals, benefits of blockchain, Issues and challenges, potential and its future.	3	Day 1: Prof. S D Panchal Director & Professor, GTU-GSET. [Internal Expert]
	Blockchain Applications: Distributed ledgers, Digital currency, Understanding wallets, Laws and regulations, Crypto-currencies and investments, Blockchain for insurance sector, Healthcare, Education.	3	Day 2: Prof. P S Mann Associate Professor, GTU-GSET. [Internal Expert]
2.	Blockchain Components: Terminology, Cryptography, Digital signatures, Hashing.	3	Day 3: Prof. Mahesh Panchal Assistant Professor, GTU-GSET. [Internal Expert]
	Blockchain as a Solution: Centralized vs distributed vs decentralised systems, Database system, Blockchain, Database vs blockchain, Role of Intermediaries, Blockchain cryptography, Block terminologies.	3	Day 4: Prof. Komal Prajapati Assistant Professor, GTU-GSET. [Internal Expert]
3.	Bitcoin: Bitcoin: A Peer-to-Peer Electronic Cash system, Bitcoin vs Blockchain, bitcoin vs fiat currency, how can one get hold to bitcoin, components of Bitcoin network, achieving immutability (merkle tree), two generals problem,	3	Day 5: Mr. Yash Shah [External Expert]
	Working of Bitcoin Network (transactions and memory pools, utxo, pow, cryptographic puzzle, bitcoin mining, difficulty level, forks, bitcoin limitations), consensus.	3	Day 6: Mr. Yash Shah [External Expert]



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4.	Ethereum: Ethereum vs bitcoin, ethereum 1.0 vs 2.0, journey of ethereum and its philosophy, how can one get hold to ethereum, components of ethereum (evm, gas, ether, accounts, consensus, account balance model), consensus(pos,poa,poea).	3	Day 7: Mr. Yash Shah [External Expert]
	Introduction to smart contracts, using Remix IDE and etherscan, introduction to solidity programming, wallets(all types), ganache, smart contract deployment, Dapps.	3	Day 8: Mr. Yash Shah [External Expert]
5.	Hyperledger: Hyperledger umbrella, hyperledger tools/libraries, need for a permissioned ledger, privacy needed in businesses, the concept of no cryptocurrency, transaction lifecycle in hyperledger, hyperledger fabric/sawtooth demo- consensus.	3	Day 9: Mr. Yash Shah [External Expert]
	Blockchain based Application Development and Projects	3	Day 10: Mr. Yash Shah [External Expert]

Learning Outcome:

After completion of the Internship, students will be able to:

No	Course Outcomes	RBT Level*
01	Understand the fundamental concepts of blockchain technology.	UN
02	Understand the blockchain technology for various applications.	UN
03	Apply the blockchain technology for e-governance applications.	AP
04	Analyse the various available private blockchain platforms.	AN
05	Evaluate various blockchain platforms for real world applications.	EL

*RM: Remember, UN: Understand, AP: Apply, AN: Analyze, EL: Evaluate, CR: Create.
