K. J. Somaiya College of Engineering, Mumbai -77
(Autonomous College Affiliated to University of Mumbai)
Department of Information Technology

Course Code	Course Title							
2UST643	**Blockchain**							
	TH		**P**		**TUT**		**Total**	
Teaching Scheme(Hrs.)	**03**		**-**		**-**		**03**	
Credits Assigned	**02**		**-**		**-**		**02**	
Examination Scheme	**Marks**							
	CA		**ESE**	**TW**	**O**	**P**	**P&O**	**Total**
	ISE	**IA**						
	30	**20**	**--**	**-**	**-**	**-**	**-**	**50**

Course Prerequisites: Basic understanding of data structures and digital security

Course Objectives
The main objective of the course is to impart basic understanding of Blockchain Technology

Course Outcomes
At the end of successful completion of the course the student will be able to
CO1: Have adequate knowledge about Blockchain Technology fundamentals and
    underlying concepts
CO2: Understand Bitcoin, Altcoins and Smart Contracts.
CO3: Understand the concepts of Ethereum Blockchain
CO4: Discuss use cases and challenges in Blockchain Technology

Module No.	Unit No.	Details	Hrs.	CO
1		**Introduction to Blockchain Technology**	10	CO1
	1.1	Blockchain technology fundamentals		
	1.2	History, definitions, features, types, and benefits of block chains		
	1.3	CAP theorem, Consensus mechanisms		
	1.4	Decentralization		
	1.5	Methods and platforms to decentralize process or system		
2		**Technical Foundations**	10	CO1
	2.1	Cryptography and Technical Foundations		
	2.2	Public and private key cryptography		
	2.3	Cryptographic hash functions		
3		**Bitcoins**	10	CO2
	3.1	Bitcoin: Introduction as crypto currency, cryptography in use, Bitcoin ecosystem/architecture		
	3.2	Bitcoin : Mining, Consensus, Transactions, mining pools, possible attacks		
	3.3	Blockchain Forks, Altcoins		
4		**Study of Ethereum**	08	CO3
	4.1	Introduction to Blockchain platforms		
	4.2	Introduction to Ethereum ecosystem/architecture		
	4.3	Introduction to smart contract : Concept and examples		
5		**Case studies and security and challenges in Blockchain**	07	CO4
	5.1	Blockchain technology use cases : Internet of Things, Government, Media, healthcare, education and Finance. Blockchain as a service		
	5.2	HIPPA compliance, Principles of Self-Sovereign Identity(SSI), Challenges in Blockchain technology.		
		Total	45	

Recommended Books:

Sr. No.	Name/s of Author/s	*Title of Book*	Name of Publisher with country	Edition and Year of Publication
1.	Imran Bashir	*Mastering Blockchain*	Packt Publishing	Limited Edition 2017
2.	Chris Dennen	*Introducing Ethereum and Solidity: Foundations of Cryptocurrency and Blockchain Programming for Beginners*	Apress publication	2017
3.	Andreas M. Antonopoulos	*Mastering Bitcoin: Programming the Open Blockchain*	O'REILLY publication	2nd Edition 2017
4.	Narayan Prusty	*Building Blockchain projects*	Packt Publishing	2017

● Instructor needs to provide additional resources to students for in-depth understanding and practical applicability of the indicated topic/topics.