ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A+ 'Grade by NAAC(CGPA:3.68/4.00)
College with Potential for Excellence by UGC
DST-FIST Supported & STAR College Scheme by DBT

Faculty of Science

Bachelor of Computer Application (B.C.A.)

SUBJECT: BCA

B.CA. IV Semester
Paper-Elective I
BLOCK CHAIN TECHNOLOGY
Course Outcomes

CO. No.	Course Outcomes	Cognitive Level
CO 1	To understand the concepts of blockchain technology.	U, A
CO 2	To understand the consensus and hyper-ledger fabric in blockchain technology.State the basic concepts of blockchain.	K
CO 3	Paraphrase the list of consensus and Demonstrate and interpret the working of Hyperledger Fabric	U
CO 4	Implement SDK composer tool and explain the Digital identity for the government.	U, Analyze
CO 5	To understand the concepts of blockchain technology	U

Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
Theory	4	40	60	100
Practical	2	40	60	100
Total	6	200		

Evaluation Scheme

	Marks	
	Internal	External
Theory	3 Internal Exams of 20 Marks (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of Semester)
Practical	3 Internal Exams (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of Semester)

B.CA. IV Semester   Paper-Elective I

BLOCK CHAIN TECHNOLOGY
Theory
No. of Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures: 60 Hrs.   **Maximum Marks: 60**

Units	Topics	No. of Lectures
I	History: Digital Money to Distributed Ledgers -Design Primitives: Protocols, Security, Consensus, Permissions, Privacy-: Blockchain Architecture and Design-Basic crypto primitives: Hash, Signature Hash chain to Blockchain-Basic consensus mechanisms.	15
II	Requirements for the consensus protocols-Proof of Work (PoW)- Scalability aspects of Blockchain consensus protocols: Permissioned Block chains-Design goals-Consensus protocols for Permissioned Blockchains.	15
III	Decomposing the consensus process-Hyper ledger fabric components- Chain code Design and Implementation: Hyper ledger Fabric II:- Beyond Chain code: fabric SDK and Front End-Hyper ledger Composer tool.	15
IV	Blockchain in Financial Software and Systems (FSS): -Settlements, - KYC, -Capital markets-Insurance Blockchain in trade/supply chain: Provenance of goods, visibility, trade/supply chain finance, invoice management/discounting. Blockchain Cryptography: Privacy and Security on Blockchain.	15

Textbooks:
1. Mark Gates, —Block chain: Ultimate guide to understanding block chain, bit coin, crypto currencies, smartcontracts and the future of moneyǁ, Wise Fox Publishing and Mark Gates 2017.
2. Salman Baset, Luc Desrosiers, Nitin Gaur, Petr Novotny, Anthony O'Dowd, Venkatraman Ramakrishna,
3. Hands-On Block chain with Hyper ledger: Building decentralized applications with Hyperledger Fabricand Composerǁ, 2018.
4. Bahga, Vijay Madisetti, —Block chain Applications: A Hands-On Approachǁ, Arshdeep Bahga, Vijay Madisetti publishers 2017.

Reference books:
1. Andreas Antonopoulos, –Mastering Bitcoin: Unlocking Digital Crypto currenciesǁ, O'Reilly Media, Inc. 2014.
2. Melanie Swa, –Block chain ǀ,O'Reilly Media 2014.