



ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ

ವಿಜಯ ಅಧಿನಿಯಮ ೧೯೯೪ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯವಿಶ್ವವಿದ್ಯಾಲಯ



VISVESVARAYA TECHNOLOGICAL UNIVERSITY

State University of Government of Karnataka Established as per the VTU Act, 1994 "JnanaSangama" Belagavi-590018, Karnataka, India

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CIRCULAR

Subject: Text Book list updated in the course 22SCS335 Block Chain Technology of M.Tech., Computer Science and Engineering(SCS) program regarding...

Reference: Chairperson BoS in CSE PG VTU Belagavi email dated 19.12.2023

Regarding the topic mentioned above, the textbooks list have been changed for the Computer Science and Engineering (SCS) program 2022 scheme's 22SCS335-BlockChain Technology M.Tech syllabus. Please find attached a copy of the syllabus for the reference of all teachers and students concerned.

We hereby notify the university department/s chairpersons /Program Coordinators and principals of all engineering colleges to make sure everyone concerned is aware of the contents of this circular.

Thanking you,

Sd/-

REGISTRAR

To,

1. The principals of all the affiliated, constituent engineering colleges of the University
2. The Chairpersons /Program Coordinator of the University department from Kalaburgi, Belagavi, Muddenahalli, Mysuru

Copy to,

1. The Hon'ble Vice-Chancellor through the secretary to VC for information
2. The Registrar (Evaluation), VTU Belagavi for information and needful
3. The Director ITI SMU VTU Belagavi for information and request to arrange for uploading of this circular on VTU webportal
4. Office Copy

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Semester- III

Blockchain Technology			
Course Code	22SCS335	CIE Marks	50
Teaching Hours/Week (L:P:SDA)	3:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03
Course Learning objectives:			
<ul style="list-style-type: none"> • Explain the strong technical knowledge of Blockchain technologies. • Analyzing the blockchain decentralization and cryptography concepts. • Explore the driving force behind the cryptocurrency Bitcoin, along with the Decentralization. 			
Module-1			
Blockchain 101: Distributed systems, History of blockchain, Introduction to blockchain, Types of blockchain, CAP theorem and blockchain, Benefits and limitations of blockchain.			
Teaching-Learning Process	Chalk and talk/PPT/case study/web content		
Module-2			
Decentralization and Cryptography: Decentralization using blockchain, Methods of decentralization, Routes to decentralization, Decentralized organizations. Cryptography and Technical Foundations: Cryptographic primitives, Asymmetric cryptography, Public and private keys			
Teaching-Learning Process	Chalk and talk/PPT/case study/web content		
Module-3			
Bitcoin and Alternative Coins A: Bitcoin, Transactions, Blockchain, Bitcoin payments B: Alternative Coins, Theoretical foundations, Bitcoin limitations, Namecoin, Litecoin, Primecoin, Zcash			
Teaching-Learning Process	Chalk and talk/PPT/case study/web content		
Module-4			
Smart Contracts and Ethereum 101: Smart Contracts: Definition, Ricardian contracts. Ethereum 101: Introduction, Ethereum blockchain, Elements of the Ethereum blockchain, Precompiled contracts			
Teaching-Learning Process	Chalk and talk/PPT/case study/web content		
Module-5			
Alternative Blockchains: Blockchains Outside of Currencies: Internet of Things, Government, Health, Finance, Media			
Teaching-Learning Process	Chalk and talk/PPT/case study/web content		

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

1. Three Unit Tests each of 20 Marks
2. Two assignments each of 20 Marks or one Skill Development Activity of 40 marks to attain the COs and POs

The sum of three tests, two assignments/skill Development Activities, will be scaled down to 50 marks

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

1. The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
2. The question paper will have ten full questions carrying equal marks.
3. Each full question is for 20 marks. There will be two full questions (with a maximum of four sub-questions) from each module.
4. Each full question will have a sub-question covering all the topics under a module.
5. The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Text Books:**

1. *Mastering Blockchain -Distributed ledgers, decentralization and smart contracts explained.* Author- Imran Bashir, Packt Publishing Ltd, Second Edition, ISBN 978-1- 78712-544-5, 2017

Reference Books:

1. *Blockchain Basics: A Non-Technical Introduction in 25 Steps*, Daniel Drescher, Apress, First Edition, 2017
2. *Mastering Bitcoin: Unlocking Digital Cryptocurrencies.* Andreas M. Antonopoulos. O'Reilly Media. First Edition, 2014

Web links and Video Lectures (e-Resources):

- <https://nptel.ac.in/courses/106105184>
- https://ocw.mit.edu/courses/15-s12-blockchain-and-money-fall-2018/video_galleries/video-lectures/

Skill Development Activities Suggested

- The students with the help of the course teacher can take up relevant technical –activities which will enhance their skill. The prepared report shall be evaluated for CIE marks.

Sl. No.	Description	B looms Level
CO1	Explore the emerging abstract models for Blockchain Technology and to familiarise with the functional/operational concepts.	L 1
CO2	Analyze the various consensus mechanisms, applications, research challenges and future directions.	L3
CO3	Practical implementation of Blockchain operations and solutions using Ethereum	L3

Sl. No.	Description	POs
1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and computer science and business systems to the solution of complex engineering and societal problems.	PO1
2	Problem analysis: Identify, formulate, review research literature, and analyze complex engineering and business problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.	PO2
3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	PO3
4	Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.	PO4
5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations	PO5
6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering and business practices.	PO6
7	Environment and sustainability: Understand the impact of the professional engineering solutions in business societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	PO7
8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering and business practices.	PO8
9	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	PO9
10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	PO10
11	Project management and finance: Demonstrate knowledge and understanding of the engineering, business and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	PO11
12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	PO12

Mapping of COS and POs

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1		x		x			x					
CO2	x			x								
CO3		x								x		