HAJEE KARUTHA ROWTHER HOWDIA COLLEGE

(An Autonomous Institution Affiliated to Madurai Kamaraj University, Madurai.) Re-Accredited with A++ Grade by NAAC (3rd Cycle) Uthamapalayam - 625 533.



DEPARTMENT OF INFORMATION

TECHNOLOGY

MASTER OF SCIENCE – COMPUTER SCIENCE

PART IV-SYLLABUS

Choice Based Credit System – CBCS

(As per TANSCHE)

With

Outcome Based Education (OBE)

(Academic Year 2023 - 2025)

Semester - II

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Part – IV	23PCSSE2P	Data Mining Lab using R	4	40	60	100	2

Semester - III

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Dowt W	23PCSSE3P	Cloud Computing Lab	4	40	60	100	2
Part – IV	23PCSIS31	Internship Industrial Activity	-	-	-	-	2

Semester - IV

Course Category	Course Code	Course Title	Hrs	CIAE	TEE	Max Marks	Credits
Part – IV	23PCSSE41	Blockchain Technology	4	25	75	100	2

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Course Code	Course Title	Category	Credit	Hours	CIAE	TEE	Total
23PCSSE2P	DATAMINING LAB USING R	SEC	2	4	40	60	100

	Learning Objectives						
L1	To enable the students to learn the concepts of Data Min	ing algorith	nms namely				
	classification, clustering, regression						
	To understand & write programs using the DM algorithm	ns					
L3	To apply statistic linter pretations for the solutions						
L4	Able to use visualization stechniques for interpretations						
UNIT	LISTOF PROGRAMS No. of Hours						
	 Implement Apriori algorithm to extract association of datamining. 	tion rule					
	2. Implement – means clustering technique.						
Т	3. Implement any one Hierarchal Clustering.						
I	4. Implement Classification algorithm.		00				
	5. Implement Decision Tree.						
	 Linear Regression. Data Visualization 						
	Total		60				
	Course Outcomes	Knowl	edge Level				
CO	On completion of this course, students will		0				
1	Able to write programs using R for Association rules, Clustering techniques	K1,K2	K3,K4,K5				
2	To implement data mining techniques like classification, prediction	K1,K2	K3,K4,K5				
3	Able to use different visualizations techniques using R	K1,K2,K	3,K4,K5,K6				
4	To apply different datamining algorithms to solve real world applications	K1,K2,K	3,K4,K5,K6				
5	Able to apply statistic linter pretations for the solutions	K1,K2,K	3,K4,K5,K6				
	Textbooks						
1.	MargaretH.Dunham, "DataMining:IntroductoryandAdvar education, 2003.	ncedTopics	',Pearson				
2.	C.S.R. Prabhu, "Data Warehousing Concepts, Techniques Applications", PHI, Second Edition	, Products a	ind				
	Reference Books						
1.	Arun K. Pujari, "Data Mining Techniques" , Universities F Ltd.,2003.	Press(India) Pvt.				
2.	Alex Berson, Stephen J .Smith, "Data Warehousing, Data OLAP", TMCH, 2001.	Mining and					
	Weh Resources						

1.	https://www.javatpoint.com/data-warehouse
2.	https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs12/
3.	https://www.btechguru.com/trainingitdatabase-management-systems file-structuresintroduction-to-data-warehousing-and-olap-2-video-lecture 1205426151.html

Mapping with Programme Outcomes:

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	3	3	3	3
CO 2	3	3	3	2	3
CO 3	3	3	2	3	2
CO 4	3	3	3	3	3
CO 5	3	3	2	3	2
Strong-3 Medium-2	Low-1				

Level of Correlation between PSO's and CO's

CO /PSO	PS01	PSO2	PSO3	PSO4	PSO5
C01	3	3	3	3	3
C02	3	3	3	2	3
CO3	3	3	2	2	1
CO4	3	2	3	2	2
C05	3	3	2	3	1
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Strong-3 Medium-2 Low-1

			S	6		Mark	S
Course Code	Course Title	Category	Credit	Hours	CIAE	TEE	Total
23PCSSE3P	CLOUD COMPUTING LAB	SEC	4	2	40	60	100

Learning Objectives									
L1	L1 This course covers the basic data structures like Stack, Queue, Tree, List.								
12	L2 This course enables the students to learn the applications of the data structures								
L2	using various techniques								
13	It also enables the students to understand C++ language with respect to OOAD								
L3	concepts								
L4	Application of OOPS concepts								
UNIT	Contents								
	1. Working with Google Drive to make spreadsheet and note	S.							
	2. Launch a Linux Virtual Machine.								
	3. To host a static website								
	4. Exploring Google cloud for the following								
т	a) Storage b) Sharing of data c) manage your calendar,		60						
1	to-do lists, d) a document editing tool		00						
	5. Working and installation of Google App Engine								
	6. Working and installation of Microsoft Azure								
	7. To Connect Amazon RedshiftwithS3bucket								
	8. To Create and Query a NoSQLTable								
	Total	1	60						
	Course Outcomes	Knowle	edge Level						
CO	On completion of this course, students will								
1	Understand the concepts of object oriented with respect to C++	K1,K2	K3,K4,K5,						
2	Able to understand and implement oops concepts	K1,K2	,K3,K4,K5						
3	Implementation of data structures like Stack, Queue, Tree, List using C++	K1,K2,K	3,K4,K5,K6						
	Application of the data structures for Sorting, Searching								
4	using different techniques.	K1,K2,K	3,K4,K5,K6						
_	To analyze the working and installation of Google App								
5	Engine	K1,K2,K	.3,K4,K5,K6						
	Textbooks								
1.	Michael Miller, "Cloud Computing", Pearson Education, New	Delhi, 200	19.						
	Reference Books								
1	Anthony T. Velte, "Cloud Computing: A Practical Approach",	1st Editio	n, Tata						
1.	McGrawHill Education Private Limited, 2009.								
	Web Resources								
1.	https://nptel.ac.in/courses/106/105/106105167/								
2.	https://www.tutorialspoint.com/cloud_computing/index.ht	m							
3	https://www.javatpoint.com/cloud-computing-tutorial								

Mapping with Programme Outcomes:

CO /PO	PO 1	PO 2	PO 3	PO 4	PO 5
CO 1	3	2	3	3	3
CO 2	1	2	3	3	2
CO 3	2	3	2	2	3
CO 4	3	1	3	3	3
CO 5	1	3	3	3	3
Strong-3 Medium-2	Low-1				

Strong-3 Medium-2

Level of Correlation between PSO's and CO's

CO /PSO	PSO1	PSO2	PSO3	PSO4	PSO5
C01	3	2	3	1	3
CO2	1	2	1	3	3
CO3	1	3	3	3	2
CO4	2	3	3	2	3
C05	3	2	3	3	3

Strong-3 Medium-2 Low-1

	Course Title		S	Hours	Marks		
Course Code		Category	Credit		CIAE	TEE	Total
23PCSSE41	BLOCKCHAIN TECHNOLOGY	Elective	2	4	25	75	100

Learning Objectives						
L1	Understand the fundamentals of block chain and cryptocurrency.					
L2	Understand the influence and role of block chain in various other fields.					
L3	Learn security features and its significance.					
L4	Identify problems & challenges posed by Block Chain.					
UNIT	Contents					
Ι	Introduction to Block chain - The big picture of the industry – size, growth, structure, players. Bitcoin versus Cryptocurrencies versus Block chain - Distributed Ledger Technology (DLT). Strategic analysis of the space – Block chain platforms, regulators, application providers. The major application: currency, identity, chain of custody.					
II	NETWORK AND SECURITY Advantage over conventional distributed database, Block chain Network, Mining Mechanism, Distributed Consensus, Block chain 1.0, 2.0 and 3.0 – transition, advancements and features. Privacy, Security issues in Block chain.					
III	IIICRYPTOCURRENCY Cryptocurrency - History, Distributed Ledger, Bitcoin protocols - Symmetric-key cryptography - Public-key cryptography - Digital Signatures -High and Low trust societies - Types of Trust model: Peer-to-Peer, Leviathan, and Intermediary. Application of Cryptography to Block chain.					
IV	CRYPTOCURRENCY REGULATIONCrypto currency Regulation – Stake holders, Roots of Bitcoin, LegalIVviews – exchange of crypto currency – Black Market –GlobalEconomy. Crypto economics – assets, supply and demand, inflationand deflation – Regulation.					
 CHALLENGES IN BLOCK CHAIN Opportunities and challenges in Block Chain – Application of block chain: Industry 4.0 – machine to machine communication –Data management in industry 4.0–future prospects. Block chain in Health 4.0 – Block chain properties - Healthcare Costs - Healthcare Quality - Healthcare Value - Challenges for using block chain for healthcare data. 						
VI	2					
Total						
Course Outcomes Knowl						
СО	On completion of this course, students will					
1	Demonstrate block chain technology and crypto currency K1,K2		,K3,K4,K5			

2	Understand the mining mechanism in block chain	K1,K2,K3,K4,K5					
3	Apply and identify security measures, and various types of services that allow people to trade and transact with bitcoins	K1,K2,K3,K4,K5,K6					
4	Apply and analyze Block chain in health care industry	K1,K2,K3,K4,K5,K6					
5	Analyze security, privacy, and efficiency of a given Block chain system	K1,K2,K3,K4,K5,K6					
Textbooks							
1.	 Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller and Steven Goldfeder, "Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction", Princeton University Press (July 19, 2016). 						
2.	Antonopoulos, "MasteringBitcoin: UnlockingDigitalCryptocurrencies"						
Reference Books							
1.	Satoshi Nakamoto, "Bitcoin: A Peer-to-Peer Electronic Cash System"						
2.	RodrigodaRosaRighi,AntonioMarcosAlberti,MadhusudanSingh,"Blockchain Technology for Industry 4.0" Springer 2020.						
Web Resources							
1.	https://www.javatpoint.com/blockchain-tutorial						
2.	https://www.tutorialspoint.com/blockchain/index.htm						
3.	https://nptel.ac.in/noc/courses/noc20/SEM1/noc20-cs01/						

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CO 5	1	3	3	3	3
Strong 2 Madium 2	Lovy 1				

Strong-3 Medium-2 Low-1

Level of Correlation between PSO's and CO's

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C02	1	3	1	3	3
CO3	1	3	3	3	2
CO4	3	3	3	2	3
C05	3	2	3	3	3
Strong-3 Medium-2	Low-1				