Proposed Scheme for Honors in Smart Computing : Department of Computer Science and Engineering (IoT and Cyber Security with Blockchain Technology) (Academic Year 2023-2024)

Sr	Course Code	Course	Teaching Scheme(hrs)				Continuous Assessment			Semester End Assessment (B)					Aggregate (A+B)	Total Credits
			Th	P	T	Credits	Th	T/W	Total CA (A)	Th	O	P	O &P	Total SEA (B)		
		SEM V														
1	DJ19ICCHN1C1	Smart Technologies	4	--	--	4	25	--	25	75	--	--	--	75	100	4
		SEMVI														
2	DJ19ICCHN1C2	Pervasive Computing	4	--	--	4	25	--	25	75	--	--	--	75	100	4
3	DJ19ICCHN1L2	Pervasive Computing Laboratory	--	2	--	1	--	25	25	--	--	--	25	25	50	1
		SEM VII														
4	DJ19ICCHN1C3	IoT Data Analytics	4	--	--	4	25	--	25	75	--	--	--	75	100	4
5	DJ19ICCHN1L3	IoT Data Analytics Laboratory	--	2	--	1	--	25	25	--	--	--	25	25	50	1
		SEM VIII														
7	DJ19ICCHN1C4	Social CyberSecurity	4	--	--	4	25	--	25	75	--	--	--	75	100	4
		Total	16	4	0	18	100	50	150	300	0	0	50	350	500	18

Prepared by   Checked by   Head of the Department   Vice Principal   Principal

Honors in Smart Computing   T. Y. B.Tech.

Program: B.Tech. CSE in IoT and Cyber Security with Blockchain Technology   **Semester: V**

Course: Smart Technologies(DJ19ICCHN1C1)

Pre-requisite:

1. Introduction to IoT

2. Computer Networks

Objectives:

1. To understand the fundamental principles and concepts of smart technologies.

2. To identify different types of smart technologies and their applications.

3. Analyze the impact of smart technologies on society, economy, and environment.

4. Develop critical thinking and problem-solving skills related to smart technologies

Outcomes: On completion of the course, learner will be able to:

1. Demonstrate the knowledge of design of smart computing and its applications.

2. Describe different types of smart technologies

3. Explore IoT, artificial intelligence (AI) and machine learning (ML) techniques used in smart technologies.

4. Analyze and evaluate real-world case studies of smart technology implementations in various domains.

Detailed Syllabus: (unit wise)		
Unit	Description	Duration
1	**Introduction to Smart Technologies** Definition and characteristics of smart technologies, Evolution of smart technologies, Overview of smart technologies and their significance in smart computing, Key components of smart systems, The Five A's Of Smart Computing, Examples of smart computing, Challenges and opportunities in smart technologies, Emerging trends in smart technologies	06
2	**Smart Devices and Services :** Smart Devices and Service properties, Smart mobile devices and Users, Mobile code, Smart Card Devices and Networks, Service Architecture	07

	Models. Service Provision Lifecycle. Virtual Machines and Operating Systems, OS for Mobile Computers and Communicator Devices.	
3	**Ubiquitous Computing :** Concept of Ubiquitous Computing and Advantages, Ubiquitous Computing Applications and Scope, Properties of Ubiquitous Computing, Modelling the Key Ubiquitous Computing Properties. Ubiquitous System Environment Interaction. Architectural Design for UbiCom-Systems : Smart DEI Model.	07
4	**Integration of Smart Technologies:** Internet of Things (IoT) and its role in smart computing, Wearable and Personal Smart Devices, AI and ML techniques for smart technologies, Integration of smart devices and systems with existing infrastructure,	04
5	**Smart Technologies applications** **Smart Cities and Urban Infrastructure:** Smart energy management and sustainable infrastructure**,** Smart transportation and mobility solutions**,** Case studies of successful smart city implementations **Artificial Intelligence (AI) in Smart Technology:** AI applications in smart computing, Natural language processing and voice recognition in smart devices, AI-based decision-making and automation in smart technology **Smart Technologies in Energy:** Smart grids and energy management, Renewable energy integration, Sustainable cities and smart buildings	07
6	**Future Trends and Innovations:** Edge computing and fog computing for smart systems, Blockchain technology for secure and decentralized smart systems , Cloud computing for smart technologies, Analysis of real-world smart technology implementations	08
	Total	**39**

Books Recommended:

Text Books

1. Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia" by Anthony M. Townsend

2. "Smart Sensors for Industrial Applications" by Krzysztof Iniewski

3. Smart Phone and Next Generation Mobile Computing (Morgan Kaufmann Series in Networking), PeiZheng, Lionel Ni

4. Stefan Poslad, Ubiquitous Computing, Wiley, Student Edition, ISBN:9788126527335John Krumm, Ubiquitous Computing Fundamentals

5. ArshdeepBahga, Vijay Madisetti, "Internet of Things – A hands-on approach", Universities Press, ISBN: 0: 0996025510, 13: 978-0996025515.

Reference Books

1. Principles Of Mobile Computing, Hansmann, LotharMerk, Martin Niclous, Stober

2. Mobile Computing, Tomasz Imielinski, Springer

3. Laurence T. Yeng, EviSyukur and Seng W. Loke, Handbook on Mobile and UbiquitousComputing, CRC, 2nd Edition, ISBN: 9781439848111

4 Smart Internet of things projects AgusKurniawanPackt - Sep 2016 978-1- 78646- 651-8 2 The Internet of Things Key Olivier Willy Publication 2nd Edition 978-

5. "The Future of the Professions: How Technology Will Transform the Work of Human Experts" by Richard Susskind and Daniel Susskind

6. "Smart Cities: Governing, Modelling, and Analysing the Transition" by Mark Deakin and Husam Al Waer

7. "Smart Grids: Infrastructure, Technology, and Solutions" by Stuart Borlase

Evaluation Scheme:

Semester End Examination (A):

Theory:

1. Question paper based on the entire syllabus will comprise of 5 questions (All compulsory, but with internal choice as appropriate), each carrying 15 marks, total summing up to 75 marks.

2. Total duration allotted for writing the paper is 3 hrs.

Continuous Assessment (B):

Theory:

1. Two term tests of 25 marks each will be conducted during the semester out of which; one will be a compulsory term test (on minimum 02 Modules) and the other can either be a term test or an assignment on live problems or a course project.

2. Total duration allotted for writing each of the paper is 1 hr.

3. Average of the marks scored in both the two tests will be considered for final grading.

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