

FACULTY OF COMPUTER APPLICATIONS

Programme	B.Sc. IT (Infrastructure Management Services) (Hons.)					Branch/Spec.	Computer Applications		
Semester	IV					Version	1.0.0.0		
Effective from Academic Year				2025-26		Effective for the batch Admitted in		June 2024	
Subject Code	U44E6IOT		Subject Name			Introduction to IoT Scripting			
Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture (DT)		Practical (Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	2	-	-	-	2	Theory	25	25	50
Hours	2	-	-	-	2				

Objective:

To explore IoT fundamentals, architecture, and applications for designing IoT solutions.

Pre-requisites:

Basic understanding of computer networks and communication protocols.

Course Outcomes :

Name of CO	Description
CO1	Understand the fundamentals, architecture, and components of IoT.
CO2	Analyze real-world IoT applications across diverse domains.
CO3	Apply IoT tools and platforms to design simple IoT systems.
CO4	Evaluate challenges in IoT implementation and propose solutions.

Mapping of CO and PO

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	1	3	1	2	0	1	1	0	1
CO2	3	3	2	2	2	1	2	1	2	2	1	1
CO3	3	2	3	2	3	1	2	1	2	1	1	2
CO4	2	3	2	3	2	2	3	1	2	3	1	2

Theory Syllabus

Unit	Content	Hrs.
1	Fundamentals of IoT Introduction to IoT, Definition and Concept of IoT, Understanding the Internet of Things ecosystem, Applications of IoT, IoT Architecture and Protocols, Components of IoT Systems, Key Characteristics of IoT, Advantages and Challenges of IoT	8
2	IoT Networking and Communication Technologies Key Networking Concepts, Communication Models, IoT Communication Protocols, Networking Standards, IoT Data Transmission and Processing,	7

3	IoT Devices and Platforms IoT Hardware Sensors and Actuators, IoT Boards, IoT Development Tools, IoT Platforms- Google Cloud IoT, Microsoft Azure IoT Hub, AWS IoT Core, Open-source platforms- ThingsBoard, Kaa IoT, IoT Data Management Cloud Computing for IoT,	8
4	IoT Trends, Challenges, and Future Scope Emerging IoT Applications, IoT in Artificial Intelligence (AI), IoT in Edge Computing, Challenges in IoT Implementation, IoT Sustainability and Ethics, Future Scope of IoT	7
Text Books:		
1	"Internet of Things: A Hands-On Approach", Arshdeep Bahga, Vijay Madisetti, Universities Press.	
2	"IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things" David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Rob Barton, Jerome Henry, Cisco Press	
3	The Internet of Things: Enabling Technologies, Platforms, and Use Cases, Pethuru Raj, Anupama C Raman, CRC Press	
Reference Books:		
1	"Learning Internet of Things", Peter Waher, Packt Publishing.	
2	"Internet of Things: Principles and Paradigms", Rajkumar Buyya, Amir Vahid Dastjerdi, Morgan Kaufmann Publishers In	
Web References / MOOC / Certification Course:		
1	"Introduction to Internet of Things", IIT Kharagpur, https://nptel.ac.in/	
2	"An Introduction to Programming the Internet of Things (IoT)", University of California, Irvine, https://www.coursera.org/	
3	"IoT: Applications and Opportunities", MIT Professional Education, https://www.edx.org/	
4	"Learning Internet of Things", https://www.linkedin.com/learning/	
Question Paper Scheme:		
	University Examination Duration: 1 Hour Paper Structure: Q-1 Must be from Unit 1 & 2: Any One out of Two (05 Marks) (CO1, CO2) Q-2 Must be from Unit 1: Any One out of Two (05 Marks) CO1 Q-3 Must be from Unit 2: Any One out of Two (05 Marks) CO2 Q-4 Must be from Unit 3: Any One out of Two (05 Marks) CO3 Q-5 Must be from Unit 4: Any One out of Two (05 Marks) CO4	