



B.C.A. (Honours) & B.C.A. (Honours with Research)
(Semester - 3 and Semester - 4)
Saurashtra University
To be effective from June – 2024

CS – 26 FUNDAMENTALS OF IoT		
Objectives: <ul style="list-style-type: none">• Understand the fundamental concepts and principles of the Internet of Things.• Explore the architecture, components and technologies used in IoT systems.• Learn about different communication protocols and standards for IoT.• Gain insights into the design considerations and challenges in developing IoT solutions.• Acquire practical skills in designing and implementing IoT systems.		
Prerequisites: <ul style="list-style-type: none">• Basic knowledge of computer networks and protocols• Familiarity with programming languages such as C / C++		
Unit No.	Topic	Detail
1	Introduction to IoT	<ul style="list-style-type: none">• Introduction to the Internet of Things (IoT)• History and Evolution of IoT• Key Concepts and Definitions• Applications and Use Cases of IoT• Challenges and Opportunities in IoT
2	IoT Architecture and Technologies	<ul style="list-style-type: none">• Conceptual Framework• IoT Architecture Overview• Technology behind IoT• Sources of the IoT• M2M Communication• IoT Examples
3	Hardware for IoT	<ul style="list-style-type: none">• Sensors• Digital Sensors• Actuators• Radio Frequency Identification (RFID) Technology• Wireless sensor networks• Overview of IoT supported Hardware platforms:<ul style="list-style-type: none">○ Arduino○ Netduino

Seminar - 5 Lectures
Expert Talk - 5 Lectures
Test - 5 Lectures

Total Lectures 30 + 15 = 45



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Reference Books:

- “Internet of Things (A Hands-on Approach)” b Arshdeep Bahga and Vijay Madisetti
- “Building the Internet of Things: Implement New Business Models, Disrupt Competitors, Transform Your Industry” by Maciej Kranz
- “Designing Connected Products: UX for Consumer Internet of Things” by Claire Rowland, Elizabeth Goodman, Martin Charlier, Ann Light, and Alfred Lui

Course Outcomes:

- Explain the concept and significance of the Internet of Things in various domains.
- Describe the architecture and components of IoT systems, including sensors, actuators, and communication protocols.
- Analyze different IoT communication protocols and select appropriate protocols for specific IoT applications.
- Identify design considerations and challenges in developing scalable and secure IoT solutions.