

INTRODUCTION TO INTERNET OF THINGS

Course Code	22ETC15D/25D	CIE Marks	50
Course Type (Theory/Practical/Integrated)	THEORY	SEE Marks	50
		Total Marks	100
Teaching Hours/Week (L:T:P:S)	3:0:0:0	Exam Hours	03
Total Hours of Pedagogy	42 Hours Theory	Credits	03

Prerequisite: NIL

Course objectives:

- Understand about the fundamentals of Internet of Things and its building blocks along with their characteristics.
- Understand the recent application domains of IoT in everyday life.
- Gain insights about the current trends of Associated IOT technologies and IOT Analytics

MODULES	Hours
<p style="text-align: center;">Module-I</p> <p>Basics of Networking: Introduction, Network Types, Layered network models Emergence of IoT: Introduction, Evolution of IoT, Enabling IoT and the Complex Interdependence of Technologies, IoT Networking Components Textbook 1: Chapter 1- 1.1 to 1.3 Chapter 4 – 4.1 to 4.4</p>	09 Hours
<p style="text-align: center;">Module - II</p> <p>IoT Sensing and Actuation: Introduction, Sensors, Sensor Characteristics, Sensorial Deviations, Sensing Types, Sensing Considerations, Actuators, Actuator Types, Actuator Characteristics. Textbook 1: Chapter 5 – 5.1 to 5.9</p>	09 Hours
<p style="text-align: center;">Module-III</p> <p>IoT Processing Topologies and Types: Data Format, Importance of Processing in IoT, Processing Topologies, IoT Device Design and Selection Considerations, Processing Offloading. Textbook 1: Chapter 6 – 6.1 to 6.5</p>	08 Hours
<p style="text-align: center;">Module -IV</p> <p>ASSOCIATED IOT TECHNOLOGIES Cloud Computing: Introduction, Virtualization, Cloud Models, Service-Level Agreement in Cloud Computing, Cloud Implementation, Sensor-Cloud: Sensors-as-a-Service. IOT CASE STUDIES Agricultural IoT – Introduction and Case Studies Textbook 1: Chapter 10– 10.1 to 10.6; Chapter 12- 12.1-12.2</p>	08 Hours

MODULES	Hours
Module-V IOT CASE STUDIES AND FUTURE TRENDS Vehicular IoT – Introduction Healthcare IoT – Introduction, Case Studies IoT Analytics Introduction Textbook 1: Chapter 13– 13.1; Chapter 14- 14.1-14.2; Chapter 17- 17.1	08 Hours

Text book:

1. Sudip Misra, Anandarup Mukherjee, Arijit Roy, "Introduction to IoT", Cambridge University Press 2021.

Reference:

Reference books:

1. S. Misra, C. Roy, and A. Mukherjee, 2020. Introduction to Industrial Internet of Things and Industry 4.0. CRC Press.
2. Vijay Madiseti and Arshdeep Bahga, "Internet of Things (A Hands-on-Approach)", 1st Edition, VPT, 2014.
3. Francis daCosta, "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", 1st Edition, Apress Publications, 2013.

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

C01	Describe the evolution of IoT, IoT networking components, and addressing strategies in IoT.
C02	Classify various sensing devices and actuator types.
C03	Demonstrate the processing in IoT.
C04	Explain Associated IOT Technologies
C05	Illustrate architecture of IOT Applications