

Subject Name: Internet of Things

Subject Code: IT 704-4 / CE 704-4

Teaching Scheme (Credits and Hours)

Teaching scheme				Total Credit	Evaluation Scheme					Total
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract.	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	Marks
04	00	02	06	5	3	70	30	20	30	150

Learning Objectives:

Students will understand the concepts of Internet of Things and can able to build IoT applications.

Outline of the Course:

Sr. No	Title of the Unit	Minimum Hours
1	Introduction to IoT	6
2	IoT & M2M	6
3	Network & Communication aspects	16
4	Challenges in IoT	10
5	Domain specific applications of IoT	6
6	Developing IoTs	16

Total hours (Theory): 60

Total hours (Practical): 30

Total hours: 90

Detailed Syllabus:

Sr. No	Topic	Lecture Hours	Weight age(%)
1	Introduction to IoT Defining IoT, Characteristics of IoT, Physical design of IoT, Logical design of IoT, Functional blocks of IoT, Communication models & APIs	6	10
2	IoT & M2M Machine to Machine, Difference between Iot and M2M, Software define Network	6	10
3	Network & Communication aspects Wireless medium access issues, MAC protocol survey, Survey routing protocols, Sensor deployment & Node discovery, Data aggregation & dissemination	16	30
4	Challenges in IoT Design challenges, Development challenges, Security challenges, Other challenges	10	15
5	Domain specific applications of IoT Home automation, Industry applications, Surveillance applications, Other IoT applications	6	10
6	Developing IoTs Introduction to Bluemix, Developing applications through Bluemix Developing sensor based application through embedded system platform, Implementing IoT concepts with python	16	25
		60	100

Instructional Method and Pedagogy:

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lecture and laboratory which carries 10 marks in overall evaluation.
- One internal exam will be conducted as a part of internal theory evaluation.
- Assignments based on the course content will be given to the students for each unit and will be evaluated at regular interval evaluation.
- Surprise tests/Quizzes/Seminar/tutorial will be conducted having a share of five marks in the overall internal evaluation.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments shall be performed in the laboratory related to course contents.

STUDENTS LEARNING OUTCOMES:

On successful completion of the course, the student will:

- Understand the concepts of Internet of Things
- Analyze basic protocols in wireless sensor network
- Design IoT applications in different domain and be able to analyze their performance
- Implement basic IoT applications on embedded platform

Reference Books:

1. Vijay Madisetti, Arshdeep Bahga, “Internet of Things: A Hands-On Approach”
2. Waltenegus Dargie, Christian Poellabauer, "Fundamentals of Wireless Sensor Networks: Theory and Practice"

List of Practical:

Sr. No.	Name of Experiment
1	