Dr. Ambedkar Institute of Technology,
Bengaluru-560056

Department of Computer Science & Engineering Scheme and Syllabus - NEP – 2024 -2025

Course Title	**INTERNET OF THINGS (IOT)**						
Course Code	**21CST702**						
Category	**Professional Core Course (PCC)**						
Scheme and Credits	No. of Hours/Week					Total teaching hours	Credits
	L	T	P	SS	Total		
	02	00	**00**	00	**02**	**26**	**02**
CIE Marks: 50	**SEE Marks: 50**		**Total Max. marks=100**		**Duration of SEE: 02 Hours**		

COURSE OBJECTIVES

1. Understand the building blocks of IOT , its characteristics and Application area.
2. Realize the difference between M2M and IOT
3. Explore the architecture, components and working of IOT with the help of Microcontroller.
4. Elaborate the need for Data Analytics mechanism & tools in IoT.

UNIT-1

CHAPTER 1: Introduction & Concepts **05 Hours**

Introduction to Internet of Things, Definitions and Characteristics of IoT, Physical Design of IoT, Logical Design of IoT, IoT Enabling Technologies, IoT levels and Development Templates.

UNIT-2

CHAPTER 2: IoT and M2M Communication **05 Hours**

Introduction, M2M, Difference between IoT and M2M, SDN & NFV for IoT.

CHAPTER 3: IoT Platform Design Methodology
Introduction, IoT Design Methodology, Case Study: Weather Monitoring.

UNIT-3

CHAPTER 4: Domain Specific IOTs **05 Hours**
Home Automation, Cities, Environment, Energy, Retail, Logistics, Agriculture, Industry, Health & Life Style - Applications and Case-studies

UNIT-4

CHAPTER 5: **IoT Physical Devices and Endpoints** **06 Hours**

Basic Building blocks - Boards - Raspberry Pi, Arduino, Tiva.Working with Sensors and Actuators

UNIT-5

CHAPTER 6: Data Analytics for IoT **05 Hours**

Introduction to Apache Hadoop, Hadoop MapReduce for Batch Data Analysis, Apache oozie, Apache Spark, Apache Storm.

TEACHING LEARNING PROCESS: Chalk and Talk, power point presentation, animations, videos

COURSE OUTCOMES: On completion of the course, student should be able to,

CO1	**Apply** the knowledge of the internet and computer network on to IoT paradigm.
CO2	**Adequately** learn and **demonstrate** the IoT communication.
CO3	**Apply** the knowledge of python in Raspberry PI programming.
CO4	**Analyze** different configuration setups for connecting different types of sensors and upload the code on the board and communicate to the cloud.
CO5	**Apply** the knowledge of data analytics for IoT development

CO-PO Mapping	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**P06**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO1	**3**				**1**							**1**
CO2	**3**	**2**	**3**	**1**	**2**							**1**
CO3	**3**	**2**	**2**	**1**	**2**					**1**		**1**
CO4	**3**	**3**	**1**	**2**	**2**					**1**		**1**
CO5	**3**	**2**	**1**	**2**	**3**				**1**	**1**		**1**

Strong -3 Medium -2 Weak -1

TEXT BOOKS:

1. Vijay Madisetti and Arshdeep Bahga, "Internet of Things (A Hands-on-Approach)", First Edition, VPT, 2014.

REFERENCE BOOKS:

1. Raj Kamal, "Internet of Things: Architecture and Design Principles", 1st Edition, McGraw Hill Education, 2017
2. Ovidiu Vermesan, PeterFriess, "Internet of Things: Converging Technologies for Smart Environments and Integrated Ecosystems". River Publishers Series in Communication.
3. David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton, Jerome Henry, "IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things", 1st Edition, Pearson Education

SELF STUDY REFERENCES/WEBLINKS:

1. Designing the Internet of Things – Adrian McEwen & Hakim Cassimality Wiley India, ISBN: 9788126556861

COURSE COORDINATOR:	**Dr. Smitha Shekar B** **Lavanya Santhosh**