

17ES009 INTRODUCTION TO INTERNET OF THINGS

Hours Per Week :

L	T	P	C
3	1	-	4

Total Hours :

L	T	P	WA/RA	SSH/HSB	CS	SA	S	BS
45	15	-	15	30	-	5	5	-

Course Objectives:

Students will gain knowledge On IoT Architecture and will be explored to the interconnection and integration of the physical world and the cyber space

Course Outcomes:

- Able to understand the application areas of IOT
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor and Networks
- Able to understand building blocks of Internet of Things and characteristics

SKILLS :

- Able to understand IoT Concepts
- Able to design the different IoT system applications

ACTIVITIES:

- *Design various simple IoT Applications*
- *Programming with raspberry pi.*

UNIT – I

INTRODUCTION & CONCEPTS: Introduction to Internet of Things, Physical Design of IOT, Logical Design of IOT, IOT Enabling Technologies, IOT Levels

UNIT - II

INTERNET PRINCIPLES: Internet Communications: An Overview, IP Addresses, MAC Addresses, TCP and UDP Ports, Application Layer Protocols

DOMAIN SPECIFIC IOTS: Home Automation, Cities, Environment, Energy, Retail, Logistics, Agriculture, Industry, Health & Life Style.

UNIT – III

M2M & SYSTEM MANAGEMENT WITH NETCONF-YANG: M2M, Difference between IOT and M2M, SDN and NFV for IOT, Software defined Networking, Network Function Virtualization, Need for IOT Systems Management, Simple Network Management Protocol, Limitations of SNMP, Network Operator Requirements, NETCONF, YANG, IOT Systems management with NETCONF-YANG.

UNIT - IV

SENSORS AND ACTUATORS: Micro sensors: Introduction, Thermal Sensors, Radiation Sensors, Mechanical Sensors, Magnetic Sensors, Bio(chemical) Sensors,

UNIT -V

IOT PHYSICAL DEVICES & ENDPOINTS: What is an IOT Device, Exemplary Device, Board, Linux on Raspberry Pi, Interfaces, and Programming & IOT Devices

TEXTBOOKS:

1. Vijay Madiseti, Arshdeep Bahga, "Internet of Things A Hands-On- Approach", 2014.
Adrian McEwen, "Designing the Internet of Things", Wiley Publishers, 2013.
2. Steve Heath, "Embedded Systems Design", 2nd Edition, Newnes.

REFERENCE BOOKS:

1. Francis da Costa, "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", 1 st Edition, Apress Publications, 2013.
2. Cuno Pfister, Getting Started with the Internet of Things, O Reilly Media, 2011, ISBN: 978-1-4493- 9357-1.