INTERNET OF THINGS
(Professional Elective-VI)

Course Code : 15IT1109

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Pre-requisites:

Electronics and Devices Circuits, Embedded systems, Computer Networks

Course Outcomes:

At the end of the Course, the Student will be able to:

CO 1 Understand the building blocks of Internet of Things andcharacteristics.

CO 2 Understand the application areas of IOT.

CO 3 Realize the difference between M2M and IOT.

CO 4 Develop Internet of Things & Logical Design using Python.

CO 5 Explain IOT physical devices.

UNIT-I **(10 Lectures)**

INTRODUCTION & CONCEPTS:

Introduction to Internet of Things, PhysicalDesignofIOT,Logical Design of IOT, IOT Enabling Technologies, IOTLevels and deployment templates.

UNIT-II **(08 Lectures)**

DOMAIN SPECIFICATIONS:

Home Automation, Cities, Environment, Energy, Retail, Logistics, Agriculture, Industry, Health & LifeStyle.

UNIT-III **(12 Lectures)**

M2M & SYSTEM MANAGEMENT WITH NETCONF-YANG:

M2M, Difference between IOTand M2M, SDN and NFV for IOT,

Need for IOT Systems Management, Simple Network Management Protocol, Network Operator Requirements, NETCONF, YANG, IOT Systems management with NETCONF-YANG.

UNIT-IV (10 Lectures)

DEVELOPING INTERNET OF THINGS & LOGICAL DESIGN USING PYTHON:

Introduction, IOT Design Methodology, Installing Python, Python Data Types & Data Structures, Control Flow, Functions, Modules, Packages, File Handling, Date / Time Operations, Classes,Python Packages of interest for IOT.

UNIT-V (10 Lectures)

IOT PHYSICAL DEVICES & ENDPOINTS:

What is an IOT Device, Exemplary Device: Raspberry Pi, About the Board,Linux on Raspberry Pi, Raspberry Pi Interfaces, and Programming Raspberry Pi with Python & other IOTDevices, Arduino.

TEXT BOOK:

Vijay Madisetti, Arshdeep Bahga, "Internet of Things A Hands-On-Approach", 1st Edition, Vijay Madisetti publishers, 2014.

REFERENCE:

Adrian McEwen, "Designing the Internet of Things", 1st Edition,Wiley Publishers, 2014.

WEB REFERENCES:

1. https://www.coursera.org/specializations/internet-of-things
2. https://www.class-central.com/tag/internet%20of%20things
3. http://www.amazon.com/Internet-Things-A-Hands-Approach/dp/0996025510.