

17CS006 INTERNET OF THINGS

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Course description and objectives:

Students will be explored to the concepts and applications of Internet of Things, interconnection and integration of the physical world and the cyberspace. They are also able to design & develop IOT Devices and applications.

Course Outcomes:

- ✓ Able to understand the application areas of IOT
- ✓ Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks
- ✓ Able to understand building blocks of Internet of Things and characteristics.
- ✓ Learn Programing concepts using python
- ✓ Able to develop programs in python
- ✓ Able to design and develop IoT applications

Skills:

- ✓ Learn how IoT works in different domain applications by case studies.
- ✓ Learn Python programming language
- ✓ Learn how to sense or actuate devices using Raspberri Pi kits
- ✓ Learn how to create a successful product using IoT

Unit I

Introduction & Concepts: Introduction to Internet of Things, Physical Design of IOT, Logical Design of IOT, IOT Enabling Technologies, IOT Levels.

Unit II

Domain Specific IOTs: Home Automation, Cities, Environment, Energy, Retail, Logistics, Agriculture, Industry, Health & Life Style.

Unit III

Installing Python, Python Data Types & Data Structures, Control Flow, Functions, Modules, Packages, File Handling, Date/ Time Operations, Classes, Python Packages

Unit IV

M2M & System Management with NETCONF-YANG: M2M, Difference between IOTand 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.

Unit V

IOT Design Methodology, Case study using weather monitoring.IOT Physical Devices & Endpoints: What is an IOT Device, Exemplary Device, Board, Linux on Raspberry Pi, Interfaces, and Programming of IOT Devices.

TEXT BOOKS:

1. Vijay Madiseti, ArshdeepBahga, " Internet of Things A Hands-On- Approach", 2014, ISBN:978 0996025515

REFERENCE BOOKS:

1. 1.Adrian McEwen, “Designing the Internet of Things”, Wiley Publishers, 2013, ISBN: 978-1-118-43062-0
2. 2.DanielKellmerit, “The Silent Intelligence: The Internet of Things”. 2013, ISBN 0989973700

Activities

- ✓ Python programming with IDLE
- ✓ Program to sense or actuate devices in simulation environment
- ✓ Awareness how to use Raspberri Pi kits for development of IoT