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18BC305 INTERNET OF THINGS

Course description and objectives:

This course focuses the concepts of things integrated with the physical world and the cyber space. Further, it helps students to design & develop IOT applications.

Course Outcomes:

The student will be able to:
- Understand the application areas of IOT.
- Realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks.
- Understand building blocks of Internet of Things and characteristics.
- Design and develop IoT applications for given specific problem statement.

Skills:

- Case studies on IoT applications.
- Writing Python scripts for IoT circuits.
- Utilizing the general purpose pins of suitable IoT supported COB.

Activities:

- Sensing or actuating devices using Raspberry Pi kits.
- Create a successful IoT product.

Syllabus

UNIT – 1   12 Hours

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

UNIT – 2   12 Hours

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

UNIT – 3   12 Hours

DEVELOPING INTERNET OF THINGS & PYTHON : Introduction IOT Design Methodology, Installing Python, Python Data Types, Lists, Tuples, Dictionaries, Strings

UNIT – 4   12 Hours

LOGICAL DESIGN USING PYTHON: Control Flow, Functions, Modules, Packages, File Handling, Date/ Time Operations, Classes, Python Packages

UNIT – 5   **12 Hours**

IOT PHYSICAL DEVICES & ENDPOINTS: An IOT Device, Exemplary Device, Board, Linux on Raspberry Pi, Interfaces, and Programming of IOT Devices.

Text Books:

Vijay Madisetti, Arshdeep Bahga," Internet of Things A Hands-On- Approach", 1st Edition, Orient Blackswan Private Limited,2014.

Reference Books:

1. Adrian McEwen, "Designing the Internet of Things", 1st Edition, Wiley Publishers, 2013.
2. Daniel Kellmereit, "The Silent Intelligence: The Internet of Things", 1st Edition, DND Ventures LLC, 2013.