

III B.Tech I SEMESTER  
 JNTUA COLLEGE OF ENGINEERING (AUTONOMOUS) PULIVENDULA  
 19ACS55b- INTRODUCTION TO INTERNET OF THINGS  
Open Elective-I

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**Course Objectives:**

- Students will be explored to the interconnection and integration of the physical world and the cyber space. They are also able to design & develop IOT Devices.

**UNIT – I: INTRODUCTION**

Introduction – Characteristics-Physical Design - Protocols – Logical Design – Enabling technologies – IoT Levels – Six Levels of IoT - Domain Specific IoTs. **Learning Outcomes:**

At the end of this unit, the student will be able to

- Able to understand the application areas of IOT . **L2**
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks . **L3**

**UNIT – II: M2M, IoT vs M2M**

M2M, IoT vs M2M, SDN and NFV for IoT, IOT system Management with NETCONF-YANG.

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Able to understand the application areas of IOT . **L2**
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks . **L3**

**UNIT – III: IOT SYSTEM MANAGEMNT**

IoT Systems Management – IoT Design Methodology – Specifications Integration and Application Development.

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Able to understand the application areas of IOT . **L2**
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks . **L3**

**UNIT – IV: SENSORS**

Sensors- Types of sensor nodes, Internet communications, IP addresses, MAC Address, TCP and UDP Ports, Application layer protocols

**Learning Outcomes:**

At the end of this unit, the student will be able to

- Able to understand the application areas of IOT . **L2**
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks . **L3**

**UNIT – V: IOT APPLICATIONS**

IOT application for industry-Future factory concepts, Brownfield IoT, Smart objects, Smart applications, Study of existing IoT platforms/middleware, IoT- A, Hydra etc.

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**Learning Outcomes:**

At the end of this unit, the student will be able to

- Able to understand the application areas of IOT . L2
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks .

L3

**Text Books:**

1. Arshdeep Bahga, Vijay Madiseti, "Internet of Things – A Hands-on Approach", Universities Press, 2015.

**Reference Books:**

1. Manoel Carlos Ramon, "Intel® Galileo and Intel® Galileo Gen 2: API Features and Arduino Projects for Linux Programmers", Apress, 2014.
2. Marco Schwartz, "Internet of Things with the Arduino Yun", Pack Publishing, 2014.
3. Simon Monk, "Programming the Raspberry Pi: Getting Started with Python", McGraw-Hill, 2013.
4. Charalampos Doukas, "Building Internet of Things With the Arduino", Second Edition, 2012.
5. Dr. John Bates, "Thingalytics: Smart Big Data Analytics for the Internet of Things", Software AG Publisher, 2015.

**Course Outcomes:**

At the end of this Course the student will be able to

Introduction to computer graphics

Able to understand the application areas of IOT . L2

Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks . L3

Able to understand building blocks of Internet of Things and characteristics L4