



INFORMATION TECHNOLOGY  
ENGINEERING

# IT ENGINEERING SEM VIII

# INTERNET OF EVERYTHING

Programming & development

Course Curriculum



# INTERNET OF EVERYTHING SEM VIII

## **Module 1 : Introduction to IOT**

- History of IOT
- Objects in IOT
- Identifier in the IOT
- Technologies in IOT

## **Module 2: RFID Technology**

- Introduction
- principle of RFID
- components of RFID system
  - RFID tag
  - Reader
  - RFID middleware
  - Issues



## **Module 3: RFID Applications**

- Introduction
- concepts and technology
  - RFID
  - Transponder
  - RFID architecture
  - RFID applications i.e. logistics and supply chain
  - Production
  - monitoring and maintenance
  - product safety
  - quality and information
  - access control and tracking and tracing of individuals
  - payment
  - loyalty
  - household
- Hardware
  - Hardware issues



- Protocols
  - pure aloha
  - slotted aloha
  - frame slotted aloha
  - tree protocols
  - tree splitting algorithms
  - binary search algorithms
  - bitwise arbitration protocols
  - Main query tree protocols

## **Module 4: Wireless Sensor Networks**

- History and context
- Node
- connecting nodes
- networking nodes
- securing communication
- standards and Fora
- Networking and the Internet - IP Addressing
- Protocols
  - MQTT
  - CoAP
  - REST Transferring data



## **Module 5: Mobility and Settings**

- Introduction
- Localization
- mobility management
- localization and handover management
- technology considerations
- performance evaluation
- simulation setup
- performance results
- Identification of IOT (data formats. IPV6, identifiers and locators, tag etc.)

## **Module 6: Data Analytics for IoE**

- Introduction



- Apache Hadoop
- Using Hadoop MapReduce for Batch Data Analysis
- Apache Oozie
- Apache Spark
- Apache Storm
- Using Apache Storm for Real-time Data Analysis
- Structural Health Monitoring Case Study
- Tools for IoT
  - Chef
  - Chef Case Studies
  - Puppet
- Puppet Case Study
  - Multi-tier Deployment
  - NETCONF-YANG Case Studies
  - IoT Code Generator

