MCA- E307 Internet of Things				
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Course objective:

1. To impart necessary and practical knowledge of components of Internet of Things

Course outcomes:

1. Understand internet of Things and its hardware and software components
2. Interface I/O devices, sensors & communication modules
3. Remotely monitor data and control devices

Introduction: Architectural Overview, Design principles and needed capabilities, IoT Applications, Sensing, Actuation, Basics of Networking, M2M and IoT Technology Fundamentals- Devices and gateways, Data management, Business processes in IoT, Everything as a Service (XaaS), Role of Cloud in IoT, Security aspects in IoT.

Elements of IOT: Hardware Components- Computing (Arduino, Raspberry Pi), Communication, Sensing, Actuation, I/O interfaces. Software Components- Programming API's (using Python/Node.js/Arduino) for Communication Protocols-MQTT, ZigBee, Bluetooth, CoAP, UDP, TCP.

Solution framework for IoT applications- Implementation of Device integration, Data acquisition and integration, Device data storage- Unstructured data storage on cloud/local server, Authentication, authorization of devices.

IOT Case studies: Industrial automation, Transportation, Agriculture, Healthcare, Home Automation

Recommended Books:

1. Honbo Zhou, The Internet of Things in the Cloud: A Middleware Perspective, CRC Press
2. Vijay Madisetti, Arshdeep Bahga, Ïnternet of Things, A Hands-on Approach, University Press
3. Pethuru Raj and Anupama C. Raman, The Internet of Things: Enabling Technologies, Platforms, and Use Cases, CRC Press

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