IV YEAR SEM-I B.Tech CSE	ELECTIVE	L	T	P	C
Code: CS4506	Internet of Things	2	2	0	4

Learning Outcomes

- Explain the definition and usage of the term "The Internet of Things" in different contexts.
- Understand where the IoT concept fits within the broader ICT industry and possible future trends.
- Appreciate the role of big data, cloud computing and data analytics in a typical IoT system.
- Differentiate between the levels of the IoT stack and be familiar with the key technologies and protocols employed at each layer of the stack.
- Design a simple IoT system comprising sensors, edge devices, wireless network connections and
- data analytics capabilities.
- Use the knowledge and skills acquired during the course to build and test a complete, working IoT system involving prototyping, programming and data analysis

Unit IIntroduction to the Internet of Things

What is the IoT and why is it important?, Elements of an IoT ecosystem, Technology drivers, Business drivers, Typical IoT applications, trends and implications.

Unit II Technologies behind the Internet of Things.

- RFID + NFC- Wireless networks + WSN- RTLS + GPS- Agents + Multiagent systems

Unit IIISensors and sensor nodes

Sensingdevices, Sensor modules, nodes and systems

Unit IV Connectivity and networks

Wireless technologies for the IoT, Edge connectivity and protocols,Wireless sensor networks

Unit VAnalytics and applications

Signal processing, real-time and local analytics, Databases, cloud analytics and applications.

Unit VIIndustry perspective

Business considerations, Legal challenges.

Text Books:

1. J. Biron and J. Follett, "Foundational Elements of an IoT Solution", O'Reilly Media, 2016

2. Keysight Technologies, “The Internet of Things: Enabling Technologies and Solutions for Design and Test”, Application Note, 2016.

Reference Books:

1.Charles Bell, “Beginning Sensor Networks with Arduino and Raspberry Pi”, Apress, 2013.

2. D. Evans, "The Internet of Things: How the Next Evolution of the Internet Is Changing

Everything", Cisco Internet Business Solutions Group, 2011

3. McKinsey&Company, "The Internet of Things: Mapping the value beyond the hype", McKinsey Global Institute, 2015

4. European Alliance for Innovation (EAI), "Internet of Things: Exploring the potential", Innovation Academy Magazine, Issue No. 03, 2015

5. Digital Greenwich, "Greenwich Smart City Strategy", 2015

6. ITU and Cisco, "Harnessing the Internet of Things for Global Development", A contribution to the UN broadband commission for sustainable development

Video Reference links:

Title	Expert Name	Details of Expert	Web link
The Internet of Things	James Whittaker	Microsoft	