

Course Title: Internet of Things

Course Code: CS822

Exam Duration: 3 hours

No. of Credits: 4 = 4: 0: 0 (L: T: P)

No. of Lecture Hours/Week: 4 Hours

Total No. of Contact Hours: 52 Hours

Course objectives:

1. To assess the vision and introduction of IoT.
2. To Understand IoT Market perspective.
3. To Implement Data and Knowledge Management and use of Devices in IoT Technology.
4. To Understand State of the Art - IoT Architecture.
5. To classify Real World IoT Design Constraints, Industrial Automation and Commercial Building Automation in IoT.

UNIT No	Syllabus Content	No of Hours
1	M2M to IoT -The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context, A use case example, Differing Characteristics.	10
2	M2M to IoT - A Market Perspective - Introduction, Some Definitions, M2M Value Chains, IoT Value Chains, An emerging industrial structure for IoT, The international driven global value chain and global information monopolies. M2M to IoT-An Architectural Overview - Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations.	10
3	M2M and IoT Technology Fundamentals - Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service(XaaS), M2M and IoT Analytics, Knowledge Management	11
4	IoT Architecture-State of the Art - Introduction, State of the art.	10
5	IoT Reference Architecture - Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design	11

UNIT NoSyllabus Content

No of
Hours

Constraints- Introduction, Technical Design constraints- hardware is popular again, Data representation and visualization, Interaction and remote control. **Industrial Automation-** Service-oriented architecture-based device integration, SOCRADES: realizing the enterprise integrated Web of Things, IMC-AESOP: from the Web of Things to the Cloud of Things

Course Outcomes:

CO1: Interpret the vision of IoT from a global context.

CO2: Determine the Market perspective of IoT.

CO3: Compare and Contrast the use of Devices, Gateways and Data Management in IoT.

CO4: Implement state of the art architecture in IoT.

CO5: Illustrate the application of IoT in Industrial Automation and identify Real World Design Constraints.

TEXT BOOK

1. Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatios Karnouskos, David Boyle, **“From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence”**, 1st Edition, Academic Press, 2014. (ISBN-13: 978-0124076846)

REFERENCE BOOKS / WEBLINKS:

1. Vijay Madiseti and Arshdeep Bahga, **“Internet of Things (A Hands-on-Approach)”**, 1st Edition, VPT, 2014. (ISBN-13: 978-8173719547)
2. Francis daCosta, **“Rethinking the Internet of Things: A Scalable Approach to Connecting Everything”**, 1st Edition, Apress Publications, 2013. (ISBN-13: 978-1430257400)