Prasad V. Potluri Siddhartha Institute of Technology:: Vijayawada.
Department of Computer Science and Engineering

I/II M.Tech. (CSE) (Second Semester)

17CSCS2T5B   **INTERNET of THINGS**   **Credits: 4**
Elective - III

Lecture: 4 Periods/week   **Internal Assessment: 40 Marks**
Semester end examination: 60 Marks

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Course Description:

This course will help students gain adequate knowledge on the Internet of Things. Students will be able to understand the potential of the Internet of Things for our society, in terms of impact on the lives of billions of people and on the world economy.

Course Outcomes:

At the end of the course the student will be able to:

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

CO2: Determine the Market perspective of IoT.

CO3: Use of Devices, Gateways and Data Management in IoT.

CO4: Building state of the art architecture in IoT.

CO5: Application of IoT in Industrial and Real World Design Constraints.

Unit-1

M2M to IoT-The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context, A use case example, Differing Characteristics.

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.

Unit-2

M2M to IoT-An Architectural Overview– Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations.

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

Unit-3

IoT Architecture-State of the Art – Introduction, State of the art.

Architecture Reference Model- Introduction, Reference Model and architecture, IoT reference Model

IoT Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views.

Unit-4

Real-World Design 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.

Text Book:

1. Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, "From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence", 1st Edition, Academic Press, 2014.

Reference Books:

1. Vijay Madisetti and Arshdeep Bahga, "Internet of Things (A Hands-on-Approach)", 1stEdition, VPT, 2014.
2. Francis daCosta, "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", 1st Edition, Apress Publications, 2013.