

## **ED5075 DESIGN FOR INTERNET OF THINGS**

### DETAILED SYLLABUS

#### **OBJECTIVE**

To impart knowledge on state of art IoT architecture, data and knowledge management and use of devices in IoT technology

#### **UNIT-I INTRODUCTION**

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

#### **UNIT-II IoT STRUCTURE**

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.

#### **UNIT-III IoT NETWORKING**

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-IV IoT ARCHITECTURE**

IoT Architecture-State of the Art – Introduction, State of the art, Architecture Reference Model-Introduction, Reference Model and architecture, IoT reference Model.

#### **UNIT-V ARCHITECTURE MODELING**

IoT Reference Architecture- Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. 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, Commercial Building Automation- Introduction, Case study: phase one-commercial building automation today, Case study: phase two- commercial building automation in the future.

## REFERENCES

1. Francis da Costa, "Rethinking the Internet of Things: A Scalable Approach to Connecting Everything", 1<sup>st</sup> Edition, A press Publications, 2013.
2. 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", 1<sup>st</sup> Edition, Academic Press, 2014.
3. Vijay Madiseti and Arshdeep Bahga, "Internet of Things (A Hands-on-Approach)", 1<sup>st</sup> Edition, VPT, 2014