



GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Integrated MSc, 7th Semester
Branch: Computer Science
Subject Name: Introduction to Internet of Things
Subject Code: 1370305

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
			ESE(E)	PA (M)	PA (I)	ESE (V)		
3	0	2	4	70	30	20	30	150

Content:

Sr. No.	Content	Teaching Hours	Module Weightage
1.	Introduction to M2M and IoT: Basics of M2M and IoT, From M2M to IoT, M2M towards IoT: The Global Context, Characteristics of M2M and IoT and its separation	08	15%
2.	M2M and IoT: Market Perspective: M2M value chain, IoT value chain, Emerging industrial structure for IoT, Architectural overview for M2M to IoT, Design Principles and required capabilities, IoT Architecture outline	07	15%
3.	M2M and IoT Technology Fundamentals: Basics of Devices and Gateways used in IoT, Networking for implementing IoT, Data Management, Business Processes in IoT, Everything as a Service, M2M and IoT Analytics, Knowledge Management in IoT	09	20%
4.	IoT Architecture: State-of-the-art Architecture, Reference Model, Linking Reference Mode and IoT Architecture, IoT Reference Model	06	20%
5.	IoT Reference Architecture: Basics of IoT Reference Architecture, Functional View, Information View, Deployment and Operational View, Other relevant architectural view, Real-world design constraints, Technical design constraint, Data Representation and Visualization, Interaction and Remote control, Industrial Automation, SOA based device integration	12	30%

Reference Books:

1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos, David Boyle, From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence, Academic Press, First Edition, 2014.
2. Francis daCosta, Rethinking the Internet of Things: A Scalable Approach to Connecting Everything, Apress Publications, First Edition, 2013.
3. Vijay Madisetti and ArshdeepBahga, Internet of Things (A Hands-on-Approach), VPT, FirstEdition,2014.



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Course Outcome:

CO-1	Students will be able to differentiate between M2M and IoT, understand their global context, and identify their unique characteristics and applications.
CO-2	Students will develop an understanding of the M2M and IoT market perspectives, including the value chains and emerging industrial structures.
CO-3	Students will learn about data management, business processes, and knowledge management within the context of IoT.
CO-4	Students will understand and apply state-of-the-art IoT architectures, including reference models and their components.
CO-5	Students will gain hands-on experience in designing and implementing IoT systems, considering real-world design constraints and technical limitations.