

18ECO06		BASICS OF INTERNET OF THINGS		L	T	P	C
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Course Objectives:							
1.	To gain knowledge on M2M and IoT design methodology.						
2.	To understand the various IoT components.						
3.	To Build small system using Raspberry Pi.						
UNIT I FUNDAMENTALS OF IOT				9	+	0	
Introduction-Definition and Characteristics of IoT- Physical design- IoT Protocols-Logical design - IoT communication models, IoT Communication APIs- Enabling technologies - Wireless Sensor Networks, Cloud Computing, Big data analytics, Communication protocols, Embedded Systems, IoT Levels and Templates – Domain specific IoTs.							
UNIT II M2M AND IOT DESIGN METHODOLOGY				9	+	0	
IoT and M2M- difference between IoT and M2M - Software defined networks, Network function virtualization- IoT design methodology.							
UNIT III IOT COMPONENTS				9	+	0	
Sensors and actuators - Communication modules - Zigbee- RFID-Wi-Fi-Power sources.							
UNIT IV BUILDING IOT WITH HARDWARE PLATFORMS				9	+	0	
IoT Systems-Logical Design using Python -IoT Physical Devices and End Points- IoT Device - Raspberry Pi- Interfaces - Programming - Other IoT devices.							
Unit V REAL TIME APPLICATIONS				9	+	0	
Home automation-Automatic lighting-Home intrusion detection- Cities-Smart parking-Environment-Weather monitoring system-Air pollution Monitoring-Forest Fire Detection- Agriculture- Smart irrigation.							
Total (L+T)= 45 Periods							
Course Outcomes:							
Upon completion of this course, the students will be able to:							
CO1	:	Differentiate M2M and IoT design methodology.					
CO2	:	Describe the various IoT components.					
CO3	:	Design small system using Raspberry Pi.					
CO4	:	Discuss the various applications of IoT.					
Text Books:							
1.	Arshdeep Bahga, Vijay Madiseti, "Internet of Things-A hands-on approach", Universities Press, 2015						
2.	Olivier Hersent, davidBoswarthick, Omar Elloumi, 'The Internet of Things Applications to the smart grid and building automation', John Wiley & Sons, 2012.						
Reference Books:							
1.	Marco Schwartz, "Internet of Things with the Arduino Yun, Packt Publishing, 2014						
2.	Adrian McEwen, Hakim Cassimally, "Designing the Internet of Things", Wiley Publications, 2012.						
3.	Olivier Hersent, David Boswarthick, Omar Elloumi, "The Internet of Things: Key applications and Protocols", Wiley Publications 2nd edition, 2013.						
4.	HakimaChaouchi, 'The Internet of Things Connecting Objects', John Wiley & Sons, 2010.						
E-References:							
1.	Introduction to IoT NPTEL video lectures by Dr. Sudip Misra, IIT Kharagpur 2017.						
2.	https://nptel.ac.in/courses/106105166						
3.	https://nptel.ac.in/courses/108108098						