

MANGALORE UNIVERSITY
DEPARTMENT OF COMPUTER SCIENCE

CSH 452: INTERNET OF THINGS		
Hours/Week: 4 Credits : 4		I.A. Marks: 30 Exams. Marks: 70
<u>Course Outcomes:</u> CO1: Apply the concepts of IOT. CO2: Apply IOT to different applications. CO3: Analysis and evaluate protocols used in IOT. CO4: Design and develop smart city in IOT. CO5: Analysis and evaluate the data received through sensors in IOT.		
	UNIT-I	12 Hrs.
Introduction to Internet of Things –Definition and Characteristics of IoT, Physical Design of IoT – IoT Protocols, IoT communication models, Iot Communication APIs IoTenabaled Technologies – Wireless Sensor Networks, Cloud Computing, Big data analytics, Communication protocols, Embedded Systems, IoT Levels and Templates Domain Specific IoTs – Home, City, Environment, Energy, Retail, Logistics, Agriculture, Industry, health and Lifestyle		
	UNIT-II	12 Hrs.
IoT and M2M – Software defined networks, network function virtualization, difference between SDN and NFV for IoT Basics of IoT System Management with NETCOZF, YANG-NETCONF, YANG, SNMP NETOPEER		
	UNIT-III	12 Hrs.
Introduction to Python - Language features of Python, Data types, data structures, Control of flow, functions, modules, packaging, file handling, data/time operations, classes, Exception handling Python packages - JSON, XML, HTTPLib, URLLib, SMTPLib. IoT Physical Devices and Endpoints - Introduction to Raspberry PI-Interfaces (serial, SPI, I2C) Programming – Python program with Raspberry PI with focus of interfacing external gadgets, controlling output, reading input from pins.		

	UNIT-IV	12 Hrs.
IoT Physical Servers and Cloud Offerings – Introduction to Cloud Storage models and communication APIs Webserver – Web server for IoT, Cloud for IoT, Python web application framework Designing a RESTful web API.		
REFERENCE BOOKS: 1. ArshdeepBahga and Vijay Madiseti,,Internet of Things - A Hands-on Approach, Universities Press, 2015, ISBN: 9788173719547 2. Matt Richardson & Shawn Wallace, Getting Started with Raspberry Pi, O'Reilly (SPD), 2014, ISBN: 9789350239759.		

