


MANGALORE UNIVERSITY
DEPARTMENT OF M.Sc. COMPUTER SCIENCE

| CSH 452: INTERNET OF THINGS | | |
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| 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 IoT enabled 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. |
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| 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: <ol style="list-style-type: none"> 1. Arshdeep Bahga and Vijay Madisetti,,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. | | |

