

Course Code: CSOE-8	Course Title: Internet Of Things
Course Credits: 03	Hours / Week : 03
Total Contact Hours: 42	Formative Assessment Marks:40
Exam Marks:60	Exam Duration: 02 Hrs.

Course Outcomes:

This Course emphasis on hands-on IoT concepts such as sensing, actuation and communication. It focuses the development of Internet of Things (IoT) prototypes—including devices for sensing, actuation, processing, and communication—to develop skills and experiences. The Internet of Things (IOT) is the high scope and requirements in all the disciplines, world is going to witness. We live in an era of connected devices the future is of connected things.

Content	Hours
Unit – 1	
Introduction to IOT: Understanding IoT fundamentals, History of IoT, IOT Architecture and protocols, Various Platforms for IoT, Real time Examples of IoT, Overview of IoT components and IoT Communication Technologies, Challenges in IOT.	8
Unit – 2	
Arduino Simulation Environment: Arduino Uno Architecture , Setup the IDE, Writing Arduino Software, Arduino Libraries, Basics of Embedded C programming for Arduino, Interfacing LED, push button and buzzer with Arduino, Interfacing Arduino with LCD.	8
Unit – 3	
Sensor & Actuators with Arduino: Overview of Sensors working, Analog and Digital Sensors, Interfacing of Temperature, Humidity, Motion, Light and Gas Sensor with Arduino, Interfacing of Actuators with Arduino, Interfacing of Relay Switch and Servo Motor with Arduino.	9
Unit – 4	
Basic Networking with ESP8266 WiFi module : Basics of Wireless Networking, Introduction to ESP8266 Wi-Fi Module, Various Wi-Fi library , Web server- introduction, installation, configuration, Posting sensor(s) data to web server.	8

Unit – 5	
IoT Protocols and Cloud Platforms for IOT: IoT Protocols: M2M vs. IOT, Communication Protocols Cloud Platforms for IOT: Virtualization concepts and Cloud Architecture, Cloud computing, benefits , Cloud services -- SaaS, PaaS, IaaS , Cloud providers & offerings , Study of IOT Cloud platforms Thing Speak API and MQTT.	9

Note: Demonstration on every examples using Arduino Online Simulator.

REFERENCES:

1. The Internet of Things: How Smart TVs, Smart Cars, Smart Homes, and Smart Cities Are Changing the World

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”, 1st Edition, Academic Press, 2014.

ASSESSMENT FOR THE OPEN ELECTIVE COURSES

The open elective courses offered to other department for the UG candidates are all 3 credit courses and the total marks allotted for these courses are 100.

The 100 marks are further subdivided in to 40 for CA and 60 for semester examination. The 40 marks for the CA are further trifurcated as given below: (i) One activity for 10 marks within 7 weeks of starting the course (ii) One test for 20 marks (ii) one activity for 10 marks within 12 weeks of starting the course. The schedule of test / activity must be announced to the students by the 5th week of the semester. The test / activity can be organised by the subject teacher and can be conducted in microsoft teams. If the teachers want to give a third activity, it will be in lieu of the first or second activity.

The Semester Examination will be conducted for 60 marks and for a duration of 2 hours. It will be MCQ pattern.