Course Code	Course Name	Teaching Scheme (Contact HOURS)			Credit Assigned			
		Theory	Pract.	Tut.	Theory	TW/Pract.	Tut	Total
ISDLO8043	Internet of Things (IOT)	4	-	-	4	-	-	4

Sub Code	Subject Name	Examination scheme							
		Theory (out of 100)				Term work	Pract. and Oral	Oral	Total
		Internal Assessment			End sem Exam				
		Test1	Test2	Avg.					
ISDLO8043	Internet of Things (IOT)	20	20	20	80	-		-	100

Subject Code	Subject Name	credits
ISDLO8043	Internet of Things (IOT)	4
Course objective	1. To teach fundamentals of IoT 2. To study data and knowledge management and use of devices in IoT technology. 3. To understand IoT architecture and Integration of embedded devices with IoT 4. To understand concept of IoT. 5. To learn designing of industrial internet systems. 6. To study overview of Android/ IOS app development tools and Internet of Everything	
Course Outcome	Students will be able to- 1. Demonstrate the knowledge of operation of IoT architecture 2. Identify the various technologies for implementing IoT 3. Discuss various communication Technologies used in IoT 4. Discuss various communication models and protocols used in IoT 5. Discuss about the role of cloud computing in IoT 6. Illustrate the application of IoT in Industrial Automation and identify Real World Design Constraints.	

Details of Syllabus:

Module	Content	Hrs	CO Mapping
1	**Introduction to Internet of Things: An Overview** Introduction – Definition and characteristics of IoT, Physical design of IoT- Things in IoT, IoT protocol, Logical design of IoT – IoT functional blocks, IoT Communication Models, IoT communication APIs.	06	CO1
2	**IoT Enabling Technology** Wireless Sensor Networks, Cloud Computing, Big Data Analytics, Communication Protocols, Embedded Systems. **IOT Levels and Deployment Templates.**	06	CO2
3	**Introduction to Communication Technologies** 802.15.4,ZigBee, BLE, WiFi, LORA,GSM basic protocol ,topologies, data rate, range, power, computations/bandwidth, QoS	12	CO3
4	**Communication Model and Protocols** M2M vs IOT ,Resource Management, Registration, Discovery Data Exchange Formats - XML & JSON , MQTT Protocol , RESTFul Architecture , HTTP REST Model , CoAP Protocol	12	CO4
5	**Basics of Cloud Computing** Cloud Based Architecture, Basics of Virtualization º Specific Characteristics that Define a Cloud , Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) Cloud Delivery Models , Public Cloud, Private Cloud, Hybrid Cloud and Community Cloud Deployment Models ,Benefits, Challenges and Risks of Cloud Computing Platforms and Cloud Services	06	CO5
6	**Case Studies of IOT** Home (Smart Lighting and Intrusion detection), Cities(Smart Parking, Garbage collection),Environment(Pollution detection, Forest Fire Detection), Power (Smart Grid) , Retail(Inventory Management) , Logistics(Fleet Tracking) Industry(Machine Diagnosis & Prognosis), Heath(Monitoring and Detection) , Agriculture(Green House Monitoring ,Animal Husbandry.	06	CO6

Internal Assessment:

Internal Assessment consists of two tests out of which, one should be compulsory class test (on Minimum 02 Modules) and the other is either a class test or assignment on live problems or Course project.

Theory Examination:

1. Question paper will comprise of 6 questions, each carrying 20 Marks.
2. Total 4 questions need to be solved.
3. Question No. 1 will be compulsory and based on entire syllabus wherein sub questions of 4 to 5 marks will be asked.
4. Remaining questions will be mixed in nature.
5. In question paper weightage of each module will be proportional to number of respective lecture hours as mentioned in the syllabus.

Text Books:

1. Vijay Madisetti and Arshdeep Bahga, –Internet of Things (A Hands-on-Approach)‖, 1st Edition, VPT, 2014.
2. Cloud Computing Black Book Edition-2014 by Jagannath Kallakurchi Wiley India

Reference Books:

1. Francis DaCosta, Rethinking the Internet of Things: A Scalable Approach to Connecting Everything‖, 1st Edition, Apress Publications, 2013

   Wimer Hazenberg, Menno Huisman and Sara Cordoba Rubino, –Meta Products: Building the Internet of Things, BIS publisher