Lesson Plan

Faculty: Sangeeta Parshionikar

CLASS	BE Electronics, Semester VIII
Academic Term	January – May 2021
Subject	**Internet of Things (EXL801)**

Periods (Hours) per week	***Lecture***	***4***
	Practical	***8***
	Tutorial	***--***

Evaluation System		***Hours***	***Marks***
	Theory examination	3	80
	Internal Assessment	--	21
	Practical Examination	--	--
	Oral Examination	--	25
	Term work	--	25
	Total	--	150

Time Table	***Day***	***Time***
	Tuesday	9.00 – 10.00 am
	Wednesday	10.10 – 11.10 pm
	Thursday	11.10 – 12.10 pm
	Friday	11.10 – 12.10 pm

Course Content and Lesson plan

Module 1- Introduction to IoT

Week	Lecture No.	Date		Topic	Ref.	Remar-ks
		Planned	**Actual**			
1	1	27 – 01 – 21	27 – 01 – 21	Introduction and Applications of Iot	1	
	2	28 – 01 – 21	28 – 01 – 21	Defination of IoT, Characteristics of IoT	1	

	3	29 – 01 – 21	29 – 01 – 21	Physical design of IoT, Logical design of IoT	**1**	
	4	02 – 02 – 21	02 – 02 – 21	Functional blocks of IoT, Sources of IoT	**1,2**	
2	5	03 – 02 – 21	03 – 02 – 21	M2M Communication	**1,2**	
	6	04 – 02 – 21	04 – 02 – 21	IoT/M2M System layers and Design Standardization,		
	7	05 – 02 – 21	05 – 02 – 21	Similarities & Differences between IoT and M2M	**1,2**	
Module 2 - Network & Communication aspects:						
3	8	09 – 02 – 21	09 – 02 – 21	Design Principles & Web Connectivity, Web Communication Protocols for connected devices,	**1,2**	
	9	10 – 02 – 21	10 – 02 – 21	Web connectivity using Gateway, SOAP, CoAP Protocols	**1,2**	
	10	11 – 02 – 21	16 – 02 – 21	REST, HTTP, RESTful	**1,2**	
4	11	16 – 02 – 21	16 – 02 – 21	WebSockets (Publish – Subscribe),MQTT, AMQP	**2**	
	12	17 – 02 – 21	17 – 02 – 21	Internet connectivity, Internet based communication	**1**	
	13	18 – 02 – 21	18 – 02 – 21	IP addressing in IoT, Media Access Control	**1,4**	
Holiday on 19th Feb 2021 – Ch. Shivaji Maharaj Jayanti						
Practical slot 23-02-2021 to 26 -02 - 2021						
6	14	02 – 03 – 21	02 – 03 – 21	Application Layer Protocols. LPWAN Fundamentals :LORA ,	**1,4**	
	15	03 – 03 – 21	03 – 03 – 21	NBIoT,CAT LTE M1,SIGFOX	**1,4**	
	Module 3 - IoT Platforms and Design Methodology					
	16	04 – 03 – 21	04 – 03 – 21	Defining Specifications About:- Purpose & requirements, process, domain model, information model, service, IoT level,		

	17	05 – 03 – 21	05 – 03 – 21	Functional view, Operational view, Device and Component Integration	1	
Assignment I						
UT I on 8th, 9th and 10th March 2021						
	19	12 – 03 – 21	12 – 03 – 21	IoT Levels:-IoT Levels and Deployment Templates		
	Holiday on 11th Mar 2021 - Mahashivratri					
Module 4 - Data Handling in IoT						
6	20	16 – 03 – 21	16 – 03 – 21	Data acquiring and storage, Organizing the data	**2**	
	21	17 – 03 – 21	17 – 03 – 21	Transactions, Business Processes	**2**	Recorded Video
	22	18 – 03 – 21	18 – 03 – 21	Integration and Enterprise Systems, Analytics	**2**	
	23	19 – 03 – 21	19 – 03 – 21	Cloud Computing Paradigm for Data Collection, storage and computing	**2**	
Practical slot 23-03-2021 to 26 -03 - 2021						
7	24	30 – 03 – 21	30 – 03 – 21	Cloud Service Models, Xively Cloud for IoT (AWS ,Google APP engine ,Dweet.IO, Firebase)	**2**	**29th Holi**
Module 5 - Components of IoT						
	25	31 – 03 – 21	31 – 03 – 21	Raspberry Pi, R-Pi Interfaces, Programming R-Pi	**1,2**	
	26	01 – 04 – 21	01 – 04 – 21	Sensor Technology, Sensor Data Communication Protocols	**1,2**	2nd Apl – Good Friday
9	27	06 – 04 – 21	06 – 04 – 21	RFID, WSN Technology	**2**	
Module 6 - IoT Case Studies						
	28	07 – 04 – 21	07 – 04 – 21	Design Layers, complexity, IoT Applications in Premises	**1,2**	
	29	08 – 04 – 21	08 – 04 – 21	Supply Chain and Customer Monitoring	**1,2**	
	30	09 – 04 – 21	09 – 04 – 21	Home Automation, Smart Cities, Environment	**1,2**	

11	31	15 – 04 – 21	15 – 04 – 21	Agriculture, IoT Printer	**1,2**	13th - Gidipadva
	32	16 – 04 – 21	16 – 04 – 21	Case Study Presentations		14th – Ambedkar Jayanti
Practical slot 19 - 04 -2021 to 23 -04 - 2021						
12						
UT II on 26th, 27th and 28th April 2021						
13						
	33	30 – 04 – 21	30 – 04 – 21	Case Study Presentations		
	34	03 – 05 – 21	03 – 05 – 21	Case Study Presentations		
	35	04 – 05 – 21	04 – 05 – 21	Case Study Presentations		
14	36	05 – 05 – 21	05 – 05 – 21	Case Study Presentations		
	37	06 – 05 – 21	06 – 05 – 21	Case Study Presentations		
	38	07 – 05 – 21	07 – 05 – 21	Case Study Presentations		
Practical Slot 10 – 05 – 21 to 15 – 05 -21						
Total	**38**					

Recommended Books:

1. ArshdeepBahga and Vijay Madisetti, “Internet of Things: A Hands-on Approach, Universities Press
2. Raj Kamal, “ Internet of Things: Architecture and Design Principles”, McGraw Hill Education ,First edition
3. David Hanes ,Gonzalo salgueiro“IoT Fundamentals Networking Technologies,Protocols and Use Cases for Internet of Things”, Cisco Press, Kindle 2117 Edition
4. Andrew Minteer ,”Analytics for the Internet of Things(IoT)”,Kindle Edition

Reference Books:

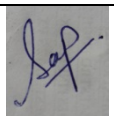
1. Adrian McEwen, Hakim Cassimally, : Designing the Internet of Things”, Paperback, First Edition
2. Yashavant Kanetkar , Shrirang Korde :Paperback “21 Internet of Things (IOT) Experiments” a. BPB Publications

Internal Assessment (IA):

Two tests must be conducted which should cover at least 80% of syllabus. The average marks of both the tests will be considered as final IA marks.

End Semester 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 2 to 5 marks will be asked.
4. Remaining questions will be selected from all the modules.

• **Submitted By**	**Approved By**
Prof. Sangeeta Parshionikar 	**Dr. Sapna Prabhu**
Sign:	Sign:
Date of Submission: 27/01/2021	**Date of Approval:**
Remarks by PAC (if any)	