

DEPARTMENT OF INFORMATION TECHNOLOGY & COMPUTER ENGINEERING



LESSON PLAN

SUBJECT: INTRODUCTION TO IOT

BRANCH: 5TH SEM, IT

FACULTY NAME: DR. ANITARANI BRAHMA

Department of Information Technology

Vision:

To focus on development of skilled and confident personalities of today and tomorrow by using cutting edge technology in the department of Information Technology to accept need based challenges with a sense of social responsibilities.

Mission:

- M1: To impart quality education by implementing state-of-the-art teaching-learning methods to enrich the academic competency, credibility and integrity of the students.
- M2: To implement the educational program in our department from fundamental engineering to recent technology as per emerging trends in the field of Information Technology.
- M3: To facilitate a conducive ambience and infrastructure to develop professional skills and nurture innovation in students.
- M4: To inculcate sensitivity towards society, respect for environment and promote high standards of ethics.

LEARNING OUTCOMES:

After completing this course, student will be able to:

- Explain Core IoT Concepts, including architecture, components, and communication models.
- Identify IoT Eco system Elements, such as sensors, actuators, microcontrollers, communication protocols, and cloud platforms.
- Integrate Hardware Components like Arduino, RaspberryPi, sensors, and actuators for IoT projects.
- Analyze Sensor Data from IoT devices.
- Identify Common Security Threats in IoT ecosystems, including data breaches, device hijacking, and network vulnerabilities.

SUBJECT NAME: Internet of Things**SUBJECT CODE: TH1****FACULTY NAME: DR ANITARANI BRAHMA****HOURL: 45 HR (WEEKLY LOAD 3HR)**

Sl No	Unit No	Topic	Subtopic Covered	Teaching Methodologies Used	Remarks
1	1	Introduction to IoT	Definition and significance of IoT	Lecture, PPT, Discussion	
2	1		Historical evolution of IoT	Lecture, PPT, Discussion	
3	1		Future prospects of IoT	Lecture, PPT, Discussion	
4	1		Applications in industries	Lecture, PPT, Discussion	
5	1		IoT architecture overview	Lecture, PPT, Discussion	
6	1		Sensors and actuators basics	Lecture, PPT, Discussion	
7	1		Hardware components: Arduino, Raspberry Pi	Lecture, PPT, Discussion	
8	1		Software components: OS and middleware	Lecture, PPT, Discussion	
9	2	Sensors & Data Acquisition	Types of sensors	Lecture, Demo, Lab Work	
10	2		Temperature sensors	Lecture, Demo, Lab Work	
11	2		Humidity sensors	Lecture, Demo, Lab Work	
12	2		Motion sensors	Lecture, Demo, Lab Work	
13	2		Actuators overview	Lecture, Demo, Lab Work	
14	2		Motors and relays	Lecture, Demo, Lab Work	
15	2		Interfacing sensors with microcontrollers	Lecture, Demo, Lab Work	
16	2		Analog data acquisition	Lecture, Demo, Lab Work	
17	2		Digital data acquisition	Lecture, Demo, Lab Work	
18	2		Signal conditioning & filtering	Lecture, Demo, Lab Work	
19	3	Communication Protocols	MQTT protocol	Lecture, Case Study, Practical	
20	3		CoAP protocol	Lecture, Case Study, Practical	
21	3		HTTP protocol	Lecture, Case Study, Practical	
22	3		Wi-Fi communication	Lecture, Case Study, Practical	
23	3		Bluetooth communication	Lecture, Case Study, Practical	
24	3		Zigbee communication	Lecture, Case Study, Practical	
25	3		LoRaWAN	Lecture, Case Study, Practical	
26	3		Ethernet	Lecture, Case Study, Practical	
27	3		Serial communication	Lecture, Case Study, Practical	
28	3		Networking fundamentals	Lecture, Case Study, Practical	
29	4	Cloud & IoT Platforms	Introduction to IoT platforms	Lecture, Demo, Hands-on	
30	4		AWS IoT overview	Lecture, Demo, Hands-on	
31	4		Google Cloud IoT	Lecture, Demo, Hands-on	
32	4		Data analytics tools	Lecture, Demo, Hands-on	
33	4		Virtualization Tool	Lecture, Demo, Hands-on	
34	4		Edge computing	Lecture, Demo, Hands-on	

35	4		Cloud services: IaaS	Lecture, Demo, Hands-on	
36	4		Cloud services: PaaS	Lecture, Demo, Hands-on	
37	4		Cloud services: SaaS	Lecture, Demo, Hands-on	
38	4		Cloud integration with IoT	Lecture, Demo, Hands-on	
39	5	IoT Security	Security challenges	Lecture, Discussion, Case Study	
40	5		Common threats	Lecture, Discussion, Case Study	
41	5		Authentication methods	Lecture, Discussion, Case Study	
42	5		Authorization techniques	Lecture, Discussion, Case Study	
43	5		Data encryption	Lecture, Discussion, Case Study	
44	5		Secure communication	Lecture, Discussion, Case Study	
45	5		Privacy laws	Lecture, Discussion, Case Study	
46	All	Revision & Project Work	Unit 1 revision	Revision, Practical, Evaluation	
47	All		Unit 2 revision	Revision, Practical, Evaluation	
48	All		Unit 3 revision	Revision, Practical, Evaluation	
49	All		Unit 4 revision	Revision, Practical, Evaluation	
50	All		Unit 5 revision	Revision, Practical, Evaluation	


Signature of faculty


Signature, HOD i/c