INTERNET OF THINGS LAB

Course Code	20ES1551	Year	III	Semester	I
Course Category	Engineering Sciences	Branch	ECE	Course Type	Practical
Credits	1.5	L-T-P	0-0-3	Prerequisites	Programming for Problem Solving
Continuous Internal Evaluation :	15	Semester End Evaluation:	35	Total Marks:	50

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	**Apply** appropriate techniques, resources and IDE for modeling system designs with understanding of limitations.
CO2	**Develop** various sensor interfacing using programming language
CO3	**Evaluate** wireless control of remote devices
CO4	**Develop** mobile application which can interact with sensors and actuators
CO5	**Make** an effective report based on experiments.

with L3, L3, L5, L6 levels:

CO	Outcome	Level
CO1	**Apply** appropriate techniques, resources and IDE for modeling system designs with understanding of limitations.	L3
CO2	**Develop** various sensor interfacing using programming language	L3
CO3	**Evaluate** wireless control of remote devices	L5
CO4	**Develop** mobile application which can interact with sensors and actuators	L6
CO5	**Make** an effective report based on experiments.	

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)
Note: 1- Weak correlation   2-Medium correlation   3-Strong correlation
* - Average value indicates course correlation strength with mapped PO

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
CO1	3								2				3	3
CO2	3								2				3	3
CO3				3					2				1	1
CO4			2						2				2	2
CO5										3				
Average* (Rounded to nearest integer)	3		2	3					2	3			2	2

Syllabus		
Expt. No.	**Contents**	**Mapped CO**
1	Introduction to Arduino and necessary software installation. Interface and control LED.	CO1, CO5
2	Digital I/O Interface.	CO1, CO2, CO5
3	Analog I/O Interface.	CO1, CO2, CO5
4	Fabrication and direction control of wheeled robot using Arduino.	CO1, CO2, CO5
5	Serial Communication - Device Control.	CO1, CO2, CO5
6	Wireless Module Interface.	CO1,CO3, CO5
7	Basic Android App Development using MIT App Inventor.	CO1,CO4, CO5
8	Smart Home Android App Development using App Inventor and Arduino.	CO1,CO4, CO5

❖ A minimum of 10 experiments to be done covering all the above topics

Learning Resources
Text Books
1. Sylvia Libow Martinez, Gary S Stager, "Invent To Learn: Making, Tinkering, and 2.Engineering in the Classroom", Constructing Modern Knowledge Press, 2016.
References
1. Michael Margolis, "Arduino Cookbook", Oreilly, 2011.
e-Resources & other digital material
1. https://ocw.cs.pub.ro/courses/iot   **2.** https://education.ni.com/teach/resources/1079/industrial-internet-of-things-laboratory