

## INTERNET OF THINGS LABORATORY

<b>Course Code</b>	19ES1552	<b>Year</b>	III	<b>Semester</b>	I
<b>Course Category</b>	ES	<b>Branch</b>	All branches	<b>Course Type</b>	Lab
<b>Credits</b>	3	<b>L-T-P</b>	0-0-2	<b>Prerequisites</b>	Nil
<b>Continuous Internal Evaluation:</b>	25	<b>Semester End Evaluation:</b>	50	<b>Total Marks:</b>	75

---

<b>Course Outcomes</b>	
Upon successful completion of the course, the student will be able to	
<b>CO1</b>	<b>Develop</b> various sensor interfacing using Visual Programming Language(L6)
<b>CO2</b>	<b>Analyze</b> various Physical Computing Techniques(L4)
<b>CO3</b>	<b>Evaluate</b> Wireless Control of Remote Devices(L5)
<b>CO4</b>	<b>Design and develop</b> Mobile Application which can interact with Sensors and Actuators(L6)

---

<b>Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)</b>														
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	PS O1	PS O2
CO1	2	2	3		3	2	2		3	3		3	3	3
CO2	2	3				2	2		3	3		2	3	3
CO3	3	3				2	2		3	3		2	3	3
CO4	3	3	3	3	3	2	2		3	3		3	3	3
Average* (Rounded to nearest integer)	3	3	3	3	3	2	2		3	3		3	3	3

<b>Syllabus</b>		
<b>Expt. No.</b>	<b>Contents</b>	<b>Mapped CO</b>
I	Digital I/O Interface - Multicolour Led, IR Sensor, PIR, SlotSensor.	CO1
II	Analog Read and Write - Potentiometer, Temperature Sensor, Led Brightness Control.	CO1
III	Dc Motor Control - Dc Motor Speed and Direction Control.	CO2
IV	Read data from sensor and send it to a requesting client. (using socket communication) Note: The client and server should be connected to same local area network.	CO2
V	Fabrication and direction control of wheeled robot using Arduino.	CO2
VI	Serial Communication - Device Control.	CO2
VII	Wireless Module Interface - Bluetooth and Wifi.	CO3
VIII	Wireless Control of wheeled Robot using Bluetooth/Wifi.	CO3
IX	Basic Android App Development using MIT App Inventor.	CO4
X	Smart Home Android App Development using App Inventor and Arduino.	CO4

<b>Learning Resources</b>
<b>Text Books</b>
1. Sylvia Libow Martinez, Gary S Stager, "Invent To Learn: Making, Tinkering, and Engineering in the Classroom", Constructing Modern Knowledge Press, 2016.
<b>Reference Books</b>
1. Michael Margolis, "Arduino Cookbook", Oreilly, 2011.
<b>e- Resources &amp; other digital material</b>
1. <a href="https://nptel.ac.in/courses/108/108/108108098/">https://nptel.ac.in/courses/108/108/108108098/</a>