

TINKERING LAB

Course Code	23ES1551	Year	III	Semester(s)	I
Course Category	Engineering Science	Branch	EEE	Course Type	Theory
Credits	1	L-T-P	0-0-2	Prerequisites	NIL
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Construct basic electronic circuits using breadboards for simple real-time applications. (L3)
CO2	Interface sensors and actuators with microcontrollers, and apply design thinking principles to develop engineering solutions (L3)
CO3	Design and simulate embedded system circuits using platforms like Tinkercad and Arduino IDE. (L4)
CO4	Model basic components and analyze their suitability for fabrication using 3D design and printing tools. (L4)
CO5	Conduct experiments individually or in teams using laboratory equipment and prepare effective reports with clear demonstrations.

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Medium, 1:Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3			3									2	1
CO2	3			3	2								2	1
CO3		3		3	2								1	1
CO4		3		3	2								2	1
CO5									3	3			2	1

Syllabus		
Exp.No.	Contents	Mapped CO
Any Ten Experiments		
1	Make your own parallel and series circuits using breadboard for any application of your choice	CO1, CO5
2	Demonstrate a traffic light circuit using breadboard	CO1, CO5
3	Build and demonstrate automatic Street Light using LDR	CO2, CO5
4	Simulate the Arduino LED blinking activity in Tinkercad	CO3, CO5
5	Build and demonstrate an Arduino LED blinking activity using Arduino IDE	CO3, CO5
6	Interfacing IR Sensor and Servo Motor with Arduino	CO3, CO5

7	Blink LED using ESP32	CO2, CO5
8	LDR Interfacing with ESP32	CO2, CO5
9	Control an LED using Mobile App	CO2, CO5
10	Design and 3D print a Walking Robot	CO4, CO5
11	Design and 3D Print a Rocket	CO4, CO5
12	Build a live soil moisture monitoring project, and monitor soil moisture levels of a remote plan in your computer dashboard	CO2, CO5
13	Demonstrate all the steps in design thinking to redesign a motor bike	CO2, CO5

Learning Resources	
Students need to refer the following links:	
1. https://aim.gov.in/pdf/equipment-manual-pdf.pdf 2. https://atl.aim.gov.in/ATL-Equipment-Manual/ 3. https://aim.gov.in/pdf/Level-1.pdf 4. https://aim.gov.in/pdf/Level-2.pdf 5. https://aim.gov.in/pdf/Level-3.pdf	