

Devi Ahilya University, Indore, India Institute of Engineering & Technology			II Year B.E. (Information Technology) (Full Time)				
Subject Code & Name	Instructions Hours per Week			Credits			
	L	T	P	L	T	P	Total
Smart System (ITR4L2)	0	0	1	0	0	1	1
Duration of Practical: 2 Hours							

Learning Objectives:

- To provide knowledge of different Smart System applications.
- To familiarize students with Arduino as IDE, programming language & platform.
- To provide knowledge of Arduino boards and basic components.
- Develop skills to design and implement various smart system application.

List of Experiments:

Following is the list of experiments to be carried out using Arduino boards and other peripheral devices:

- Digital Input & Digital Output
 - Experiments on digital input and digital output on Arduino Mega board and using LED and Buzzer.
- Analog Input & Analog Input
 - Experiments on analog input and analog output on Arduino Mega board using PWM. Different outputs on LED.
- LCD Display
 - Experiment on LCD display:-Print numbers, Name, Time etc.
- Serial Port
 - Serial Communication between Arduino board and PC:-character send and received, Read and display voltage
- DC Motor Control
 - Experiments on DC Motor to control motor speed and direction of rotation.
- Servo Motor Control
 - Experiments on servo Motor to rotate servo motor.
- Stepper Motor Control
 - Experiments on Stepper Motor to rotate bidirectional.
- TV Remote
 - Experiments on TV Remote with LCD.

- Timer
 - Experiments with Timer:-play tones, time interval measurement etc.
- Ethernet
 - Experiment on Ethernet with web page static IP
- Bluetooth & Wi-Fi
 - Experiments on Blue tooth and Wi-Fi

Learning Outcomes:

Upon completing the course, students will be:

- Familiar with Arduino environment and its applications.
- Able to understand Arduino programming with C++.
- Able to Design Smart systems applications.
- Learn and understand about any new IDE, compiler, and MCU chip in Arduino compatible boards or similar types.