P.B. SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Siddhartha Nagar, Vijayawada – 520 010
Autonomous - ISO 9001 – 2015 Certified

23ELVAP101: INTRODUCTION TO ARDUINO

Offered to: All UG Programs **Course Type:** LAB

Year of Introduction: 2023-24 **Semester: I**

Credits: 2 **Hours Taught:** 45 hrs

Course Prerequisites: Basic Electronics & Integrated circuits

Course Objectives:

1. To learn basic electronic concepts, breadboard and electronic components, and writing lab reports.
2. To learn how the Arduino platform works in terms of the physical board and libraries and the IDE.
3. To develop skills to design and implement various smart system applications.

Course Outcomes: At the end of this course, students should be able to:

C01: Learn the Arduino programming language and IDE.
C02: Program basic Arduino examples.
C03: Prototype circuits and connects them to the Arduino.
C04: Program the Arduino microcontroller to make the circuits work.
C05: Connect the Arduino microcontroller to a serial terminal to understand communication and stand-alone use.

Syllabus

Course Details:

Unit	Learning Units	Lecture Hours
I	What is Digital Signal and Analog Signal and Example? Types Of communication Methods, Digital Sensors, Analog Sensors, Output Devices and Serial Communication Devices Lists. What is Arduino? Why we Choose Arduino? Types Of Arduino and its Features, Software Required For Arduino, Arduino IDE Installation and Proteus 8 Installation	10
II	Arduino Digital Input/output Handling, How to program for Digital Input devices? Example: Get input from Switch, How to Program for Digital Output devices? Example: LED controlling, Arduino LCD Interfacing, LCD Display Pinout, Example:Display Text Data.	10
III	Arduino Analog Input And Calibration, List of Analog Sensors How to Program for Analog Devices? Example: Measuring Room Temperature What is Calibration? Calibrate the Temperature sensor Arduino Interfacing to Actuator, Buzzer, DC Geared Motor, Servo Motor	10
IV	Arduino Serial Communication, List of Serial Communication Devices How to program for Serial Transmission? Example: Send Data to Mobile via Bluetooth, How to program for Serial Receiving? Example: Receive Date from Mobile via Bluetooth.	10
V	Home Automation Using Arduino, What is Home Automation? Devices Used in home automation, Program Testing.	5

Question Paper Pattern for Optional Value-Added Course (VAC:Lab)

(A)SEE (LAB) Model Question Paper

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Max.Marks: 35 Max.Time: 2Hours

Pass. Min: 14

I. Answer any THREE of the following. 3 x 10 = 30

Marks

Q1

Q2

Q3

Q4

Q5

II Viva 2 Marks

III Record 3 Marks

(B)CONTINUOUS ASSESMENT: 15 MARKS

TOTAL : (A)+(B) = **50 Marks**

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