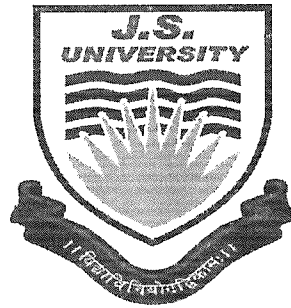


J.S. University, Shikohabad

Established by UP Govt. Act No. 07 of 2015

Recognized by U.G.C. under section 2 (f) of Act-1956




Value Added Course

[VAC-047]

**Embedded System – Arduino
Development Board)**

Faculty of Engineering
Department of Electrical and Electronics Engineering

	J.S. University, Shikohabad Faculty of Engineering	Value Added Course
		AY: 2019-20

Embedded System – Arduino Development Board

[VAC-047]

Learning Objective:

This course will add real life problem solving skills with embedded system to the students.


Duration: 30 Hours. (Theory and Practical)

Course Outcomes: -

Maximum Exposure has to be given on Practical Oriented

After completion of the course the student shall be able to:-

1. Embedded system- Introduction
2. Arduino Development Board – Introduction to Arduino Uno Atmega328P, Tools, Parts, accessories, Pin
3. Communications Basics: Serial (UART) Communications, PC (TWI) communications, SPI Communications
4. Prototyping basics: Breadboard, Jumper wires, Power supply, Soldering
5. The Arduino IDE: Installation, Understanding preference pane, Menu items
6. Arduino Programming: Basic parts of Arduino sketch, Create custom functions and return keyword, Variables, Array, Loops, Library to control RGB light with PWM,
7. Sensors- Photo resistor, RGB color sensor, LED, DHT22- Temperature sensor, Humidity sensor, thermistor

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Syllabus Outline

1. Module-1

Introduction to Embedded Systems, Anatomy of Embedded Systems ,Introduction to Open Source platform, Introduction of Electronic Components, Introduction to Sensors, Introduction to Computational Devices

2. Module-2

Application of What is Sensor? Various Basic Industrial Sensors-IR- Analog Sensor, IR Digital Sensor, Color IR _TSOP Sensor, Light Sensor, Sound Sensor , DTMF Module

3. Module-3

Various programming Languages, Selection of programming Language, Need of Flow Diagram, How to write First "LEDBLINKING" Code in Embedded C

4. Module-4

LED Blinking, Running LEDs, Sand Glass Filling of LEDs , Decoration LEDs/LED Patterns Etc. Sensor Interfacing, DC Motor Driving ,Black Line Follower using Two IR-Sensors, White Line Follower using two IR-Sensors

5. Module-5

Arduino Uno Board, 4 bit Keypad , 4 bit LED, Analog Voltage Sensor , Segment Display Digital Buzzer Module

References

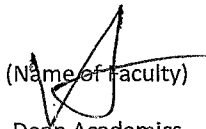
1. Arduino-Based Embedded Systems : By Rajesh Singh, Anita Gehlot, Bhupendra Singh, and Sushabhan Choudhury.
2. <https://www.arduino.cc/en/Tutorial/HomePage>
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6. ARM System - On - Chip Architecture, Furber, Steve
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(Name of Faculty)

Course Coordinator

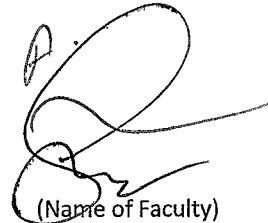
Er. Ravi
Pachori



(Name of Faculty)

Dean Academics

Dr. Akhilesh



(Name of Faculty)

Director/Principle/Dean of
Faculty/Department

Dr. Adnan
Darim