



# Techno India NJR Institute of Technology, Udaipur

## Department of Electrical Engineering

### Kits Detail:

Kit will include:

- Arduino UNO Development Board (1 Nos.)
- Connecting Cable D-Type (1 Nos.)
- Bread Board (1 Nos.)
- Jumper Wires (6 Nos.)
- DC Motor (1 Nos.)
- Red LED (3 Nos)
- Green LED (3 Nos)
- Blue LED (3 Nos)
- 220 $\Omega$  Resistor (10 Nos.)
- 1k $\Omega$  Resistor (10 Nos.)
- Push Button (2 Nos.)
- Potentiometer 10k $\Omega$  (1 Nos.)

### Training Overview:

#### Session-1 (Theory+Practical)

- Introduction to Embedded System
- Scope and opportunities in Industry
- Introduction to Arduino Atmega328p Controller and Its features
- Arduino IDE Setup
- Introduction to Hardware Kit

#### Session-2 (Theory+Practical)

- Basics of Electronics
- Use of Basic Components
- LED Blink
- Digital Output
- Digital Input
- Analog Output or PWM output

#### Session-3 (Theory+Practical)

- If-else Statement
- For Loop
- While Loop
- Do-While Loop
- Fade LED
- Control LED using Button
- Control LED Brightness using Button

For Techno India NJR Institute of Technology  
पंकज पोरवाल  
Dr. Pankaj Kumar Porwal  
(Principal)



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### Session-4 (Theory+Practical)

- Led Brightness Control using Potentiometer
- DC Motor Speed Control using Potentiometer
- L293D Motor Driver
- Basics of Matlab/Simulink Programming

### Session-5 (Theory+Practical)

- Setup Environment for Arduino Control
- Configure Model to run with Arduino
- Introduction to different Simulink Library
- Introduction to Simulink Support Package for Arduino Hardware Library
- Use of Blocks of Simulink Support Package Library
- Pulse Generator, Repeating Sequence Generator use

### Session-6 (Theory+Practical)

- Code Generation
- Blink LED from Simulink at Real Time
- Control LED Brightness from Simulink using Slider Gain
- Control LED Brightness from Simulink using Repeating Sequence Generator
- Analog read in Simulink at real time
- DC Motor Speed Control from Simulink
- Q&A

### Prerequisite for Workshop:

#### Theory

- Basics of Electrical and Electronics
- Basics of Digital Electronics
- Basics of Computer
- C Programming

### Benefits for Participating Students

- Student will be provided **Software & Handouts** discussed in the Training.
- **Q&A Sessions** of participants for doubt clearance leading to better subject knowledge.

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