HOPE Foundation's

Finolex Academy of Management & Technology, Ratnagiri

Department of Electrical Engineering

2-Day Workshop on Arduino: Basics to Automation & Robotics

The Electrical Department organized a two-day hands-on workshop titled "**Arduino: Basics to Automation & Robotics**" for Second-Year Electrical Engineering students on February 3rd and 10th, 2025. The workshop witnessed the enthusiastic participation of 60 students, who actively engaged in interactive learning sessions focused on embedded systems, sensor interfacing, and real-world automation applications.

The workshop was structured into four in-depth daily sessions, covering Arduino fundamentals, sensor integration, and automation projects. The first day provided students with a strong foundation in microcontrollers, Arduino IDE setup, basic programming, and interfacing of digital and analogue components. Hands-on exercises involved working with essential sensors such as temperature, humidity, soil moisture, IR, ultrasonic, smoke, and LDR sensors, helping students understand sensor integration and data acquisition. On the second day, participants advanced to real-time automation applications, implementing projects like home automation, smart irrigation systems, obstacle detection, and line-follower robots. The sessions emphasized debugging, troubleshooting, and optimizing Arduino-based systems for enhanced functionality.

The workshop was conducted by Prof. Rupesh B. Ingle and Dr. Jayant J. Mane, who served as resource persons, offering valuable insights and practical training. Prof. Rupesh B. Ingle led in-depth sessions on Arduino Uno programming, sensor interfacing, automation, and robotics, equipping students with essential technical skills. Dr Jayant J. Mane discussed pre-guided averaging Arduino for personal and industry-relevant projects, enabling students to explore its wide-ranging applications in automation and control systems.

The event was coordinated by Prof. Sudip Halder, ensuring smooth execution and active student participation. Feedback from participants highlighted a strong understanding of real-world automation, with a focus on sensor interfacing, circuit debugging, and project implementation. Their enthusiasm and engagement reflected a keen interest in applying these skills. The workshop effectively bridged theory and practice, empowering students to develop innovative Arduino-based projects.

Inauguration of the 2-Day Workshop by HOD Dr. J.J. Mane, with Prof. R.B. Ingle Present.

Prof. R.B. Ingle explaining the simulation of an Arduino-based project in Tinkercad.

Robo Cars used in Arduino Workshop.

Prof. R.B. Ingle demonstrating the line follower robot built with Arduino Uno.