



Vishnu Waman Thakur Charitable Trust's
VIVA Institute of Technology

Approved by AICTE New Delhi, Recognized by DTE, Govt. of Maharashtra
And Affiliated to University of Mumbai

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Department of Electrical and Computer Engineering

Workshop Report

"Introduction to Microcontroller Programming: Arduino & ESP8266"

Organized by: Department of Electrical and Computer Engineering

Under the Banner of: EESA (Electrical Engineering Students' Association)

Conducted by: Mr. Hrithik More, Robotics Instructor, Dr Pillai Global Academy

Dates: 18th & 19th September 2025

Participants: SE Electrical & Computer Engineering Students

Total Participants: 36

Objective of the Workshop:

The main objective of the workshop was to introduce engineering students to the fundamentals of microcontroller programming using Arduino and ESP8266. The sessions aimed to provide students with:

- Conceptual understanding of microcontrollers and IoT.
- Practical skills in programming and interfacing hardware components.
- Hands-on experience in developing mini-projects.
- Awareness about real-world applications and career opportunities in embedded systems and IoT.

Workshop Highlights:

Day 1: Arduino Microcontroller

- Introduction to microcontrollers and the Arduino platform.
- Arduino IDE, coding structure (setup & loop), and serial communication basics.
- Practical sessions on blinking LED, button interfacing, and an ultrasonic sensor-based mini project with buzzer alert.

Day 2: ESP8266 Wi-Fi Microcontroller

- Introduction to IoT concepts and an overview of the ESP8266 NodeMCU.



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- Programming ESP8266 with Arduino IDE and Wi-Fi configuration.
- Hands-on project: Creating a simple web server for LED control.
- Mini project: Displaying temperature sensor data (DHT11) on a web page.
- Concluding discussion on career opportunities in embedded systems and IoT.

Outcomes:

- Students gained practical knowledge of Arduino and ESP8266 programming.
- Ability to write, upload, and debug microcontroller code.
- Successful completion of mini-projects related to LED control, sensor interfacing.
- Enhanced problem-solving and circuit debugging skills.
- Exposure to career paths and project ideas in embedded systems and IoT.





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Conclusion:

The two-day workshop was highly interactive and beneficial for students, as it combined theoretical concepts with hands-on practice. The participants learned to design and implement real-time projects using Arduino and ESP8266, which helped them develop confidence in working with microcontrollers and IoT applications. The workshop successfully achieved its objective of bridging the gap between academic learning and practical applications in the field of embedded systems.