



SKILL LAB



ON ESP32 Beginner Booster For 5th Semester Students

KLS GOGTE INSTITUTE OF TECHNOLOGY, BELAGAVI Department of Computer Science & Engineering

Overview:

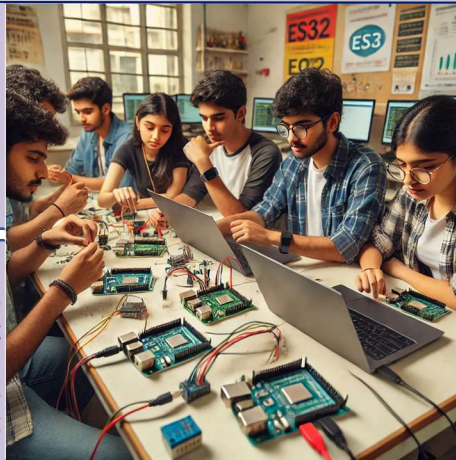
The ESP32 Beginner Booster Skill Lab is a 36-hour course designed for 3rd-year BE students to introduce them to the powerful ESP32 microcontroller. The course covers fundamental topics such as GPIO control, sensor interfacing, and actuator management, along with wireless communication via Wi-Fi, Bluetooth, and MQTT. Students will gain hands-on experience in building IoT applications and real-time data systems, culminating in a final project where they implement and showcase an IoT solution. This lab equips students with essential skills for IoT development and embedded systems.



Mode of Conduction of each Module: Offline

theory:	10 Hours,
Demo:	10 Hours,
Lab Sessions:	16 Hours
Total duration:	36 Hours
Certification exam:	03 Hours

Module 1: Introduction to ESP32 & Setup : Covers ESP32 architecture, GPIO control, and setting up programming environments, with basic LED and button interfacing for hands-on practice.



Module 3: Wireless Communication & Networking
Teaches Wi-Fi, Bluetooth, and MQTT protocols, enabling students to build web servers and cloud-connected IoT systems using ESP32.

Module 2: Sensors & Actuators Interface: Focuses on interfacing sensors (DHT11, LDR) and actuators (motors, relays), with hands-on projects on reading sensor data and controlling devices.

Module 4: Mini Projects & Final Assessment: Students apply their skills to develop IoT projects, integrating sensors, wireless communication, and presenting their final implementations.

Terms and Conditions

Students who have paid a skill lab fee to the institution are eligible for training. The students must maintain 90% attendance for obtaining the skill lab certificate.

Students must attend training as per scheduled time.

Acceptance

In order to accept and start the training program, students are required to register with the respective department. Details to be provided by the student to the department include:

Name, USN, UID, Mobile No, Email id

Coordinator:

Name: Dr. Sharada M. Kori
Dept. of CSE
Phone: 7026389654
E-mail: smkori@git.edu

Outcomes

- Enhanced understanding of microcontroller-based systems.
- Improved ability to prototype hardware projects.
- Exposure to IoT and smart system