Dattakala Shikshan Sanstha's

DATTAKALA GROUP OF INSTITUTIONS
FACULTY OF ENGINEERING
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Approved by AICTE - New Delhi, DTE - Mumbai, Recognized by Govt. of Maharashtra
Affiliated to Savitribai Phule Pune University,

Date:- 29/08/2025

To,

The Director,
Dattakala Group of Institutions
Faculty of Engineering
Swami Chincholi

Subject: Permission to Organize IOT Workshop on 9th & 10th September 2025

Respected Sir,

I am writing this letter to seek your kind permission to organize a **workshop on the Internet of Things (IoT)** for the **third-year and final-year students** of the Electronics and computer engg students, under the banner of Mr.Padmakar Sawane, on **9th & 10th September** in the ECE Department Computer lab

The primary objective of this workshop is to provide students with practical knowledge and hands-on experience in the emerging field of IoT, including topics such as embedded systems, sensors, microcontrollers, cloud communication, and real-time applications. The session will be conducted by experienced trainer **Mr. Padmakar Sawane from Bit Electronic System** who have prior experience in conducting similar workshops in reputed institutions.

We believe this initiative will enhance students' technical skills and prepare them for future industry requirements. The workshop will be conducted during academic hours.

We kindly request your approval to proceed with organizing this event and to use the college facilities required for the same. We assure you that all necessary arrangements and discipline will be maintained during the workshop.

Thank you for considering our request. We look forward to your positive response.

Co-ordinator
Prof Woykul A.D

Permitted.
29/8/25

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Dept.of Electonics & Computer Enginee.
Dattakala Group of Institution.
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541/2, 527, Off Pune- Solapur Highway, Swami-Chincholi (Bhigwan), Tal - Daund, Dist. – Pune 413130, Maharashtra
| Email: dkgoi@dattakala.edu.in | Web: www.dattakala.edu.in | Contact No. 9673002923, 9673400500 | For More Information: 9673002929 |

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Prerequisites

- **Basic Electronics Knowledge:** Familiarity with concepts like voltage, current, circuits, and components (resistors, LEDs, etc.).

- **Fundamental Programming Skills:** Experience with any high-level language like C/C++, Python, or Java. A basic understanding of syntax, variables, loops, and functions is essential.

- **Computer with Arduino IDE:** A laptop with the Arduino IDE installed and a basic understanding of its interface.

Content

Day 1: Getting Started with NodeMCU and MQTT Fundamentals (4 hours)

- **Introduction to IoT:** What is IoT? How does it work? Discuss the key components: devices, connectivity, cloud, and user interface.

- **Introducing NodeMCU:** Overview of the ESP8266 Wi-Fi module and the NodeMCU board. Explain its features and why it's popular for IoT projects.

- **Setting up the Environment:**

  - Installing the NodeMCU board package in the Arduino IDE.

  - Writing and uploading a simple "blink" program to the NodeMCU.

- **Introduction to MQTT:**

  - Explain the **publish-subscribe model**.

  - Define key terms: **Broker, Client, Topic, Publish,** and **Subscribe**.

  - Explore the advantages of MQTT for IoT (lightweight, efficient).

- **Hands-on Project 1: MQTT Client Setup**

  - Connecting the NodeMCU to a Wi-Fi network.

  - Connecting to a public MQTT broker (e.g., HiveMQ, Mosquitto).

  - Writing code to publish a simple message to a specific topic.

  - Using an MQTT client tool (like MQTT Explorer) on a computer to verify the published message.

Day 2: Advanced MQTT and Building an IoT Application (4 hours)

- **Recap of Day 1:** A brief review of MQTT concepts and the publish-subscribe model.

- **Controlling a Device via MQTT:**

  - Writing code to subscribe to a topic.

  - Parsing incoming messages to control an LED or a relay module connected to the NodeMCU.

- Hands-on Project 2: Remote LED Con ...
  - Build a circuit with an LED and a current-limiting resistor.
  - Write a program that subscribes to an MQTT topic (e.g., home/light/control).
  - If a message "ON" is received, the LED turns on. If "OFF" is received, the LED turns off.
  - Use an MQTT client on a mobile phone to publish messages and control the LED remotely.

- **Publishing Sensor Data to MQTT:**
  - Introduce a simple sensor (e.g., DHT11 for temperature/humidity or a simple photoresistor).
  - Write code to read data from the sensor.
  - Publish the sensor data to an MQTT topic (e.g., home/room1/temperature).

- **Hands-on Project 3: IoT Temperature Monitor**
  - Connect a DHT11 sensor to the NodeMCU.
  - Write a program to read temperature and humidity every few seconds.
  - Publish the readings to two separate MQTT topics.
  - Use the MQTT client tool to visualize the live sensor data.

- **Q&A and Next Steps:** Discuss how to integrate with other services, security considerations, and potential project ideas.

Outcomes

Upon completion of this workshop, participants will be able to:

- **Comprehend fundamental IoT concepts** and the role of microcontrollers like NodeMCU.

- **Set up and program a NodeMCU** using the Arduino IDE.

- **Understand the MQTT protocol** and its significance in IoT communication.

- **Build basic circuits** and interface them with the NodeMCU.

- **Develop two complete, working IoT projects** from scratch: a remote-controlled device and a sensor data logger.

- **Publish and subscribe to data** on an MQTT broker.

- **Troubleshoot and debug** basic IoT connectivity issues.

- **Lay the foundation** for more complex IoT applications and projects.
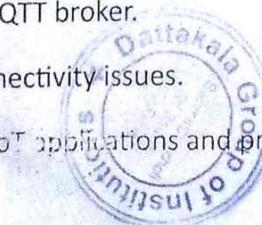
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Date: 29/08/25

NOTICE

All the students of BE & TE hereby informed that the 2 day's workshop on the topic **"INTERNET OF THING (IOT)"** is arranged on 9th & 10th September 2025 in the ECE Department Computer LAB .

Attendance is compulsory to all You should remains present in the College at 09/09/2025 (Tuesday) & 10/09/2025 (Wednesday) on 10:00 AM Onwards.
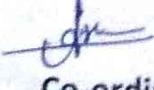
Co-ordinator

Prof wajkule A.D

HOD

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Director

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Date:01/09/2025

Workshop Report

Electronics & Computer Engineering Department organized 2 Day Workshop on **"IOT"** in our institute on 29/09/2025(Monday) TO 30/09/2025 (Tuesday) From 10:00 AM to 4:00 PM onwards.

Name of the Program: "IOT(Internet Of Things)".

Co-ordinator : Prof. Waykule A.D .
            Electronics & Computer Engineering

Name of Speaker: Mr.Padmakar Sawane

Date of Conduction: 29th Sep to 30th Sep 2025.

Objectives:

- **Understand IoT Basics** – Learn core concepts, architecture, and components.

- **Explore IoT Devices** – Get hands-on with sensors, microcontrollers (e.g., Arduino, Raspberry Pi).

- **Data Communication** – Learn how devices communicate (Wi-Fi, Bluetooth, MQTT, etc.).

- **Cloud Integration** – Understand how to send and store data using cloud platforms.

- **Build IoT Projects** – Develop simple real-time IoT applications.

- **Security Awareness** – Learn basic IoT security principles.

- **Industry Applications** – Explore real-world use cases (smart home, health, agriculture, etc.).

- **Develop Problem-Solving Skills** – Apply IoT knowledge to solve practical challenges.

- **Encourage Innovation** – Inspire new ideas using IoT technology.

- **Team Collaboration** – Promote teamwork through group-based project work.
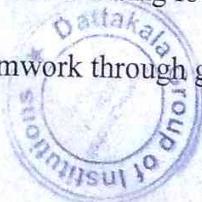
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Targeted Audience: students of TE & BE Electronics & Computer Engg.

Venue: - Digital Board Class Room (3rd Floor) Electronics & Computer Department of DGIFOE.

Time: -10:00 AM Onwards

No. of Participants: 36

Activity:

Day 1: Getting Started with NodeMCU and MQTT Fundamentals (4 hours)

• **Introduction to IoT:** What is IoT? How does it work? Discuss the key components: devices, connectivity, cloud, and user interface.

• **Introducing NodeMCU:** Overview of the ESP8266 Wi-Fi module and the NodeMCU board. Explain its features and why it's popular for IoT projects.

• **Setting up the Environment:** o Installing the NodeMCU board package in the Arduino IDE. o Writing and uploading a simple "blink" program to the NodeMCU.

• **Introduction to MQTT:** o Explain the publish-subscribe model. o Define key terms: Broker, Client, Topic, Publish, and Subscribe. o Explore the advantages of MQTT for IoT (lightweight, efficient).

• **Hands-on Project 1**: MQTT Client Setup o Connecting the NodeMCU to a Wi-Fi network. o Connecting to a public MQTT broker (e.g., HiveMQ, Mosquitto). o Writing code to publish a simple message to a specific topic. o Using an MQTT client tool (like MQTT Explorer) on a computer to verify the published message.

Photos:
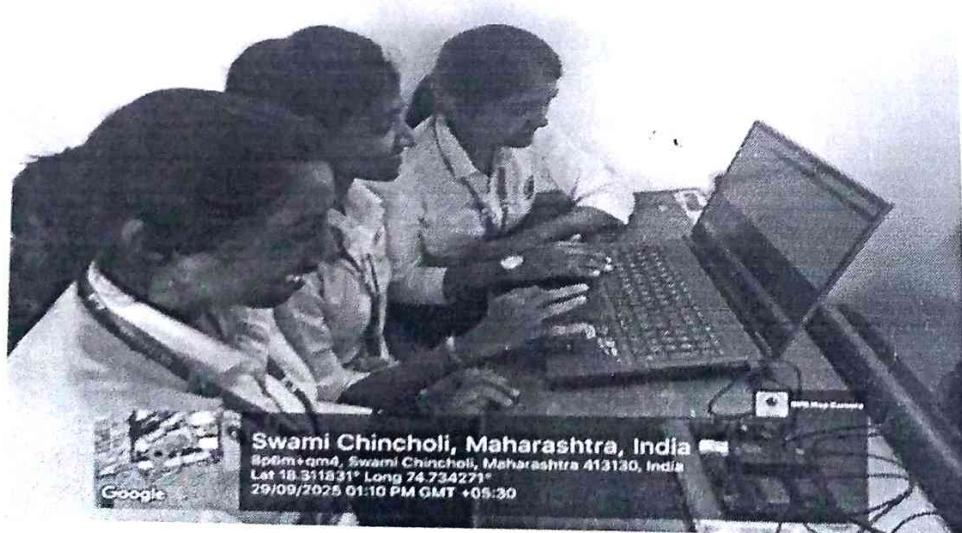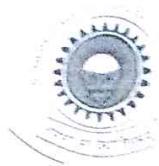
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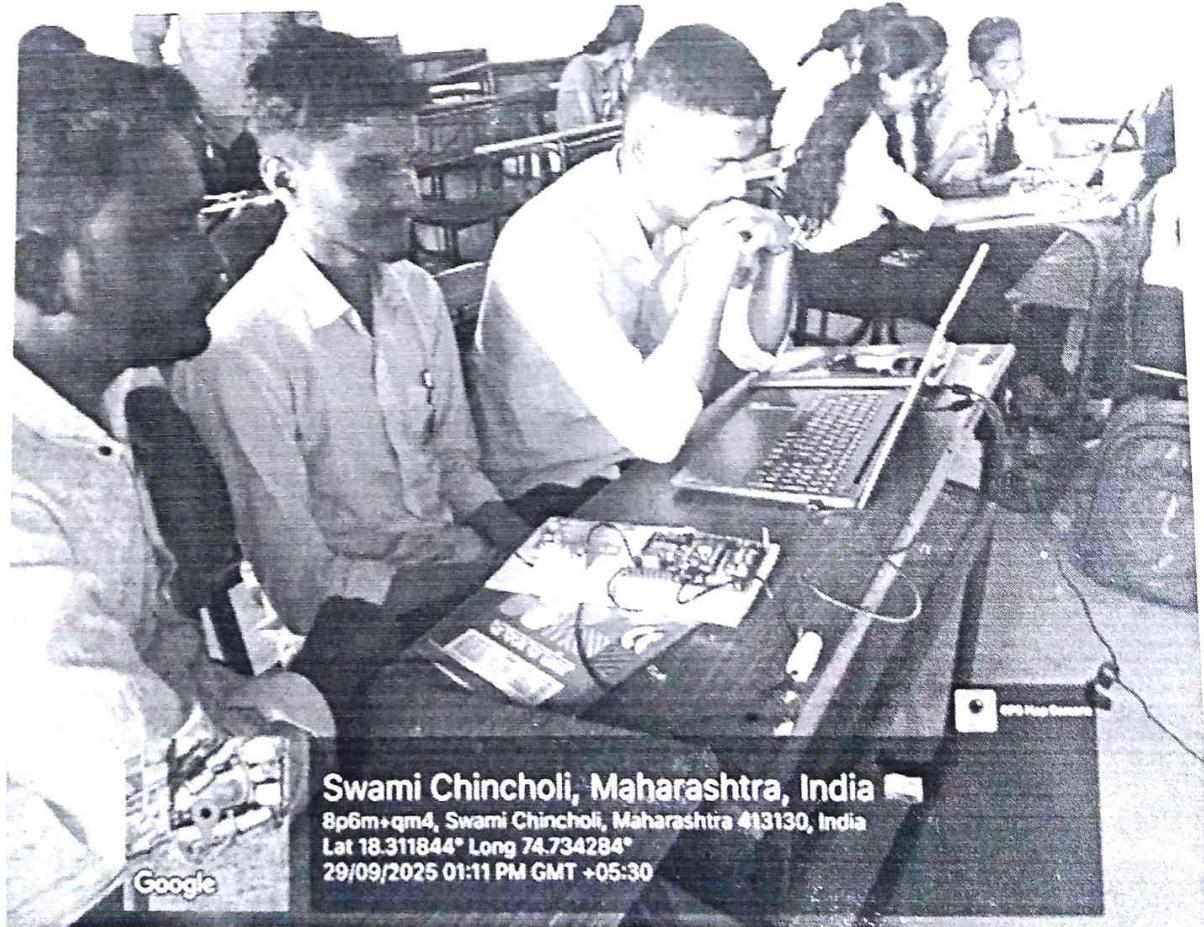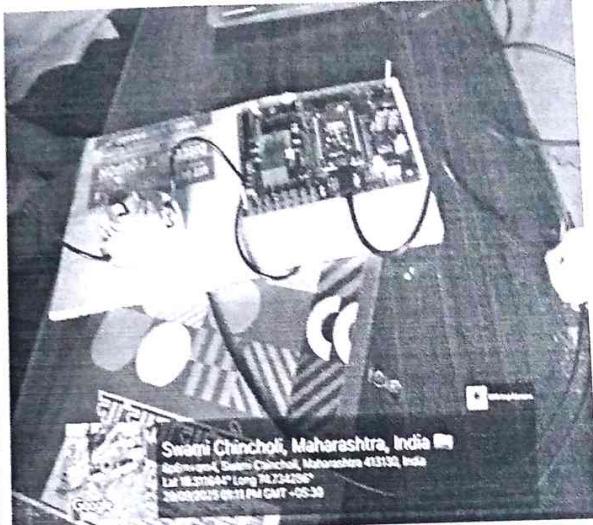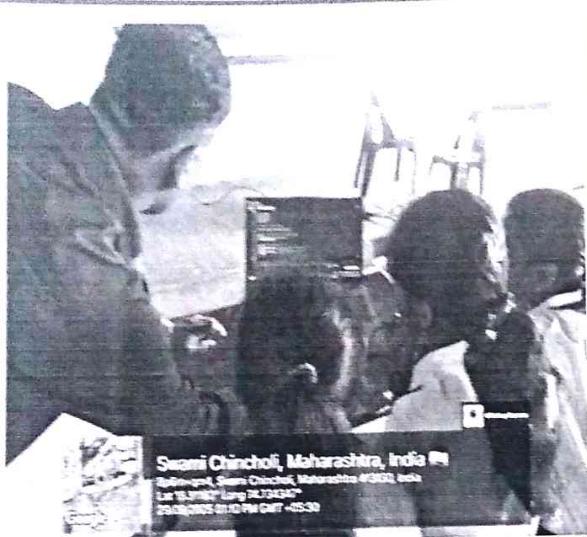
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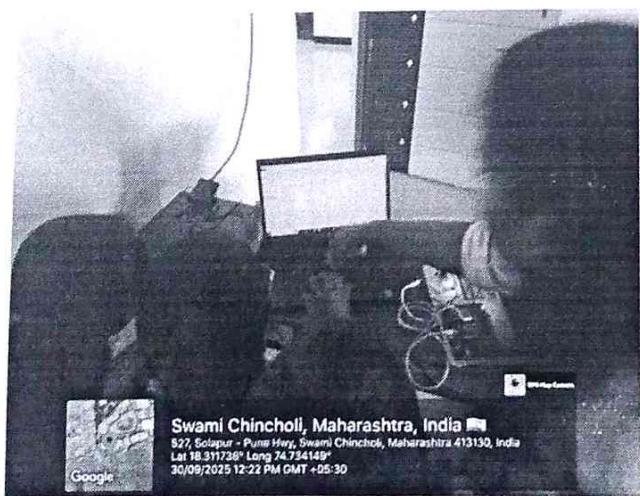
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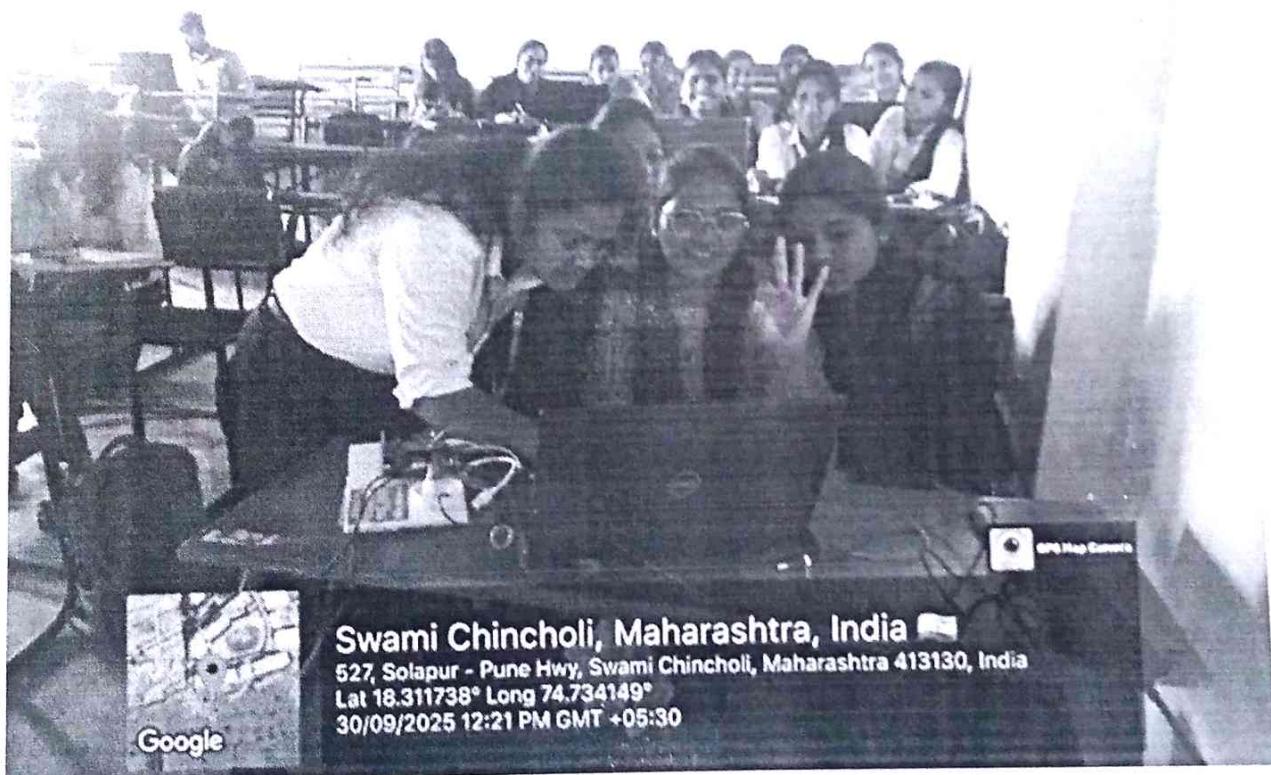
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Workshop Coordinator

HOD

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Principal
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DEPARTMENT OF ECE ENGINEERING
Student Attendance List

Roll No.	Name of the Student	CLASS	SIGN
1	KHARTODE VIDYA	TE	
2	BHOPLE SMITA	TE	
3	BORKAR ARCHANA	TE	
4	KADLAG ABHINAV	TE	
5	MORE SIMRAN	TE	
6	NIKITA MISAL	TE	
7	UPASE DNYANESHWAR	TE	
8	HOLE PRIYANKA	TE	
9	MALGUNDE PRIYANKA	TE	
10	LAHANE VAISHNAVI	TE	
11	LAGAD NIKITA	TE	
12	KAMBLE SANCHI	TE	
13	SUDESH SARODE	TE	
14	MUJAWAR TOUFEEQUE	TE	
15	GAWADE AMIT	TE	
16	GAIKWAD NISANT	TE	
17	SUTAR SWATI	BE	
18	KALE DIPALI	BE	
19	JOSHI PREETAM	BE	
20	DEOKATE SWAPNIL	BE	
21	JAYDIP KALE	BE	
22	JAGRUTI KHUTALE	BE	
23	SAMARTH SHINDE	BE	
24	SHAIKH UMAR	BE	
25	PATHAN FIRDOS	BE	
26	JADHAV MAYURI	BE	
27	PATHARE PRATHAMESH	BE	
28	JADHAV KARTIKESH	BE	
29	DANDGE VISHAL	BE	
30	NEHUL CHETAN	BE	
31	shaikh mudhasir	BE	
32	kadam onkar	BE	
33	jaydip jagtap	BE	
34	pawar jayjeet	BE	
35	chavan aditya	BE	
36	gatkui sahil	BE	
37)	Gawade Priyanka	BE	P.R. Gawade

Co-ordinator

HOD

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12	KAMBLE SANCHI	TE	
13	SUDESH SARODE	TE	
14	TOUFEEQUE MUJAWAR TOUFEEQUE	TE	
15	GAWADE AMIT	TE	
16	GAIKWAD NISANT	TE	
17	SUTAR SWATI	BE	
18	KALE DIPALI	BE	
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