2-Day Workshop Plan

Internet of Things (IoT)

Day	Time	Activity
Day 1	10:00 AM - 10:45 AM	Introduction to IoT: What is IoT? Importance and applications, Key components (Sensors, Actuators, Microcontrollers, Cloud platforms)
Day 1	10:45 AM - 11:30 AM	IoT Architecture and Communication Models: Layers of IoT architecture, IoT communication protocols (MQTT, CoAP, HTTP)
Day 1	11:30 AM - 11:45 AM	Break (15 minutes)
Day 1	11:45 AM - 1:00 PM	Hands-On: Setting Up an IoT Device: Introduction to microcontrollers (Arduino or Raspberry Pi), Basic circuit setup with sensors, Writing simple code to collect sensor data
Day 1	1:00 PM - 2:00 PM	Lunch Break (1 hour)
Day 1	2:00 PM - 2:45 PM	IoT Data Collection and Processing: Collecting data from IoT devices, Sending data to cloud platforms (ThingSpeak, Blynk), Real-time data visualization, Edge computing vs cloud computing
Day 1	2:45 PM - 4:00 PM	Hands-On: Sending Data to the Cloud: Connecting the IoT device to cloud platform, Programming the device to send data, Visualizing data in real-time
Day 1	4:00 PM - 4:15 PM	Break (15 minutes)
Day 1	4:15 PM - 5:00 PM	Q&A and Day 1 Wrap-Up: Recap of concepts, Addressing questions, Overview of Day 2 activities

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Day	Time	Activity
Day 2	10:00 AM - 10:45 AM	Advanced IoT Concepts: IoT security challenges and solutions, Privacy concerns, Data management and analytics
Day 2	10:45 AM - 11:30 AM	IoT Protocols and Communication (Deep Dive): MQTT, CoAP, Configuring IoT devices to communicate with MQTT, Advantages of MQTT in IoT
Day 2	11:30 AM - 11:45 AM	Break (15 minutes)
Day 2	11:45 AM - 1:00 PM	Hands-On: Setting Up MQTT: Setting up an MQTT broker (Mosquitto), Programming IoT devices for MQTT communication, Visualizing data with MQTT client tools (e.g., MQTT.fx)
Day 2	1:00 PM - 2:00 PM	Lunch Break (1 hour)
Day 2	2:00 PM - 2:45 PM	IoT Project: Smart Home Automation: Introduction to smart home automation, Controlling appliances remotely, Using IoT sensors for automation
Day 2	2:45 PM - 4:00 PM	Hands-On: Building a Simple Smart Home System: Setting up IoT devices to control home appliances, Integrating IoT sensors, Creating a basic mobile app or dashboard for control
Day 2	4:00 PM - 4:15 PM	Break (15 minutes)
Day 2	4:15 PM - 5:00 PM	Q&A and Final Wrap-Up: Review of concepts and projects, Discussion on further learning paths, Certification distribution and closing remarks