RAMCO INSTITUTE OF TECHNOLOGY

Department of Electronics and Communication Engineering

Academic Year: 2024 - 2025 (Odd Semester)

Active Learning Practices

Degree, Semester& Branch: V Semester B.E.ECE A

Course Code & Title: CEC368 & IoT Based System Design

Name of the Faculty member: Mr.P.Gunasekaran

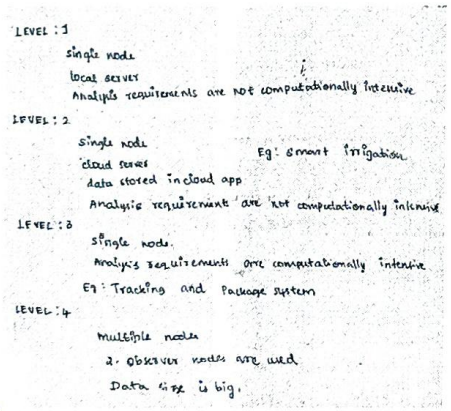
Date: 20.08.24

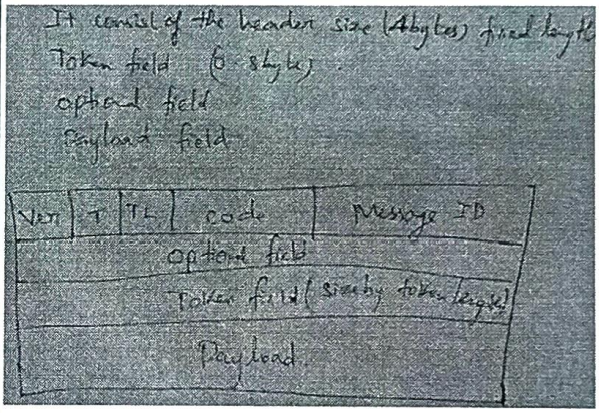
Active Learning Practices Execution

UNIT I INTRODUCTION TO INTERNET OF THINGS

Activity: One Minute Paper

Topic: IoT levels and deployment templates





Signature of the faculty

HOD

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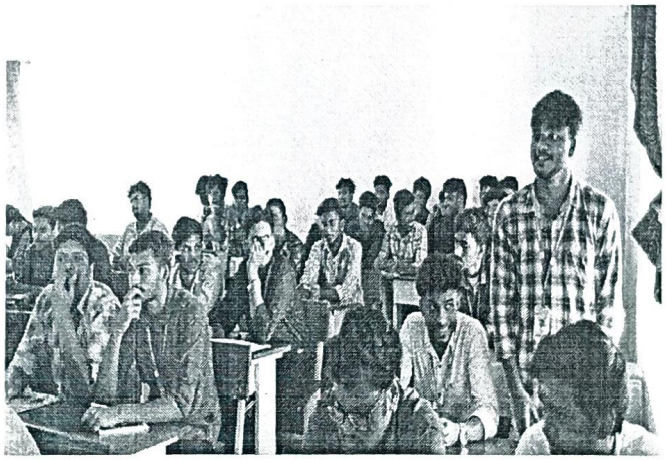
Name of the Faculty member: Mr.P.Gunasekaran

Date: 06.09.24

Active Learning Practices Execution
UNIT II MIDDLEWARE AND PROTOCOLS OF IOT
Activity: CLASS POLL **Topic:** Resource Management in IoT


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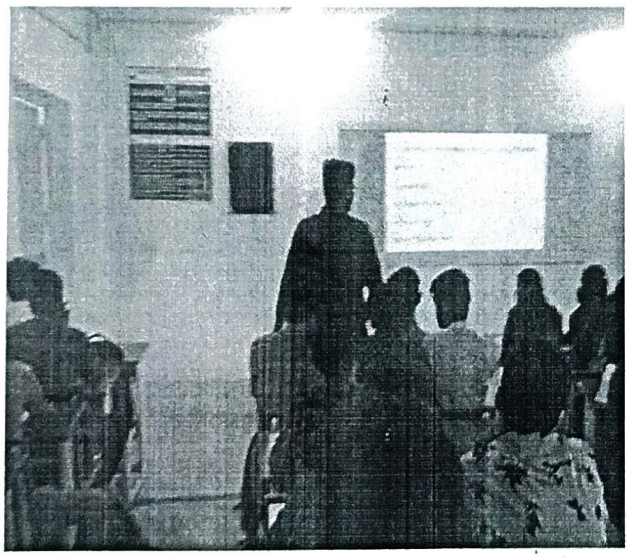
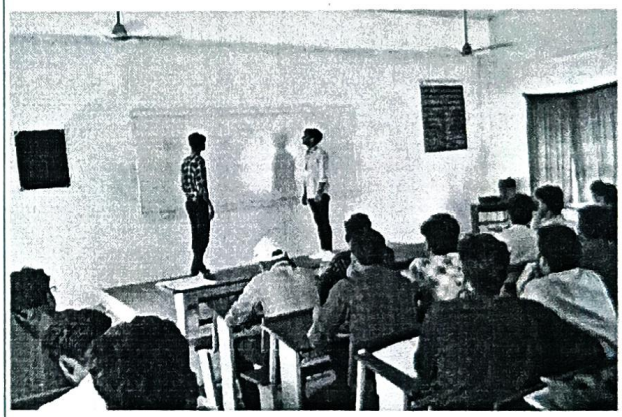
Name of the Faculty member: Mr.P.Gunasekaran

Date: 24.09.24

Active Learning Practices Execution	
UNIT III COMMUNICATION AND NETWORKING	
Activity: Mind Map **Topic:** Application Layer Protocols: CoAP and MQTT	
	

Signature of the faculty

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Department of Electronics and Communication Engineering

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Active Learning Practices

Degree, Semester& Branch: V Semester B.E.ECE A

Course Code & Title: CEC368 & IoT Based System Design

Name of the Faculty member: Mr.P.Gunasekaran

Date: 06.11.24

Active Learning Practices Execution
UNIT V APPLICATIONS AND CASE STUDIES
Activity: Head Talk **Topic:** Industry applications of IoT

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RAMCO INSTITUTE OF TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Anna University
Accredited by NAAC & An ISO 9001:2015 Certified Institution
NBA Accredited UG Programs: CSE, EEE, ECE and MECH

Department of Electronics and Communication Engineering
Academic Year 2024 - 2025 (Odd Semester)
Planning Document

Degree, Semester & Branch: V Semester B.E. ECE A
Course Code & Title: CEC368 & IoT Based System Design
Name of the Faculty member: Mr.P.Gunasekaran, AP/ECE

- **Unit/Topic: Unit-IV /** Implementation of IoT with Raspberry Pi
- **Course Outcome:** CO4
- **Topic Learning Outcome:** TLO 14
- **Activity Chosen:** Flipped Class Room

Learning Outcomes:

The Student will be able to

- ❖ Understand the concept of Implementation of IoT with Raspberry Pi
- ❖ Know the concept of Raspberry Pi Interfaces
- ❖ Participate actively in the learning process
- ❖ Discuss the concepts, convey idea and share the views of Raspberry Pi GPIO, Raspberry Pi Interfaces, Interfacing LED and switch with Raspberry Pi, Interfacing a Light Sensor (LDR) and switch with Raspberry Pi
- ❖ Communicate effectively by sharing their views among the teammates

Justification:

The combination of IoT with Raspberry Pi offers a cost-effective, versatile, and user-friendly platform that is well-supported by a vibrant community. These factors make it a compelling choice for a wide range of IoT applications, from hobbyist projects to industrial solutions. The flipped classroom Strategy is an efficient way to learn the course material in a cooperative learning style. The flipped classroom process encourages listening, engagement, and empathy by giving each member of the group an essential part to play in the academic activity. The activity 'Flipped Class Room' is used to recall the concepts learnt and enhances the learning through this collaboration

- **Time Allotted for the Activity:** 50 Minutes
- **Details of the Implementation:**

(i) Materials for the Activity:

The materials for the preparation of the students will be shared one week before through LMS Canvas. Including the material, students were asked to refer to the web content also.

References:

Book Title/ Author/ Publisher/ Edition	**Page No.**
1. Vijay Madisetti and Arshdeep Bahga, "Internet of Things (A Hands-onApproach)", VPT, 1st Edition, 2014.	179-195
Websites	
1. https://www.youtube.com/watch?v=N9rg5nKrkQU&t=697s	

(ii) Formation of Groups:

Student groups were created as below:

- Class Strength: 59
- Number of groups: 10
- Members per group: 5 to 6

- **Plan for Implementing this Activity:**
  - 10 groups are formed with 5 or 6 members
  - Each group is allotted with a name and its known as Home group.
  - Each expert group is allotted with one topic
    - **Raspberry Pi GPIO**
    - **Raspberry Pi Interfaces**
    - **Interfacing LED and switch with Raspberry Pi**
    - **Interfacing a Light Sensor (LDR) and switch with Raspberry Pi**
    - **Python Program for Switching LED/ Light based on reading LDR reading**
  - The expert group members discuss the topic in detail for 20 minutes with the learning materials already posted in the course website – canvas.
  - The Expert group members should go to their original shape group and discuss the points (30 Minutes) to the other members.
  - All the members in home group learnt about all the topics through expert group members.
  - Finally one from each group should summarize the points of the topic Fixed and Floating point representation to the class (20 Minutes).
  - Review of points and conclusion of the activity (5 minutes)
  - Thus the concept of Implementation of IoT with Raspberry Pi is known to all by involving the students actively

Expected Difficulties:

- Lack of preparation: Making the students to learn the materials is the challenging task.
- Each student has to read the material posted in the course website.
- Non participation in the activity: All the students should be made involve in the activity
- Time management: The flipped classroom activity should be able to complete in the planned duration.

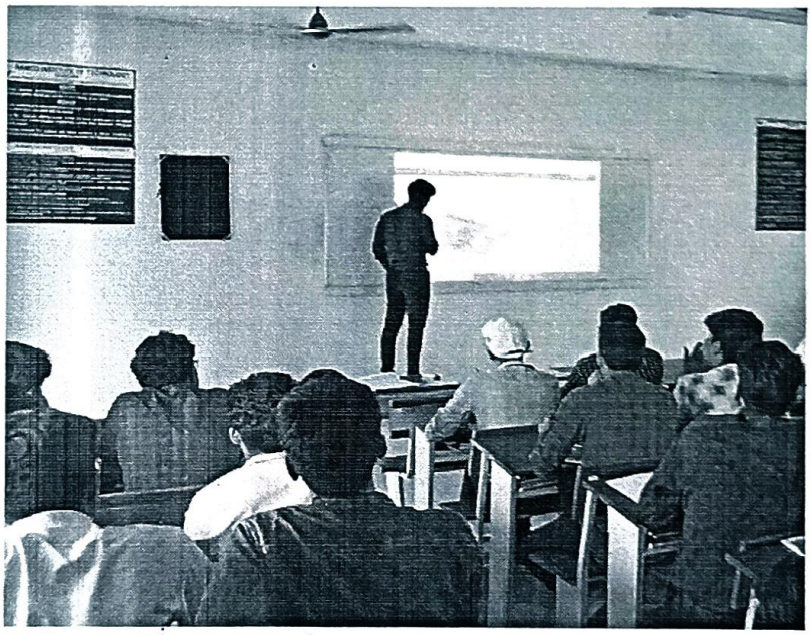
Plan for preventing these difficulties:

- Making each student accountable by making formative and summative assessment for individual and group performance.
- Including the assessment mark for final internal mark calculation makes each student to participate actively in the flipped classroom activity.
- Each student contribution mark in the assessment will be based on the discussions in the course website and WhatsApp group through which all the students will participate in the activity.
- Posting announcements periodically for learning and preparing the presentation.
- The Time management will be avoided by using timer clock for 10 minutes duration.

- **Student Feedback: Written Feedback**

1. How do you rate the activity for learning the concept? Give tick mark (✓)			
Excellent	**Good**	**Satisfactory**	**Poor**
2. How do you rate the reference material provided related to the topic? Give tick mark (✓)			

Excellent	Good	Satisfactory	Poor	
3. Have you enjoyed the activity? Give tick mark (✓)			Yes:	No:
4. Challenges faced during activity/presentation. Give tick mark (✓)			Yes:	No:
If yes what?:				
Name & Signature of the Student with date				



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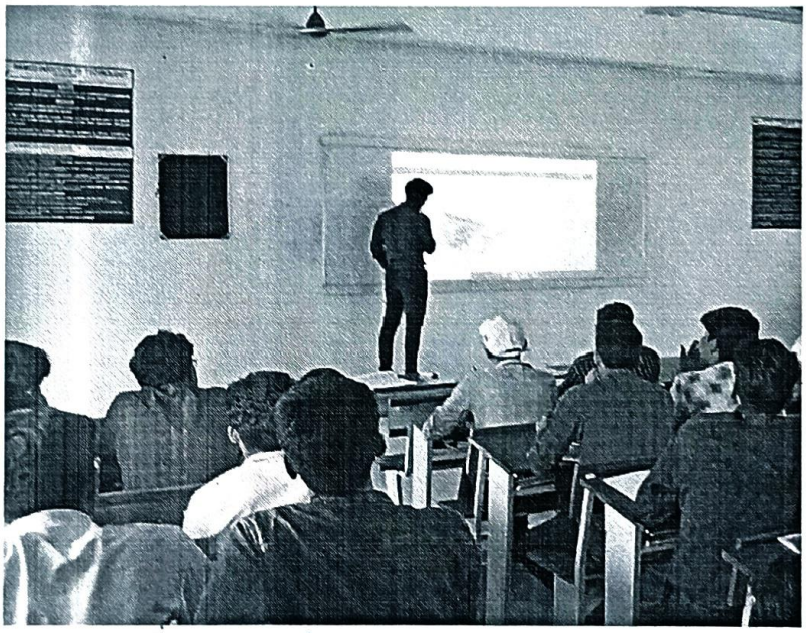
Excellent	Good	Satisfactory	Poor	
3. Have you enjoyed the activity? Give tick mark (✓)			Yes:	No:
4. Challenges faced during activity/presentation. Give tick mark (✓)			Yes:	No:
If yes what?:				
Name & Signature of the Student with date				



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