KAMARAJ
COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

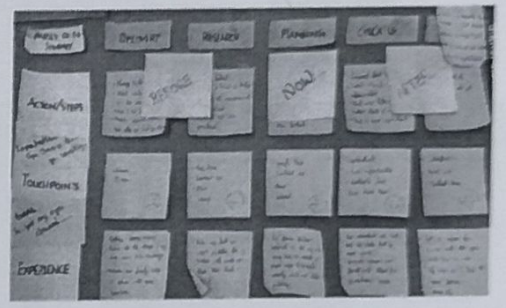
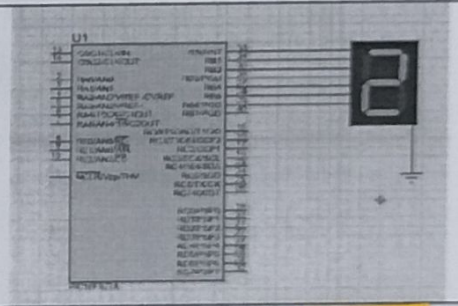
S.P.G.Chidambara Nadar - C.Nagammal Campus

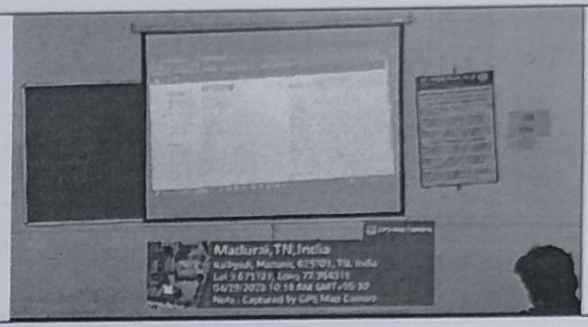
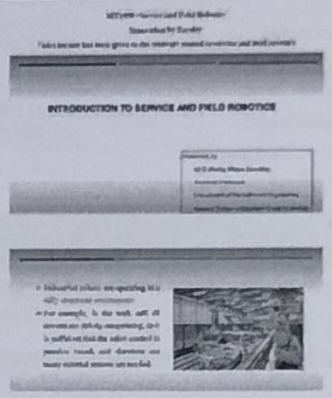
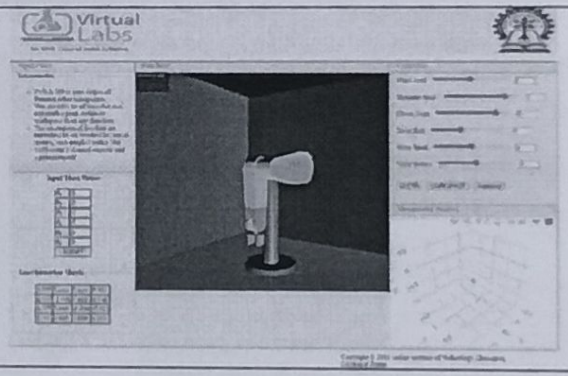
S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

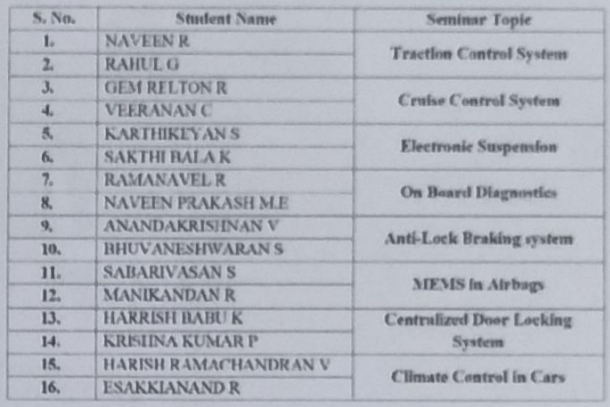
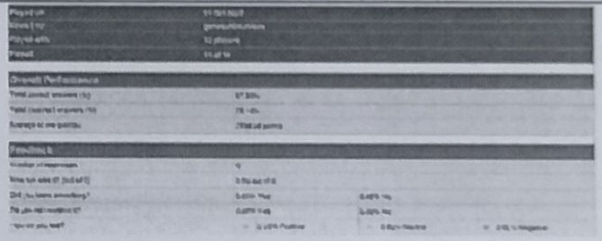
Academic Year 2022-23 ODD & EVEN

DEPARTMENT OF MECHATRONICS ENGINEERING

ICT Tools/Activity Based Learning followed in Class Room Teaching

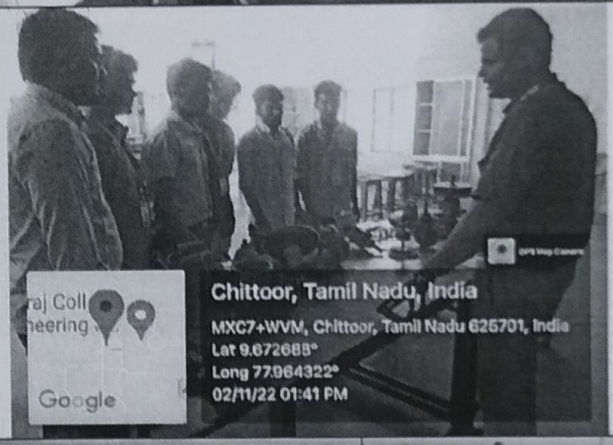
S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	Purpose	Remarks
Department of Mechatronics Engineering					
1.	Mr. S.Wesley Moses Samdoss AP/MTRE	GE2201 Design Thinking	Activity based learning	To understand the various stages in customer journey maps	
2.	Dr.K.kannan Prof/MTRE Mr. S.Wesley Moses Samdoss AP/MTRE	MT8791 Embedded System Design	**ICT tool – Proteus for Microcontroller simulation**	Apply the various programming concepts using PIC Microcontroller	

S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	Purpose	Remarks
3.	Mr. S.Wesley Moses Samdoss AP/MTRE	MT2251 Digital Electronics and Microprocessors	**ICT tool- 8085 online simulator**	Apply the various programming concepts using 8085 Microprocessor	
4.	Mr. S.Wesley Moses Samdoss AP/MTRE	MT1636 Service and Field Robotics	ICT Tool – Video lecture	To understand the various functions of Robots and its types	
5.	Dr.K.kannan Prof/MTRE Mr. S.Wesley Moses Samdoss AP/MTRE	MT8781 Robotics Laboratory	ICT Tool – Robot Manipulator Simulation	To understand the functioning of 6 DOF robot manipulator	

S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	Purpose	Remarks
6.	Mr. A. Ganesan, AP/MTRE	MT1631 Autotronics	Activity based learning	To understand the recent trends the students are asked to take a seminar on recent technologies in Automotive Industry.	
7.	Mr. A. Ganesan, AP/MTRE	MT2203 Fluid Mechanics & Thermal Sciences	ICT Tool - Kahoot	Assignment 1 were conducted through Kahoot Platform	
8.	Mr. A. ARULKUMAR, AP/MTRE	MT2202- Electrical Circuits and Machines	Activity based learning - Think Pair Share	To understand Energy Calculation for different Home appliances, To find out Total Connected Load	

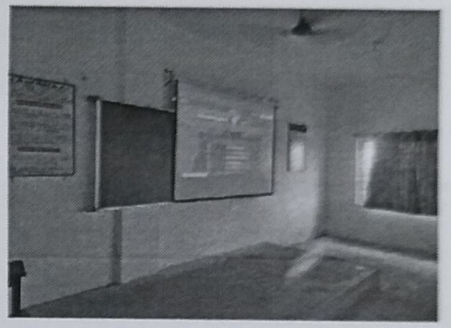
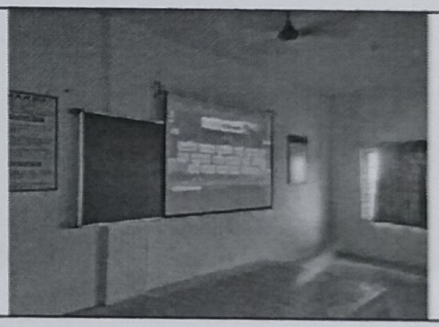
S. No.	Student Name	Seminar Topic
1.	NAVEEN R	Traction Control System
2.	RAHUL G	
3.	GEM RELTON R	Cruise Control System
4.	VEERANAN C	
5.	KARTHIKEYAN S	Electronic Suspension
6.	SAKTHI BALA K	
7.	RAMANAVEL R	On Board Diagnostics
8.	NAVEEN PRAKASH M.E	
9.	ANANDAKRISHNAN V	Anti-Lock Braking system
10.	BHUVANESHWARAN S	
11.	SABARIVASAN S	MEMS in Airbags
12.	MANIKANDAN R	
13.	HARRISH BABU K	Centralized Door Locking System
14.	KRISHNA KUMAR P	
15.	HARISH RAMACHANDRAN V	Climate Control in Cars
16.	ESAKKIANAND R	

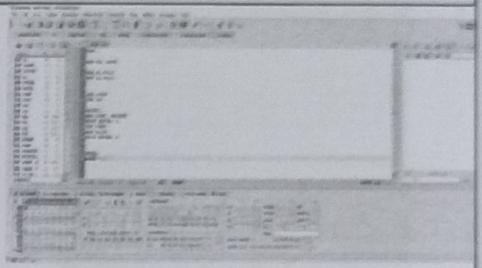
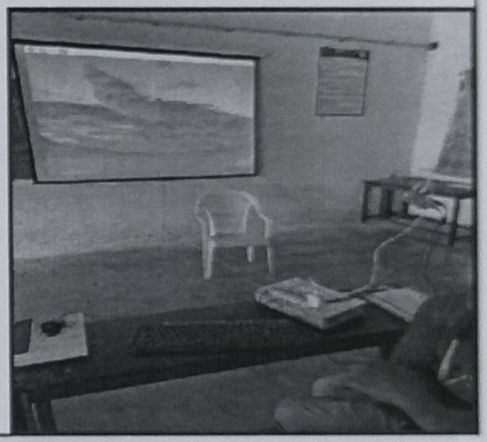
S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	Purpose	Remarks
9.	Mr. A. ARULKUMAR, AP/MTRE	MT2202-Electrical Circuits and Machines	Activity based learning - Field Visit to Powerhouse	To understand the Transformer operation and On Load Tap Changer	
10.	Mr. A. ARULKUMAR, AP/MTRE	MT2202-Electrical Circuits and Machines	Activity based learning - Field Visit to Powerhouse	To understand the concepts of Industrial Wiring	

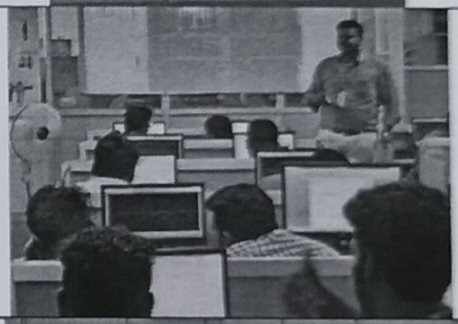
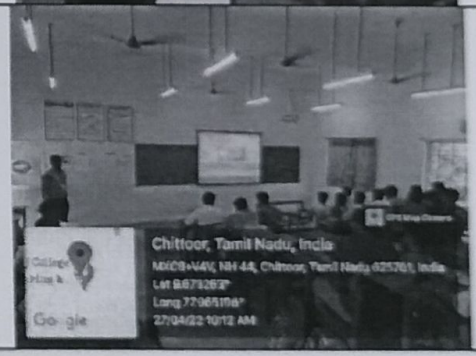
S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	Purpose	Remarks
11.	Mr. A. ARULKUMAR, AP/MTRE	MT2202-Electrical Circuits and Machines	Activity based learning – Hands on Demo	To provide Hands on Practice on House hold Wiring	
12.	Mr. A. ARULKUMAR, AP/MTRE	MT2202-Electrical Circuits and Machines	Activity based learning - Field Visit to Electrical Machines Lab	To demonstrate the Cross Sectional View of different types of Motors and its Rotors and starters	
13.	A.Arulkumar,AP /MTRE	GE8077-Total Quality Management	Activity based learning - Think Pair Share	To provide suggestions in TQM Framework followed in the industry they have visited	

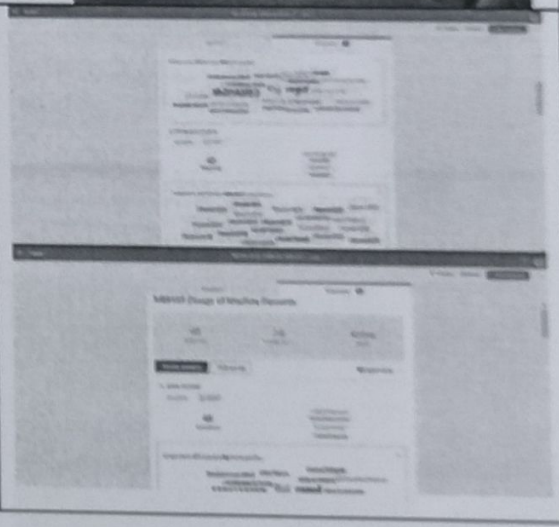
S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	Purpose	Remarks
14.	A.Arulkumar,AP /MTRE	GE8077-Total Quality Management	Activity based learning – Seminar Presentation	Assignment on Implementation of Kaizen & Benchmarking in your laboratory	
15.	A.Arulkumar,AP /MTRE	GE8077-Total Quality Management	Activity based learning – Seminar Presentation	To understand the different types of ISO Standards	

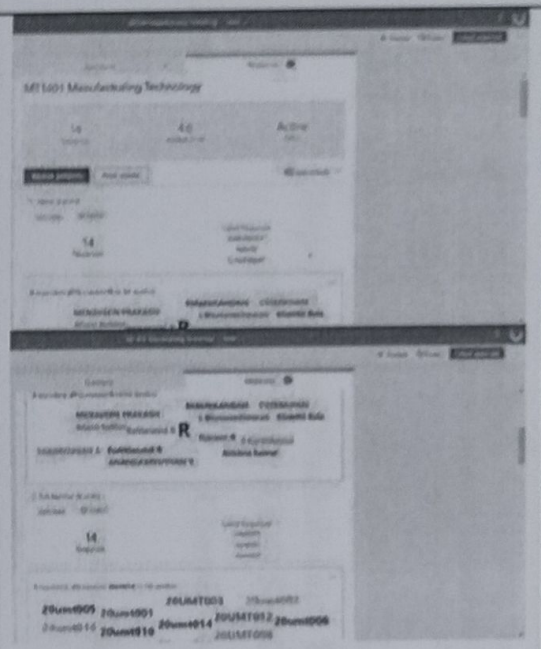
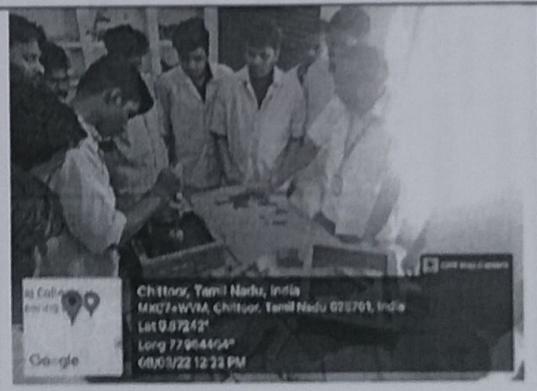
ICT Tools/Activity Based Learning followed in Class Room Teaching

S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	No. of student participants	Purpose	Remarks
Department of Mechatronics Engineering						
1.	A.GANESAN	MT2203 Fluid Mechanics and Thermal Science	Kahoot	30	Assignment 2	
2.	A.GANESAN	GE8071 Disaster Management	Kahoot	41	Assignment 3	

S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	No. of student participants	Purpose	Remarks
3.	S.Wesley Moses Samdoss	MT1402-Microprocessors and its applications	1.MCU8051 Simulator 2. Raspberrypi	16	1.8051 Microcontroller Programming 2.Demonstration	 

S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	No. of student participants	Purpose	Remarks
4.	S.Wesley Moses Samdoss	MT1412-Microprocessors and its applications Laboratory	Android app – 8085 simulator	16	8085 Microprocessor Programming	
5.	A.Arulkumar	MT8602 & Industrial Automation	MATLAB Simulink Toolbox	41	Advanced Industrial Process Controllers	
6.	A.Arulkumar	MT8602 & Industrial Automation	Quiz on Kahoot Platform	41	Programmable Logic Controllers	

S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	No. of student participants	Purpose	Remarks
7.	A.Arulkumar	MT1403 Sensors and Instrumentation	Quiz on Kahoot Platform	10	Sensors Applications in Industrial Control	
	S.David Blessley	ME8593 Design of Machine Elements	Microsoft Forms/Quiz	41	Preassessment	

S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	No. of student participants	Purpose	Remarks
10.	S.David Blessley	MT1401-Manufacturing Technology	Microsoft Forms/Quiz	16	Preassessment	
11.	S.David Blessley	MT1401-Manufacturing Technolog	Hands on Practice	16	Sand Casting (Foundry)	

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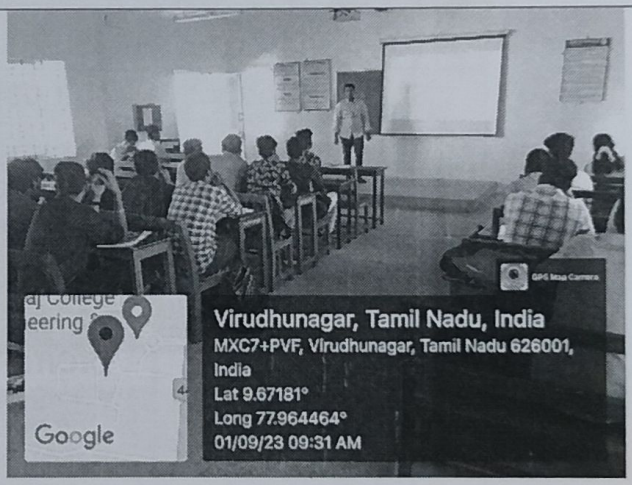
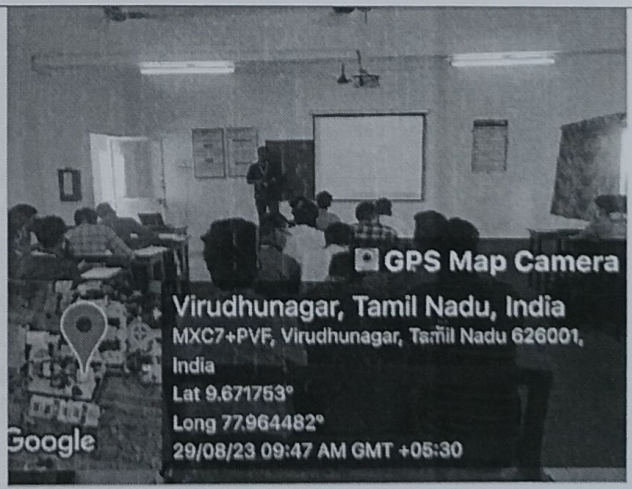
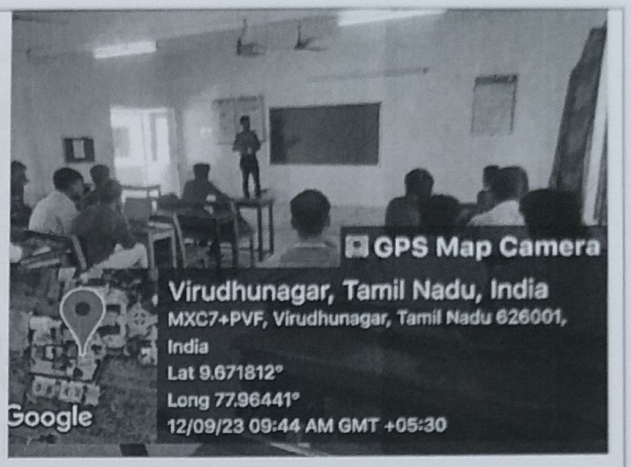
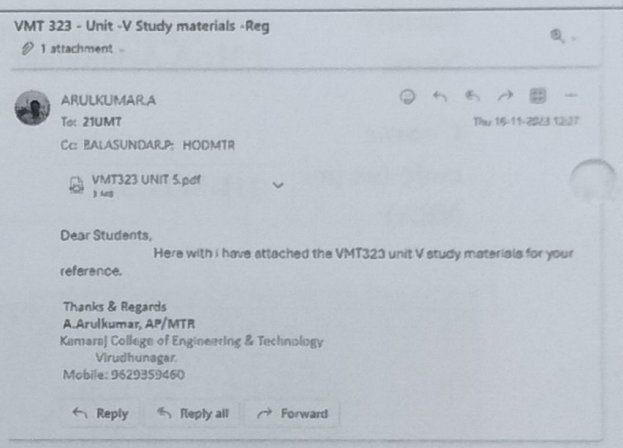
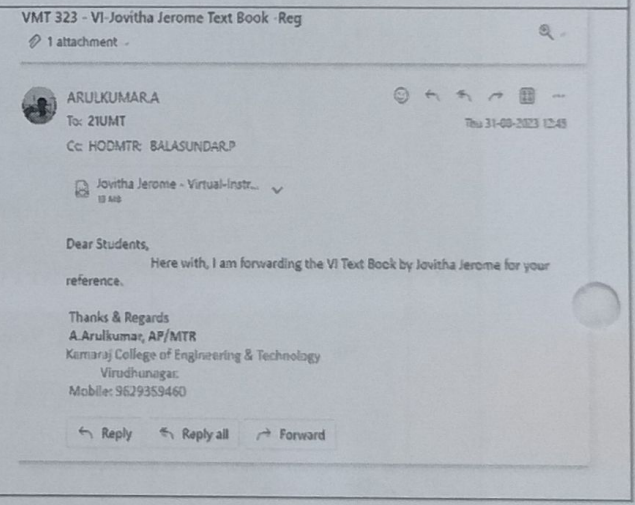
Innovations /Activity in Teaching Learning Process

Department of Mechatronics Engineering

2023 - 2024 (ODD SEMESTER)

Year	: III	Course Code	: VMT323
Faculty Name	: Mr.A.Arulkumar	Course Name	: Virtual Instrumentation
Course code (as per NBA)	21UMTC321	Regulation	: R2021

S No	Type of Activity	Topic	Purpose	Photos
1	Seminar Presentation	Topic: DAQ in Virtual Instrumentation. B.Hariharan - (21UMT015) III year MTRE	The topic covers POs 5, 9 & 10 by helping the students to learn a new tool and in improving their communication skills.	
2	Seminar Presentation	Topic: Applications of VI Dinesh.K (21UMT034)	The topic covers POs 5, 9 & 10 by helping the students to learn a new tool and in improving their communication skills.	

3	Seminar Presentation	Topic: DAQ Assistant in VI Aravind Aryaa (21UMT002)	The topic covers POs 5, 9 & 10 by helping the students to learn a new tool and in improving their communication skills.	
4	Microsoft Teams/Office 365	Unit wise Study Materials / contents shared with students.	The Previous batch students had opined that this method helped them to score good marks in this paper and hence did for this batch too	
5	Office 365 Mail	Soft copy of text book were shared to promote self learning	The Previous batch students had opined that this method helped them to do self study and hence did for this batch too	

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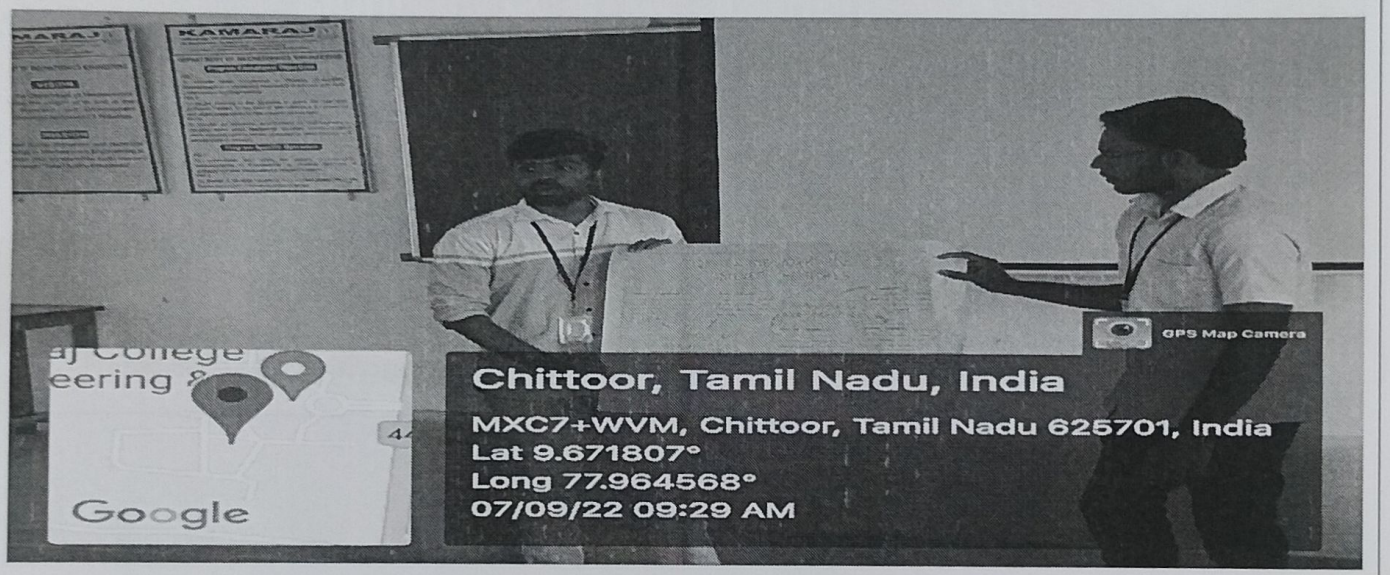
Accredited by NAAC with "A" Grade

GE 8077-Total Quality Management

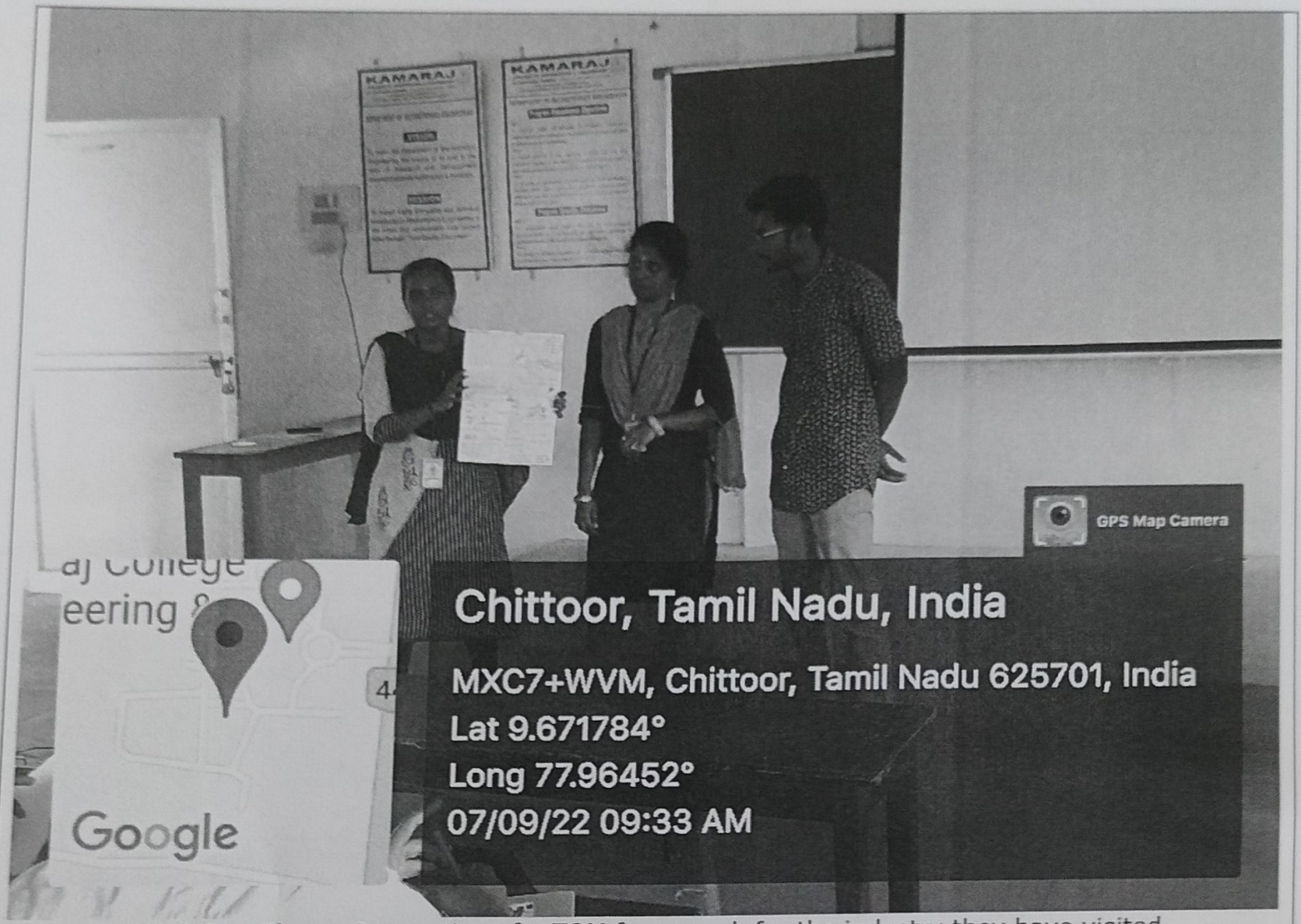
Teaching Learning Methods Followed in Class Room Teaching

DEPARTMENT OF MECHATRONICS ENGINEERING

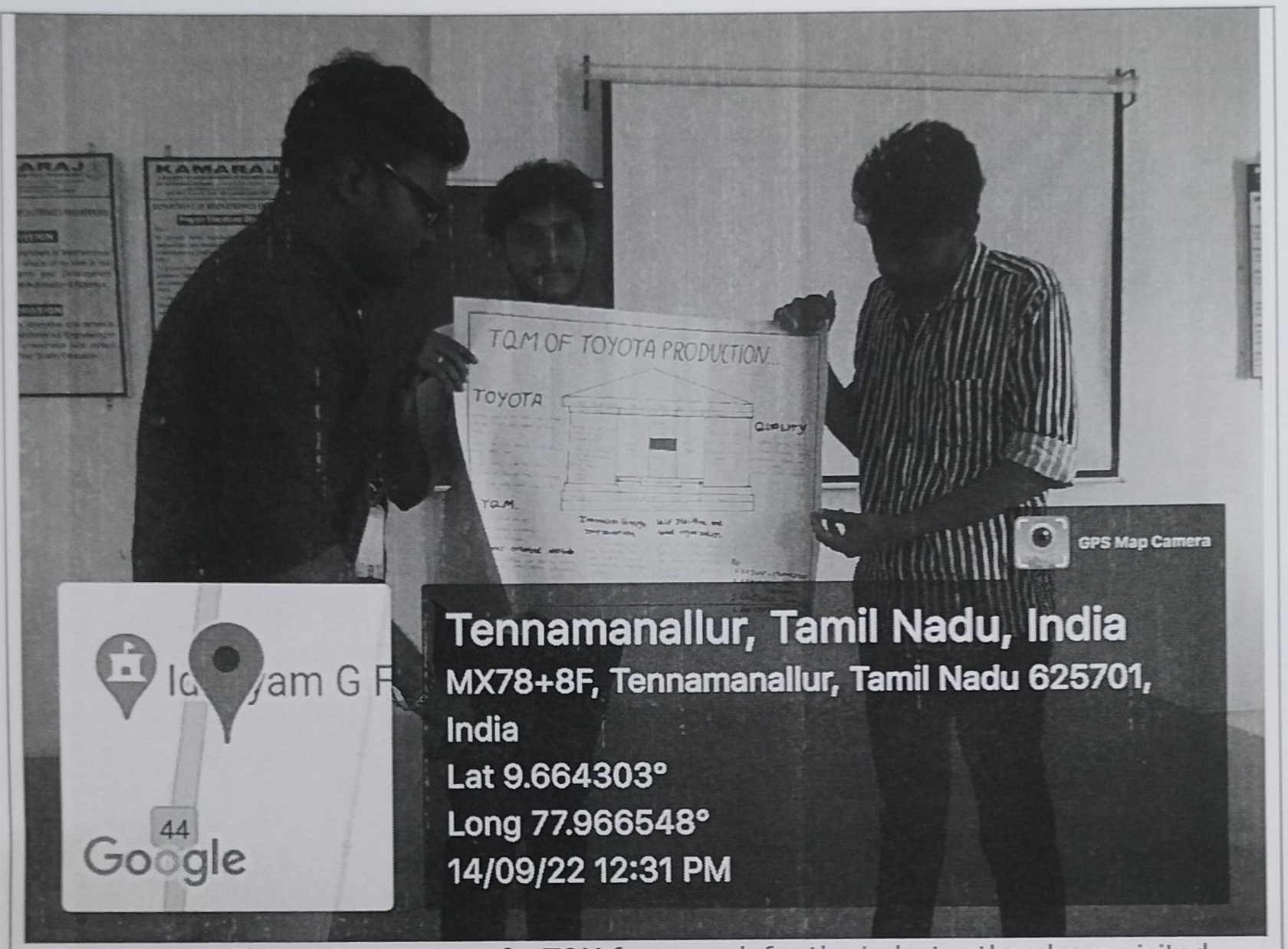
(Accredited by NBA, New Delhi)



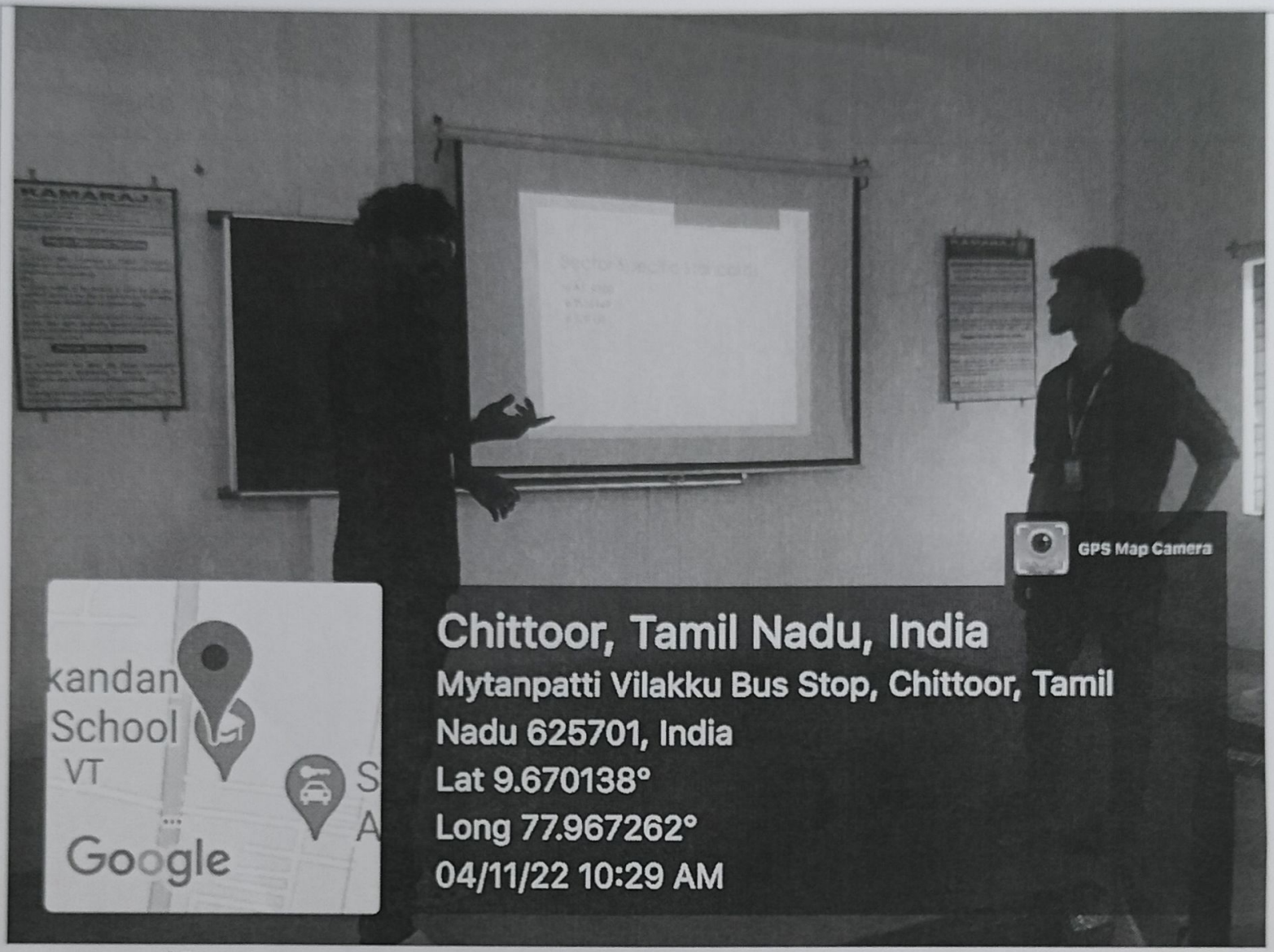
Think Pair Share- Suggestion of a TQM framework for the industry they have visited

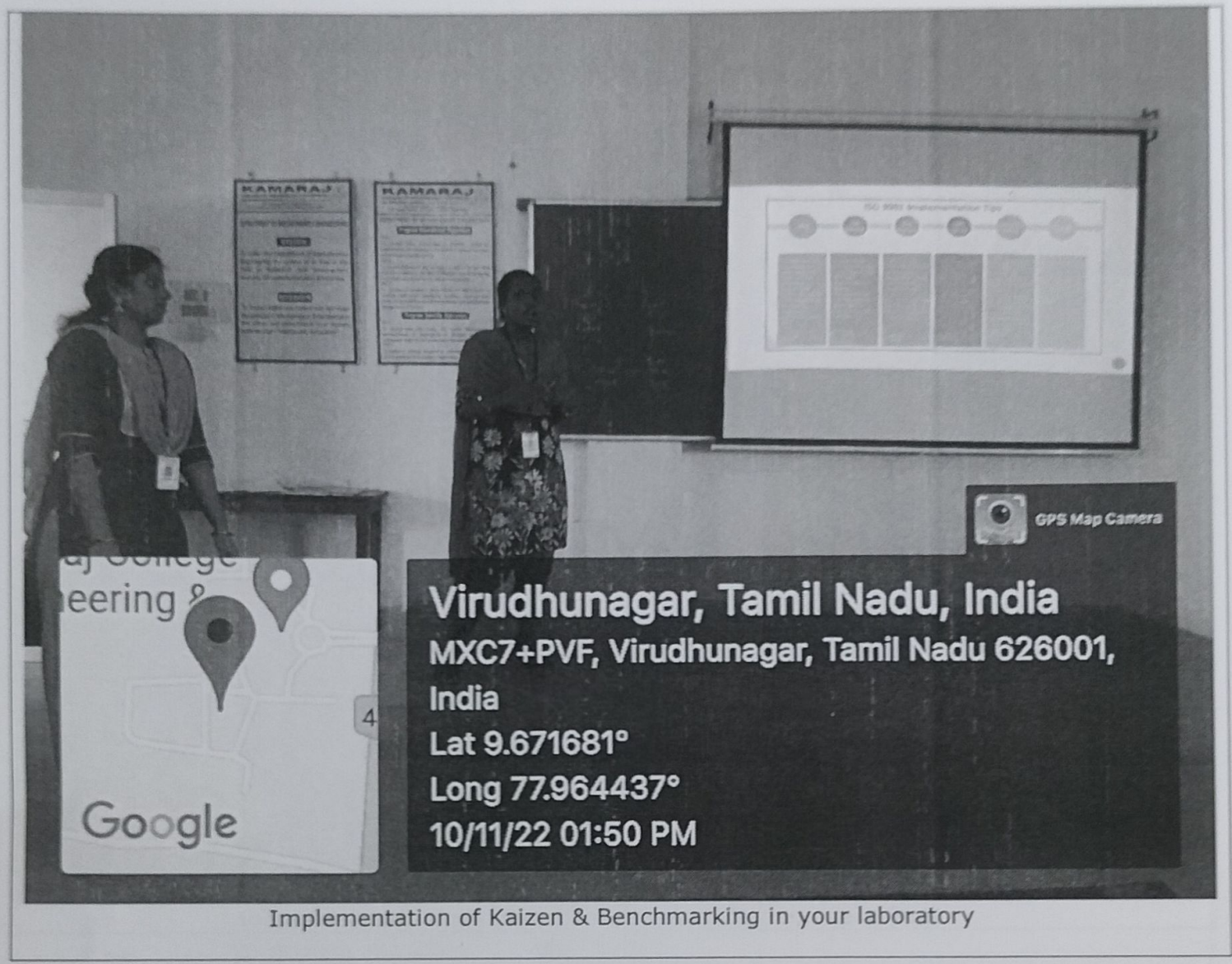


Think Pair Share- Suggestion of a TQM framework for the industry they have visited

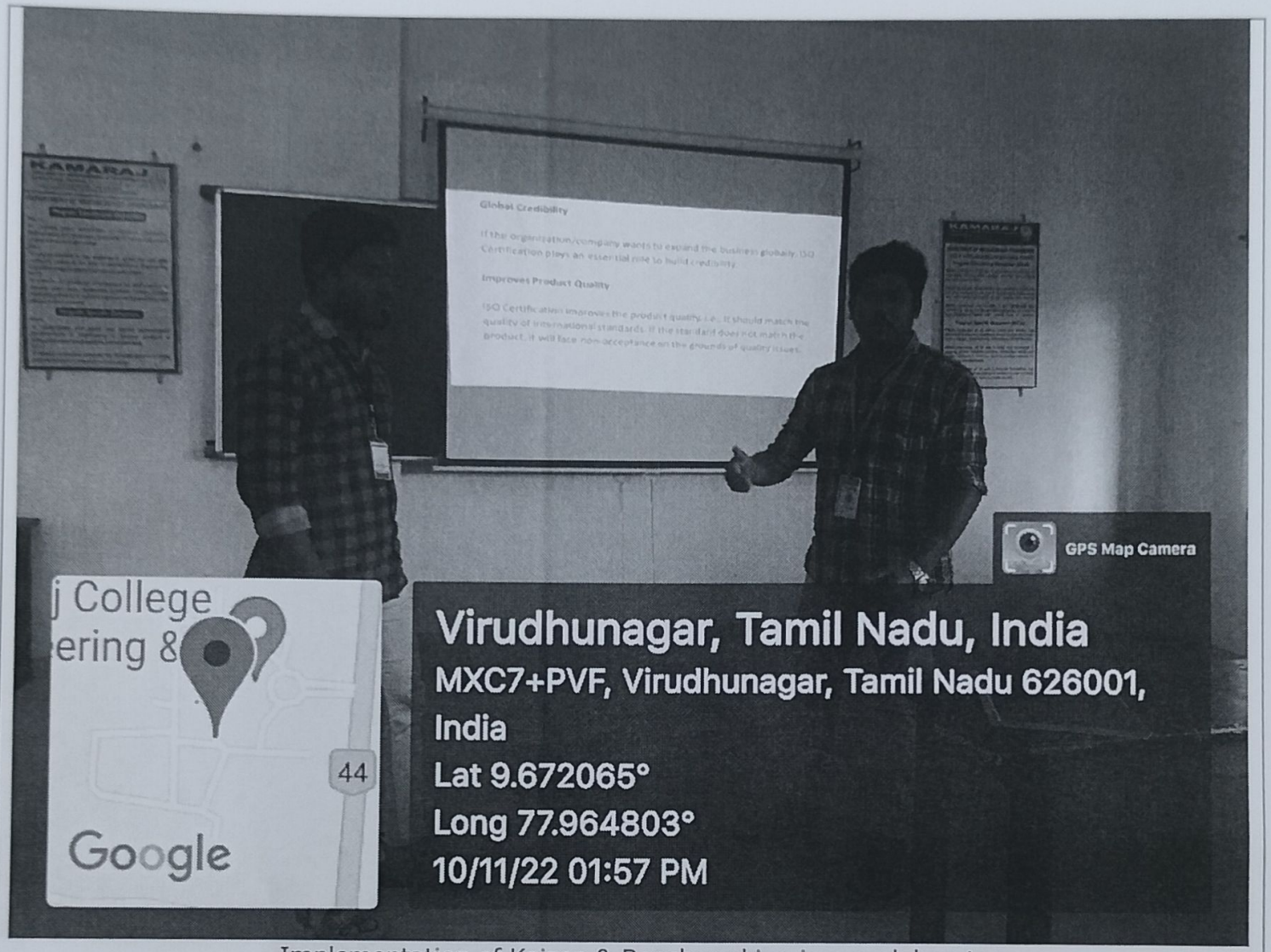


Think Pair Share- Suggestion of a TQM framework for the industry they have visited

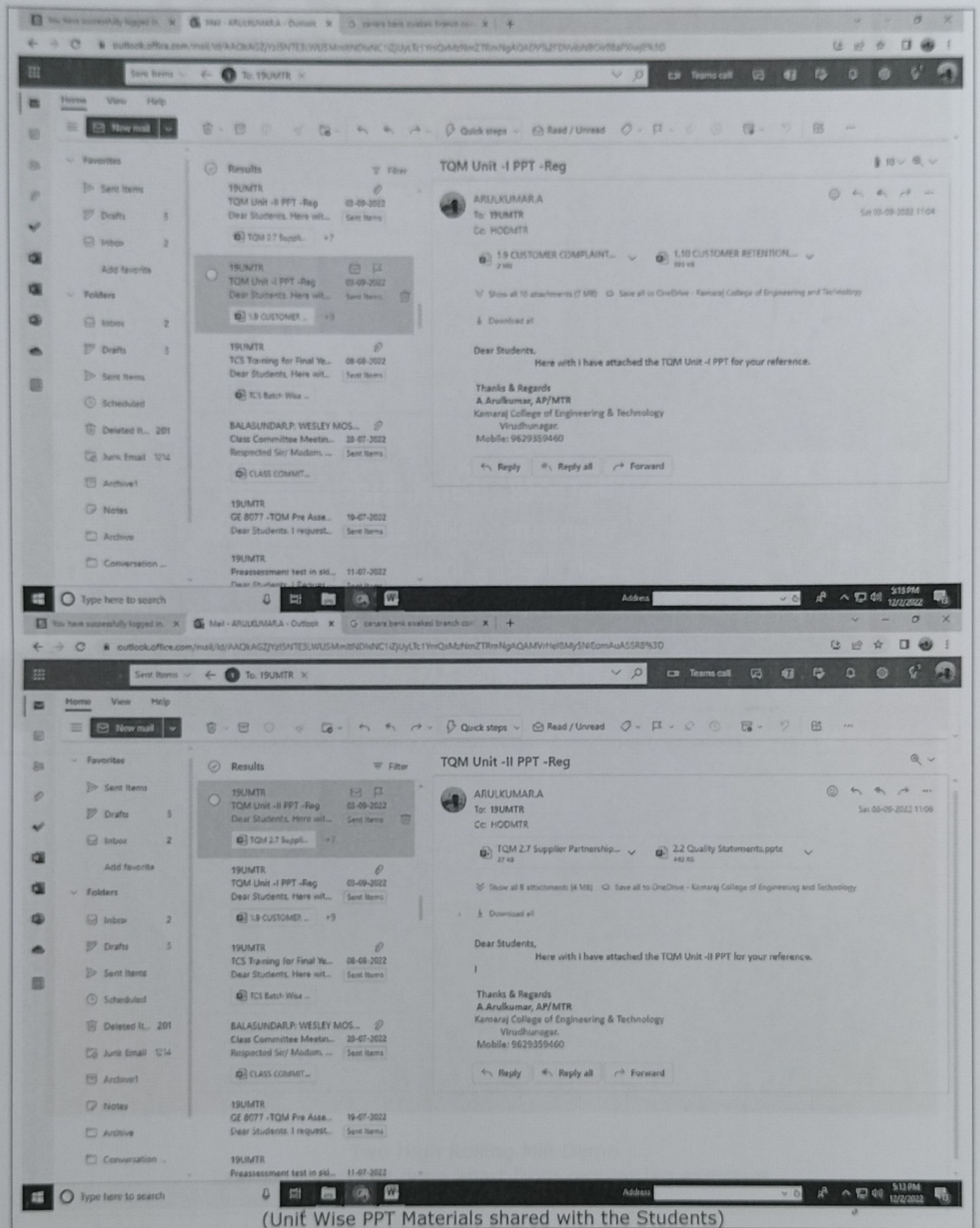

GPS Map Camera
Chittoor, Tamil Nadu, India
Mytanpatti Vilakku Bus Stop, Chittoor, Tamil Nadu 625701, India
Lat 9.670138°
Long 77.967262°
04/11/22 10:29 AM
kandan
School
VT
Google



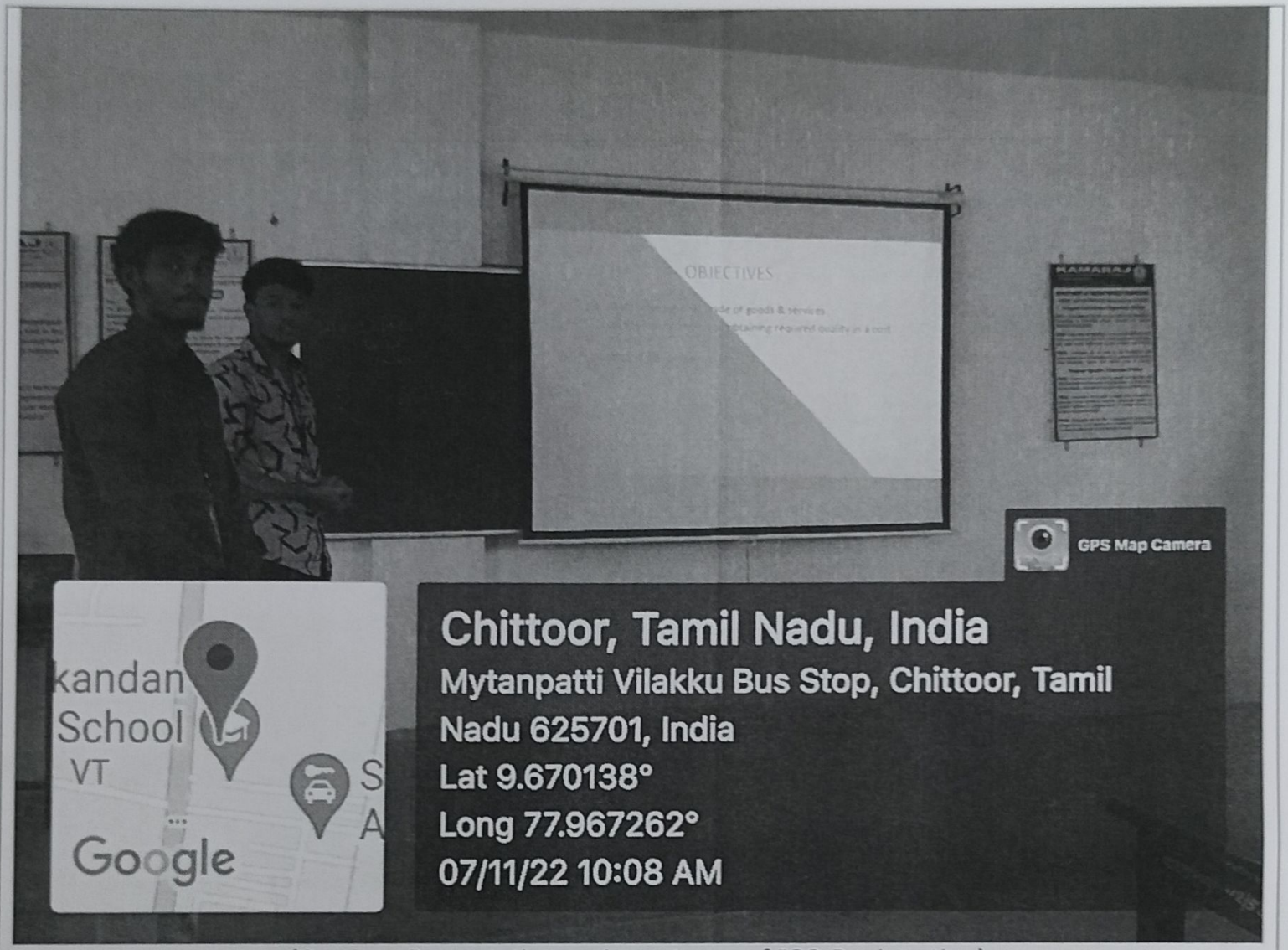
Implementation of Kaizen & Benchmarking in your laboratory



Implementation of Kaizen & Benchmarking in your laboratory



(Unit Wise PPT Materials shared with the Students)



(Seminar Presentation on importance of ISO Registration)

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DEPARTMENT OF MECHATRONICS ENGINEERING

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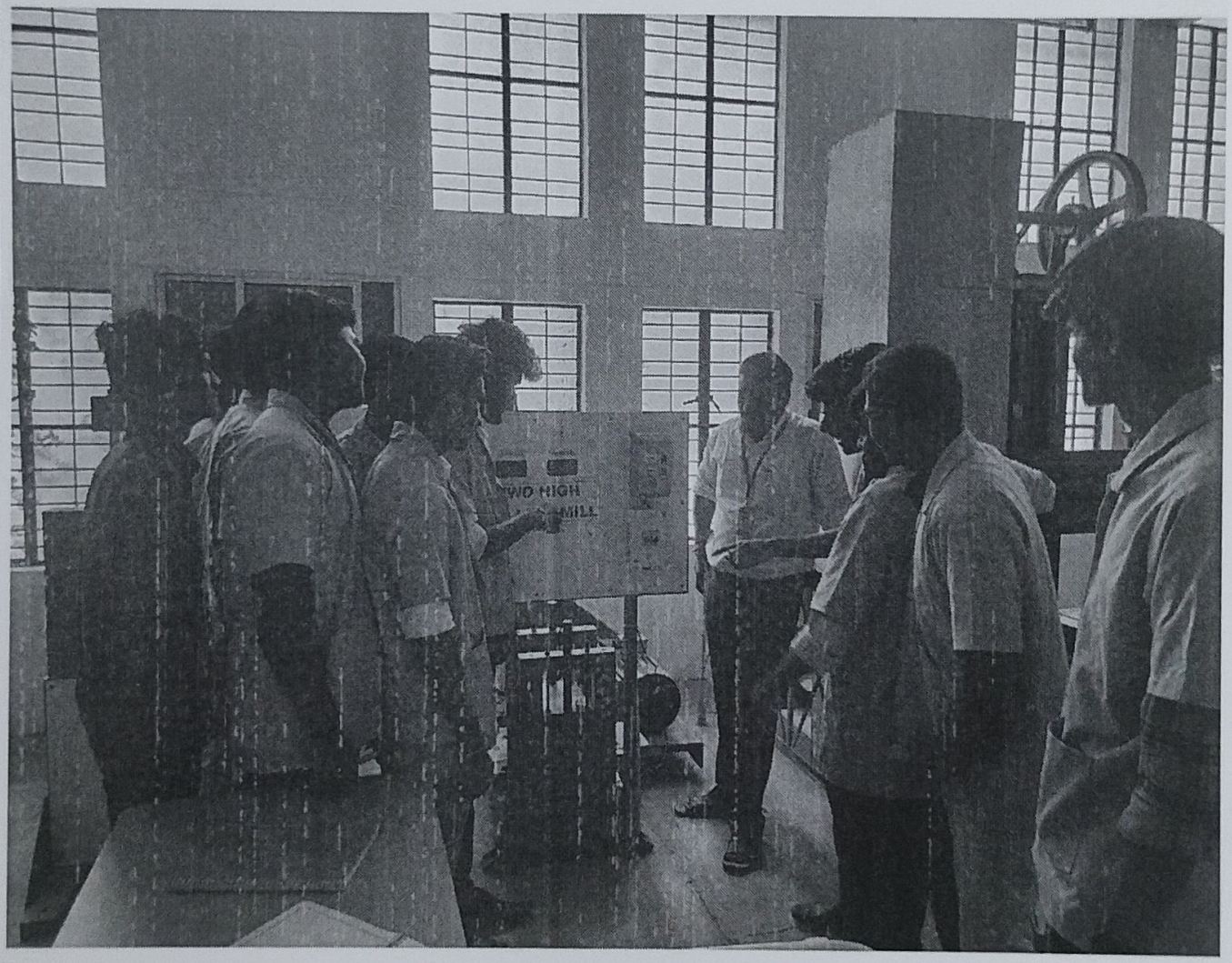
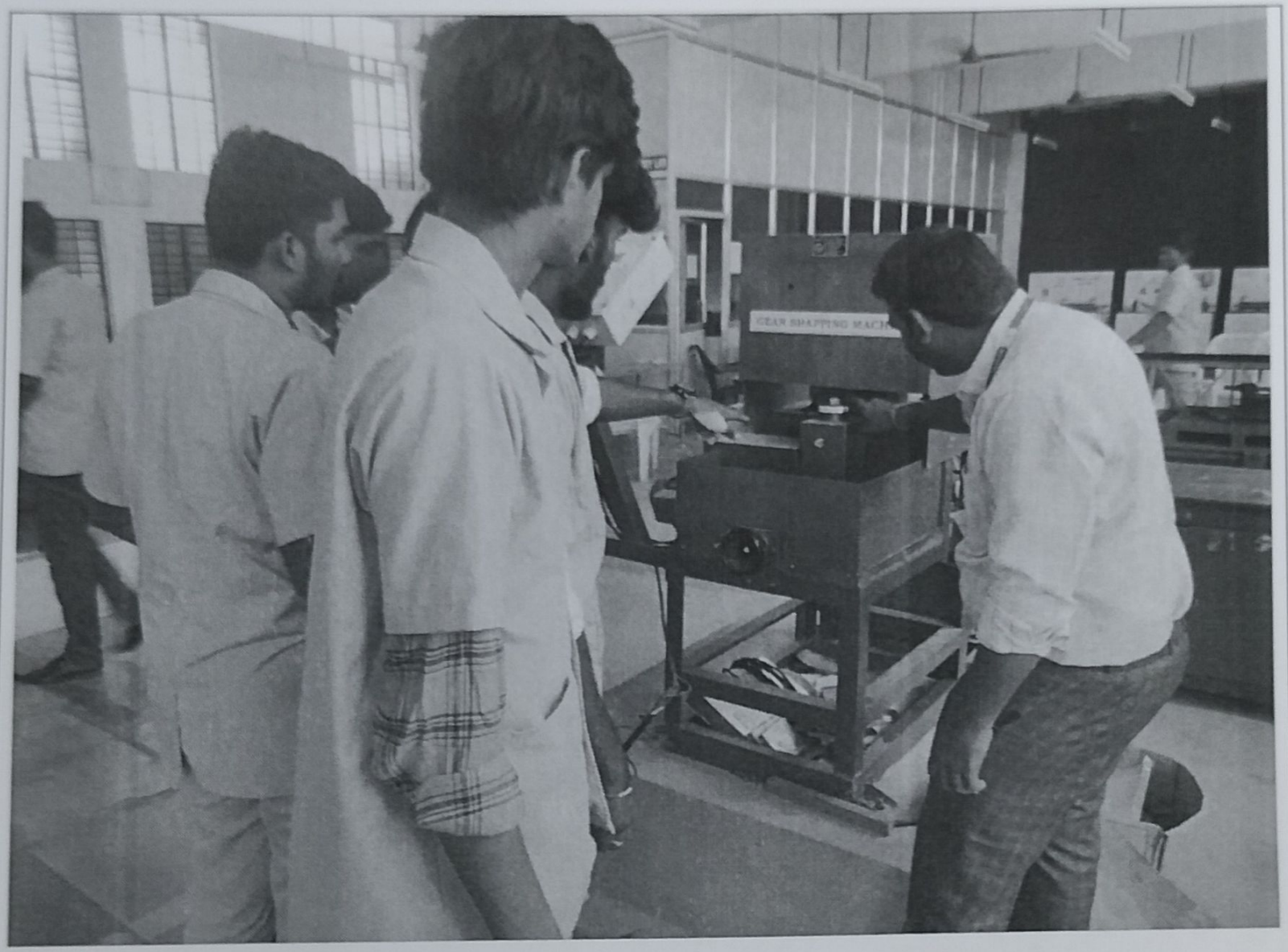
MT2255 Manufacturing Technology Laboratory for Mechatronics Engineers

Innovation in laboratory

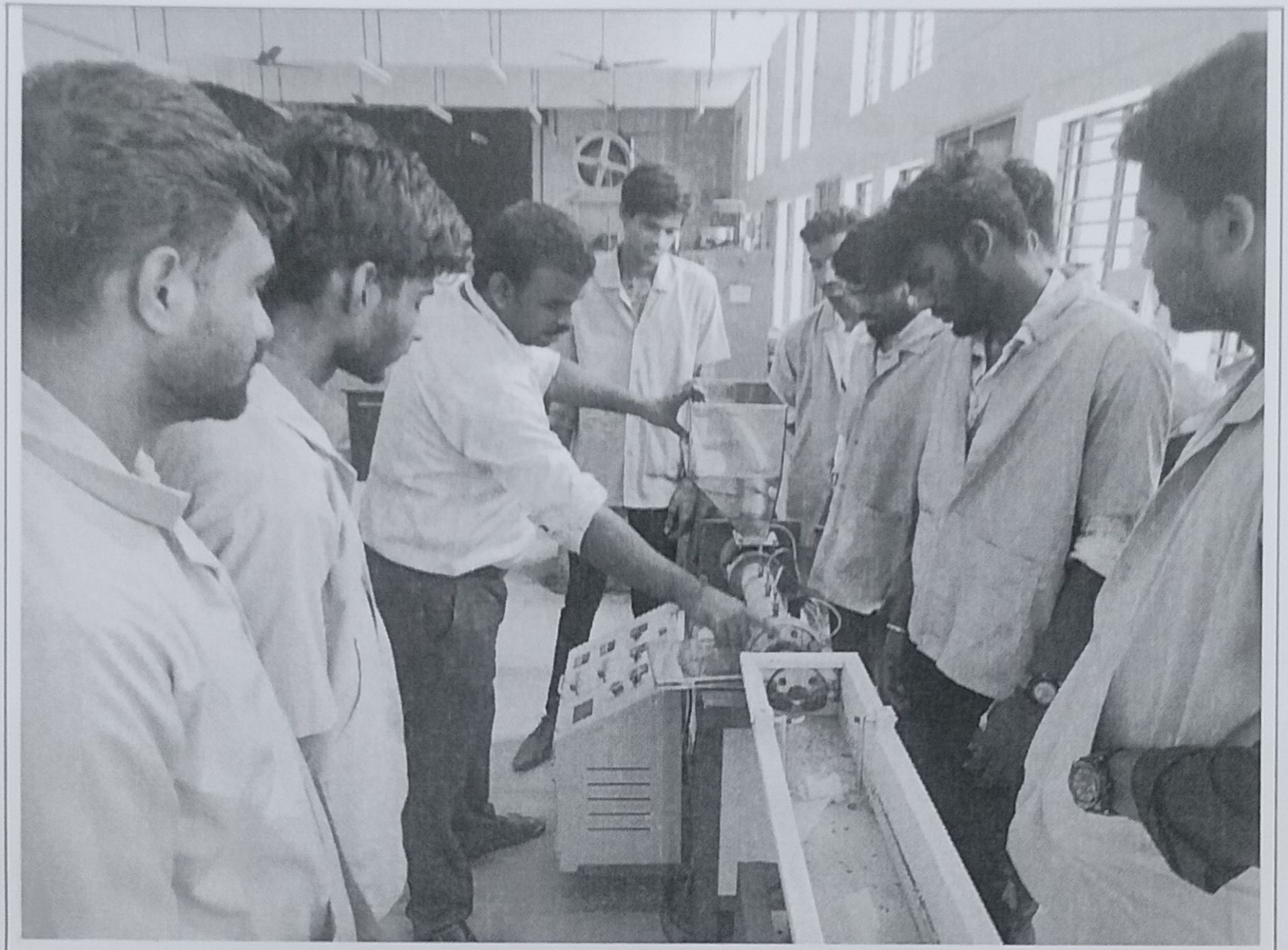


Two High Rolling Mill Demo -
Learning practices done apart from regular lab exercises

22-23



Gear Shaping Machine Demo -
Learning practices done apart from regular lab exercises



3D Printing Extruder Machine Demo -

Learning practices done apart from regular lab exercises

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Accredited by NAAC with "A" Grade

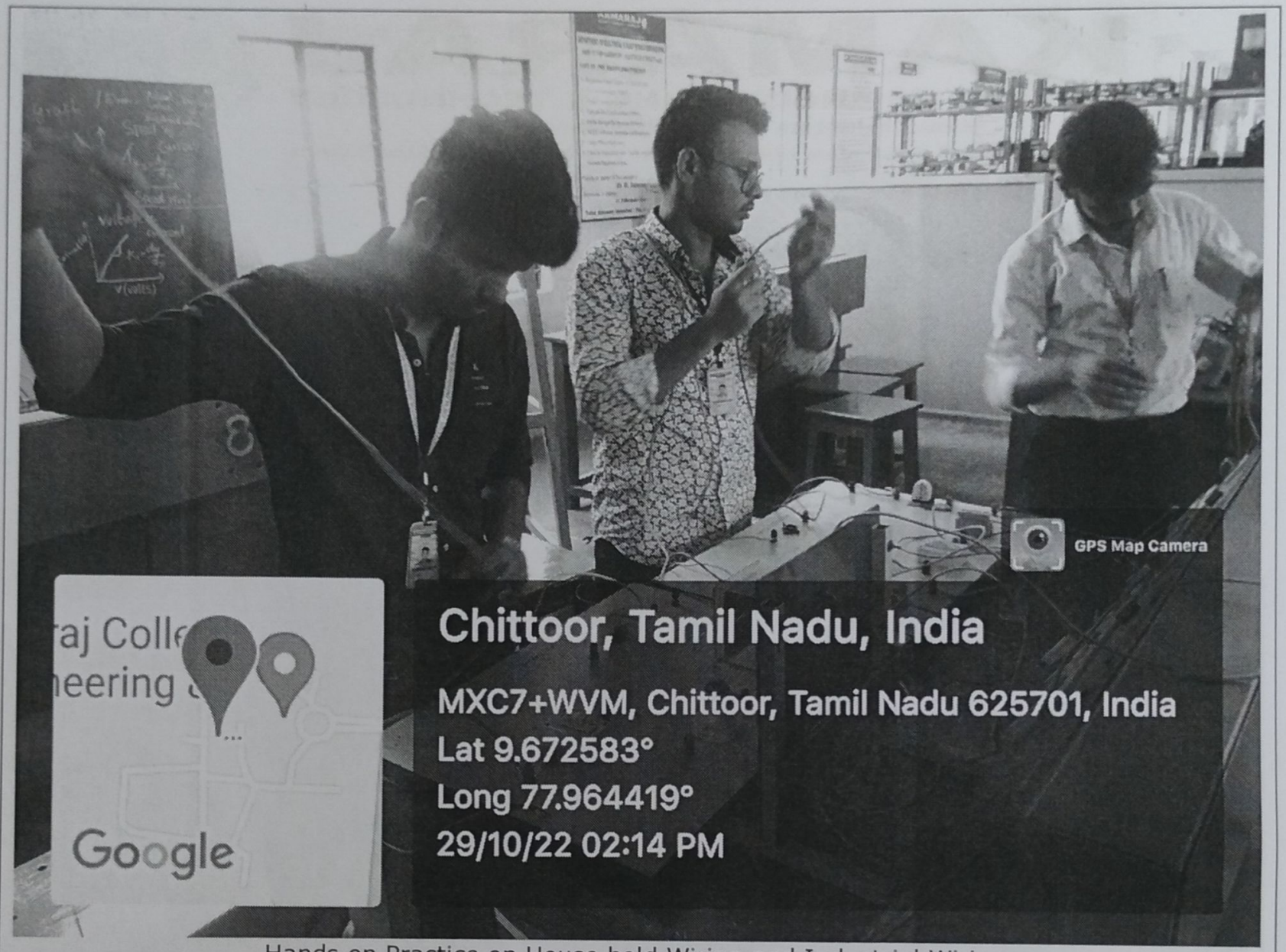
MT 2202-Electrical Circuits and Machines

Teaching Learning Methods Followed in Class Room Teaching

DEPARTMENT OF MECHATRONICS ENGINEERING

(Accredited by NBA, New Delhi)

Hands on Practice on House hold Wiring and Industrial Wiring

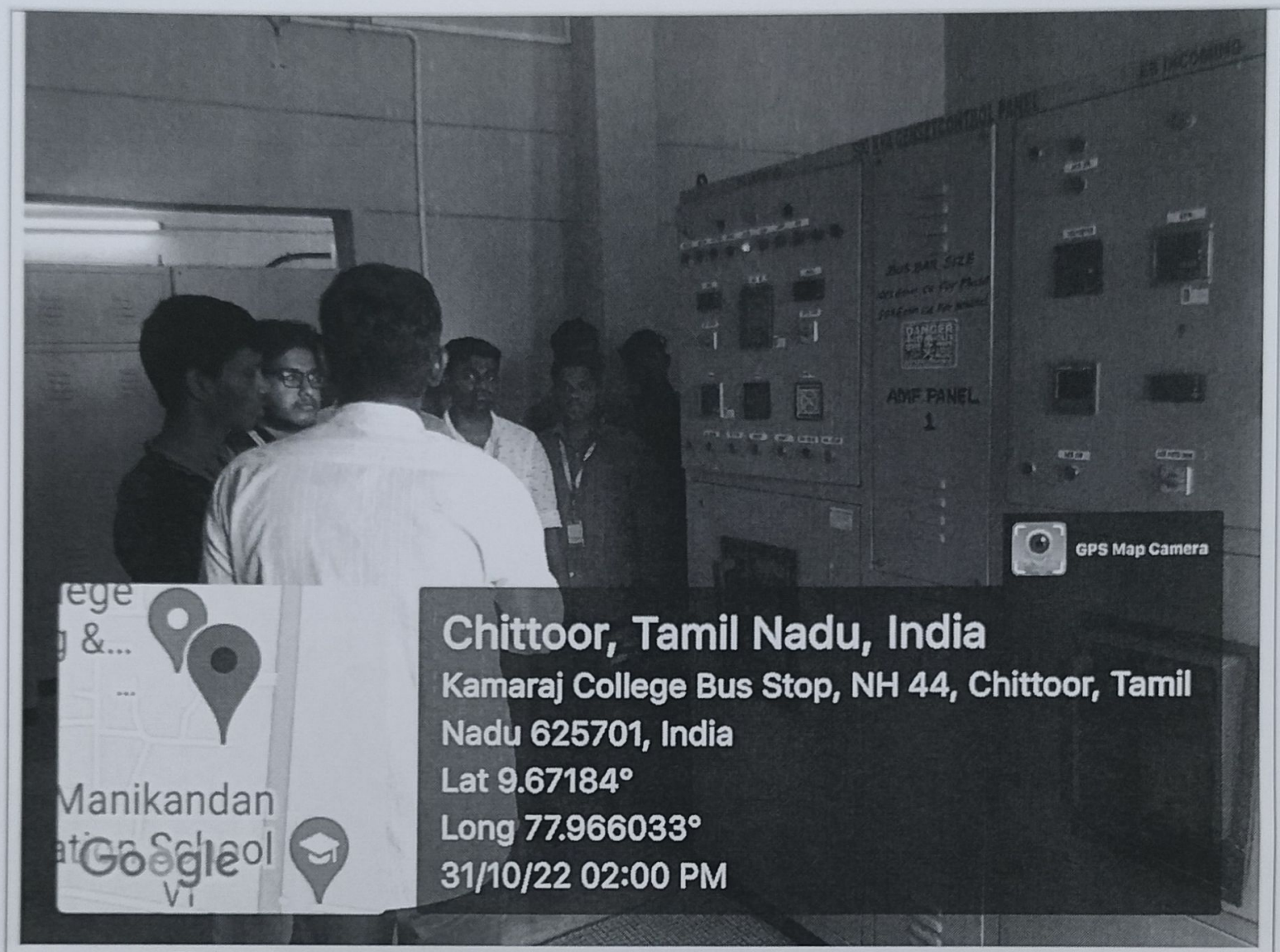


Hands on Practice on House hold Wiring and Industrial Wiring

(Demo on – Cross Sectional View of Induction Motors, Starters, Transformers)

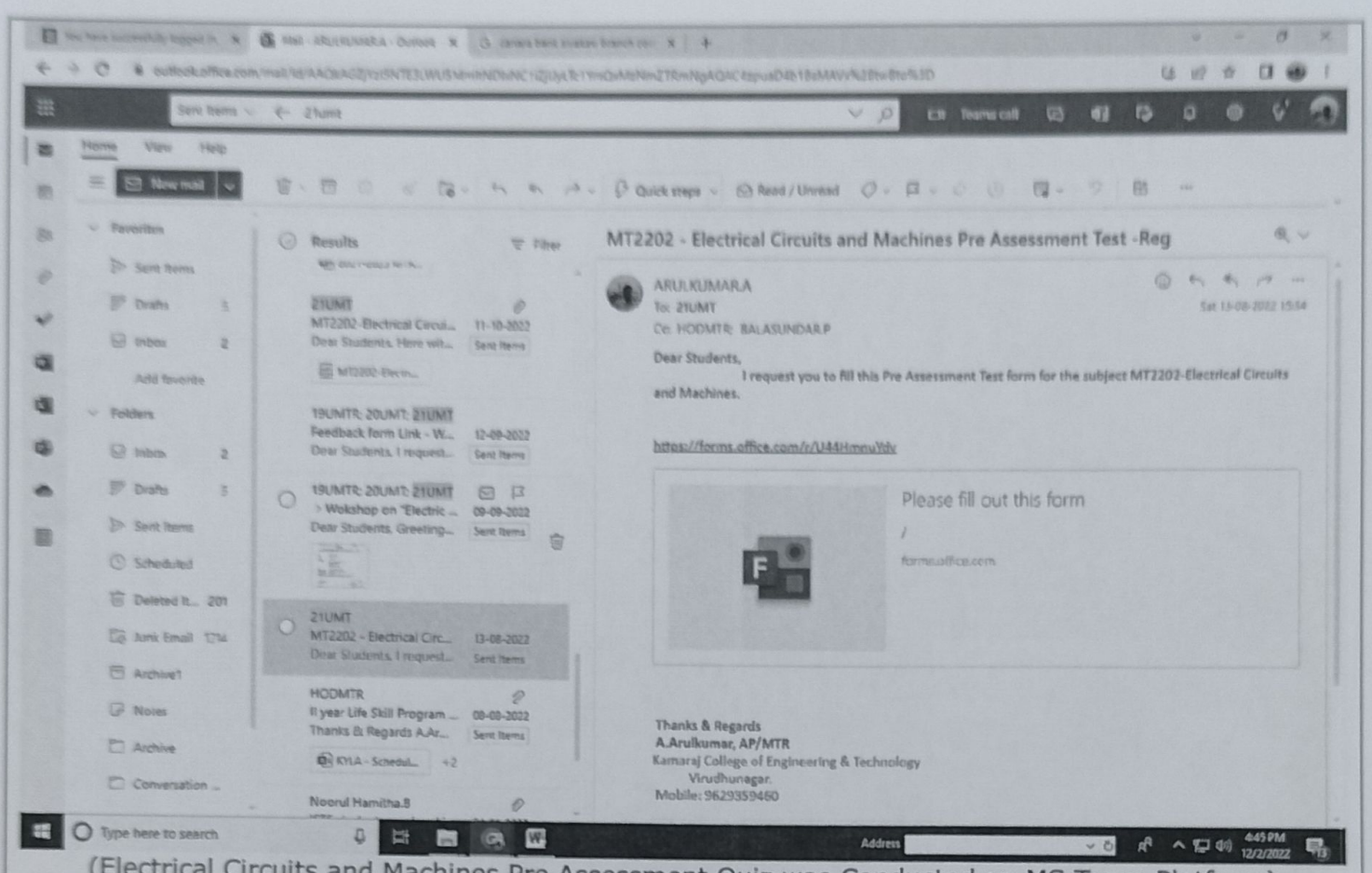
(Demo on – Cross Sectional View of different types of Rotors)

Field Visit to Power House – Transformer with On Load Tap Changer

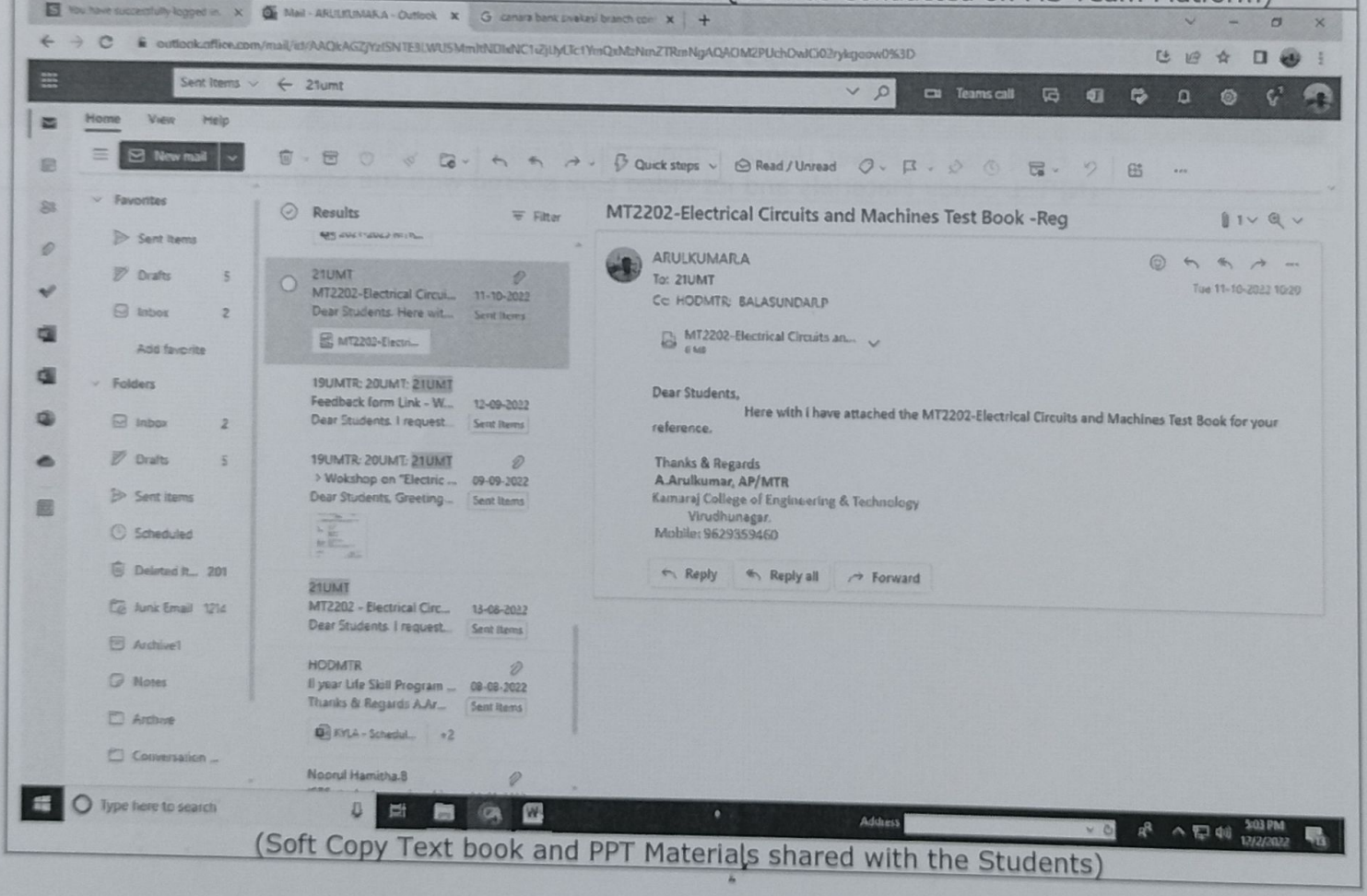


Field Visit to Power House - Genset Change over Procedure

Field Visit to Power House – Industrial Wiring – Distribution Box
(NPTEL Study Materials and its Video Link shared with the Students)



(Electrical Circuits and Machines Pre Assessment Quiz was Conducted on MS Team Platform)



(Soft Copy Text book and PPT Materials shared with the Students)

(Think Pair Share- Energy Calculation for different Home appliances, Applications of Electrical Machines)

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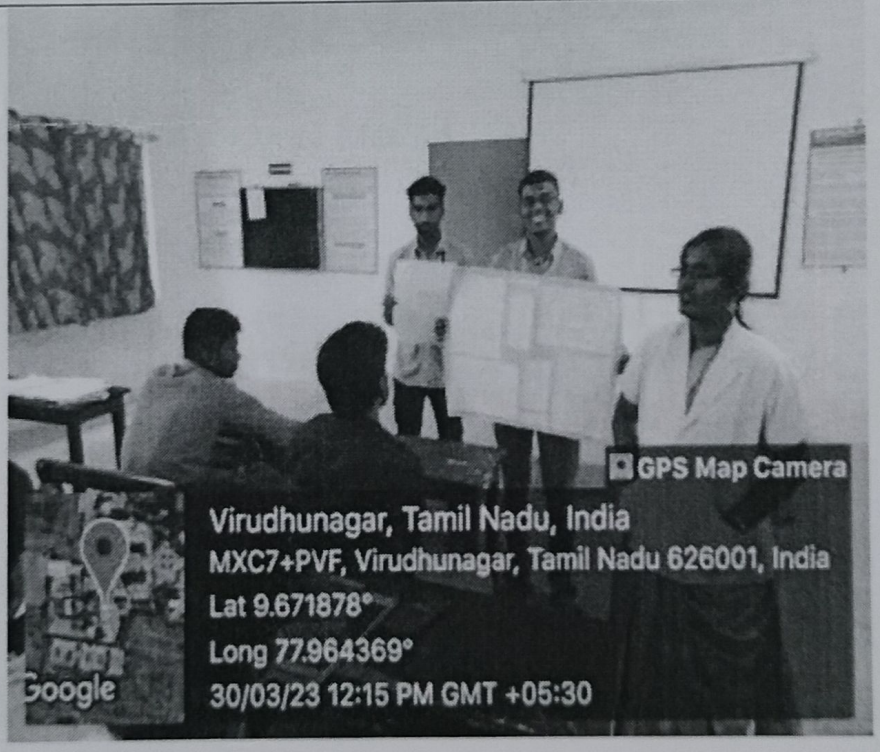
DEPARTMENT OF MATHEMATICS
ACADEMIC YEAR: 2022 – 2023 (EVEN)
ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	C.REVATHY
Sub Code / Name	MA2254, Probability, Statistics and Numerical methods
Year / Branch	II MTR
Date / Period	30.03.2023 / IV
Number of Participants	28
Pedagogic Tool used	Chart activity
Purpose of the Tool used	To induce their creativity and to recall the important formulae
Remarks	The students are eagerly participated and explained their chart work.
Proof	

Staff incharge

Chairperson

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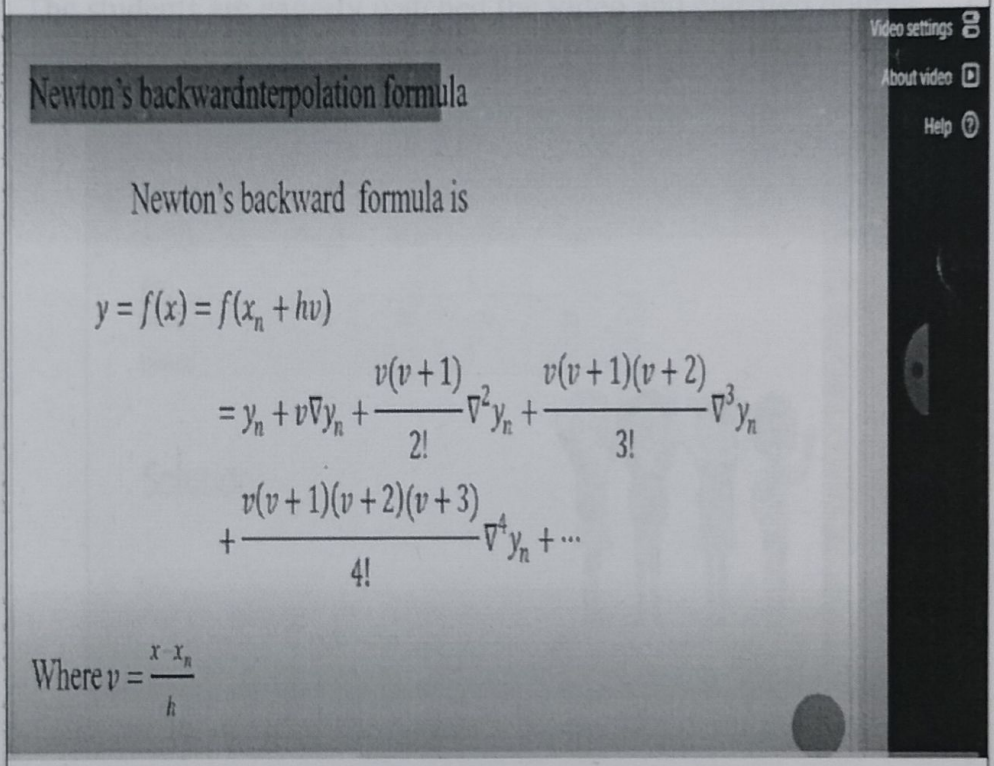
DEPARTMENT OF MATHEMATICS
ACADEMIC YEAR: 2022 – 20223 (EVEN)
ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	Mrs.C.Revathy
Sub Code / Name	MA2254/ Probability ,Statistics and Numerical Methods
Year / Branch	II MTR
Mode of Study	Onlin mode-Blended Learning
Number of Participants	30
Pedagogic Tool used	video
Purpose of the Tool used	To easily understand the concepts
Remarks	The students are eagerly watched the video and clarified doubts
Proof	

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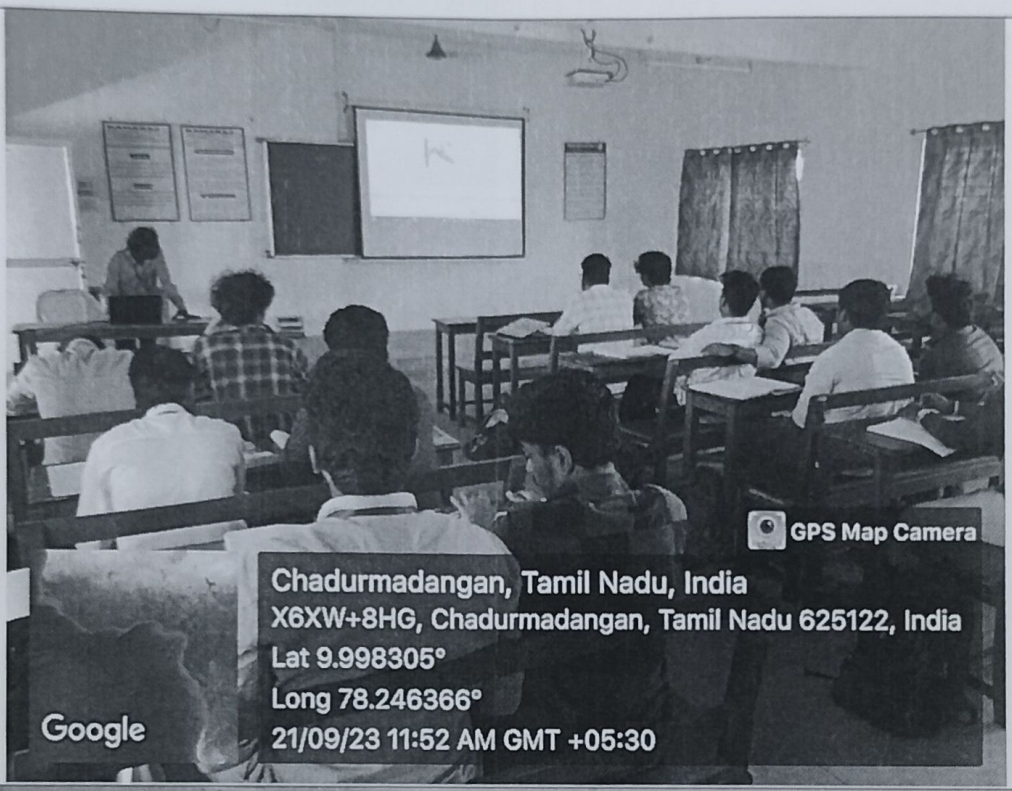
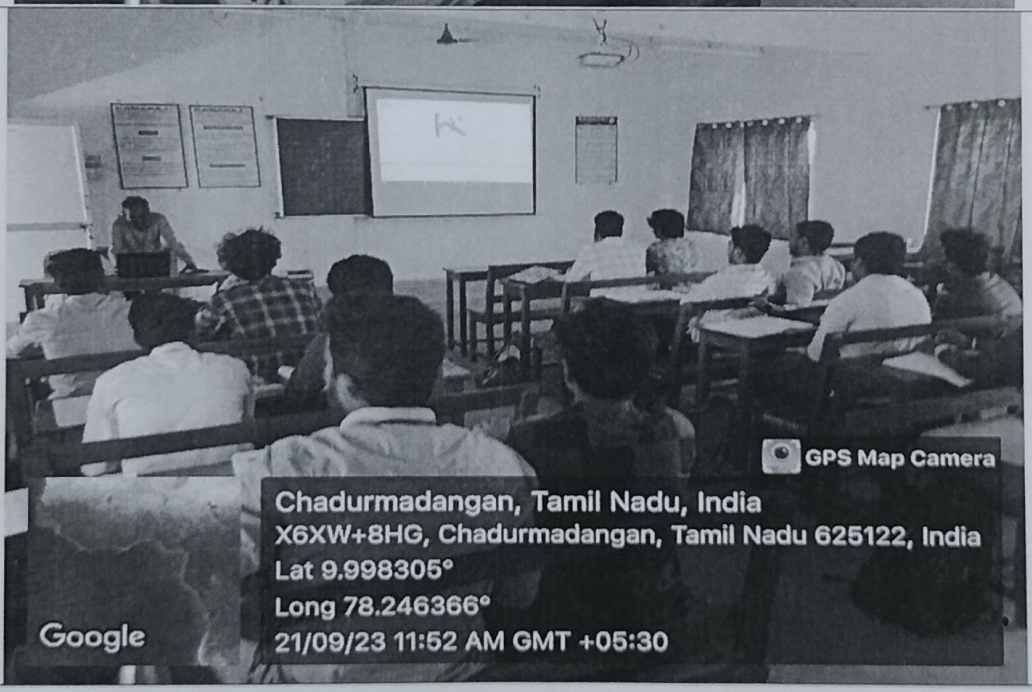
Department of Mechatronics Engineering

MT1702- Robotics and Machine Vision Systems

Robot Kinematics and Dynamics Simulation using Robot Analyser 21.09.2023





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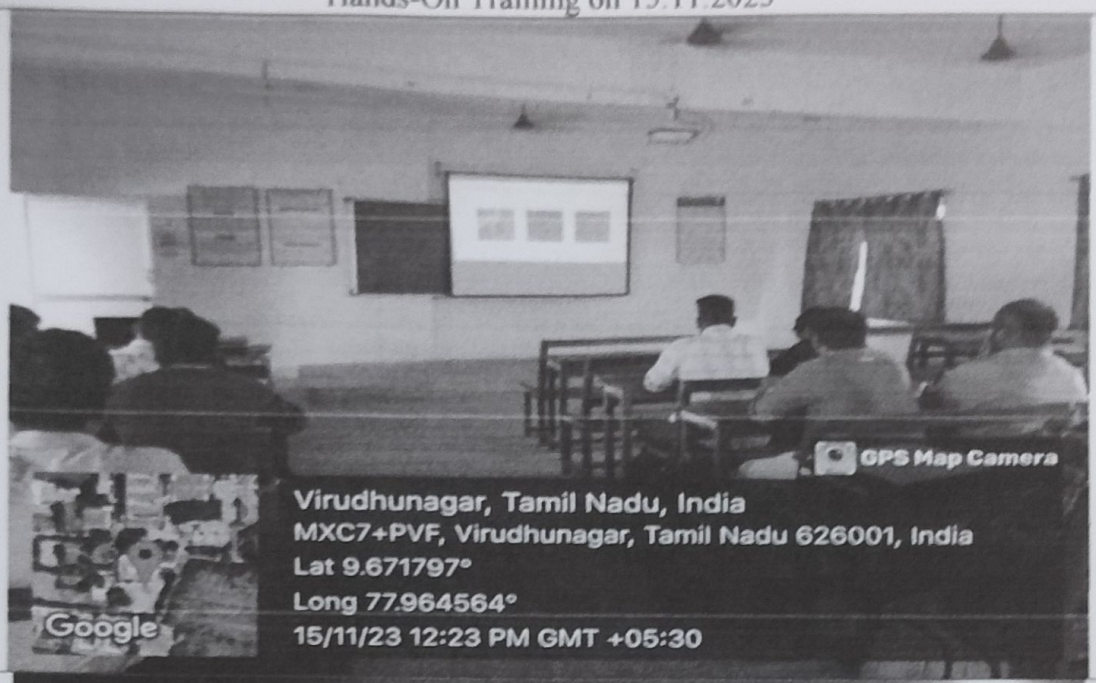
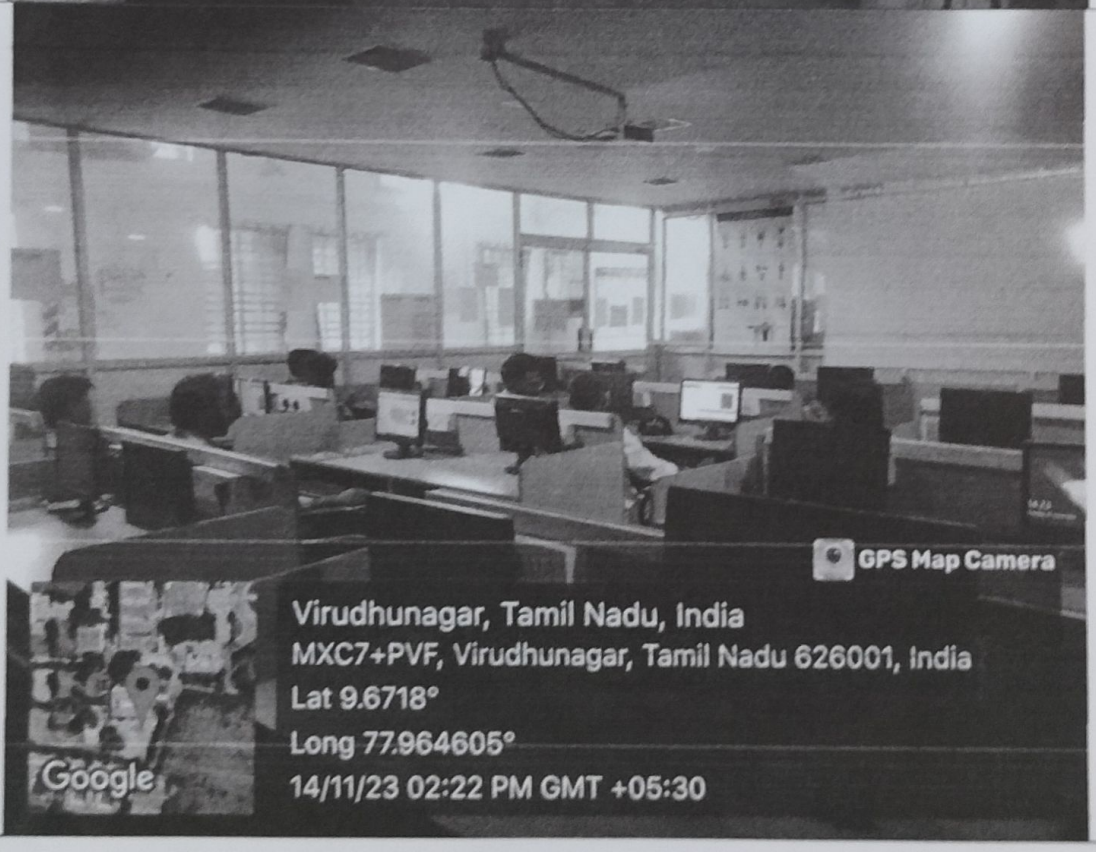
Department of Mechatronics Engineering

MT1702- Robotics and Machine Vision Systems

Machine Vision using MATLAB Demo on 14.11.2023 &
Hands-On Training on 15.11.2023





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HOD/MTRE

MT1636 -Service and Field Robotics

Innovation by Faculty

Video lecture has been given to the students related to service and field robotics

INTRODUCTION TO SERVICE AND FIELD ROBOTICS

Presented by,

Mr.S.Wesley Moses Samdoss,

Assistant Professor,

Department of Mechatronics Engineering,

Kamaraj College of Engineering and Technology

- Industrial robots are operating in a fully structured environment.
- For example, in the work cell all devices are strictly cooperating, so it is sufficient that the robot control is position based, and therefore not many external sensors are needed.

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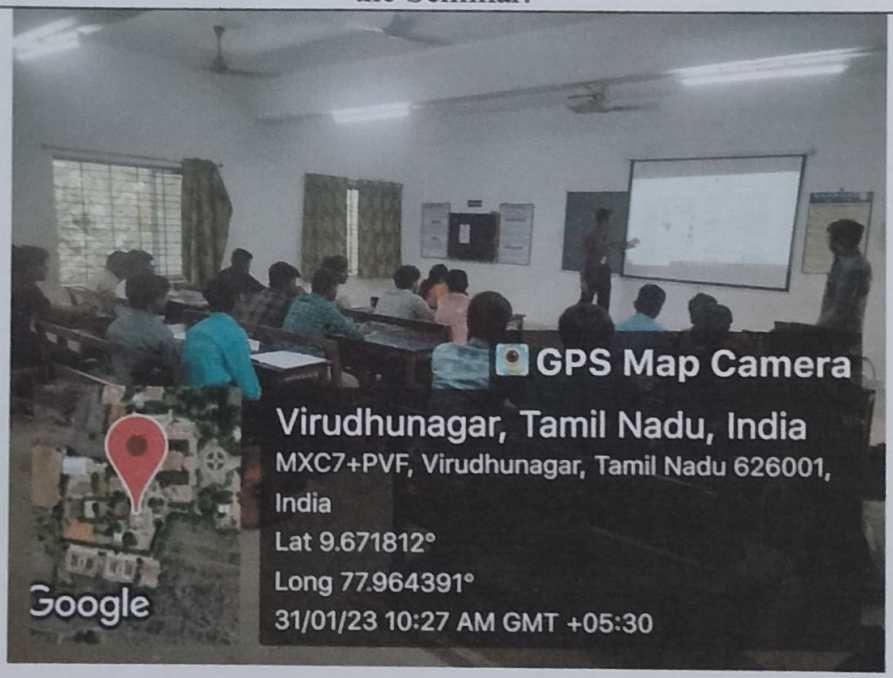
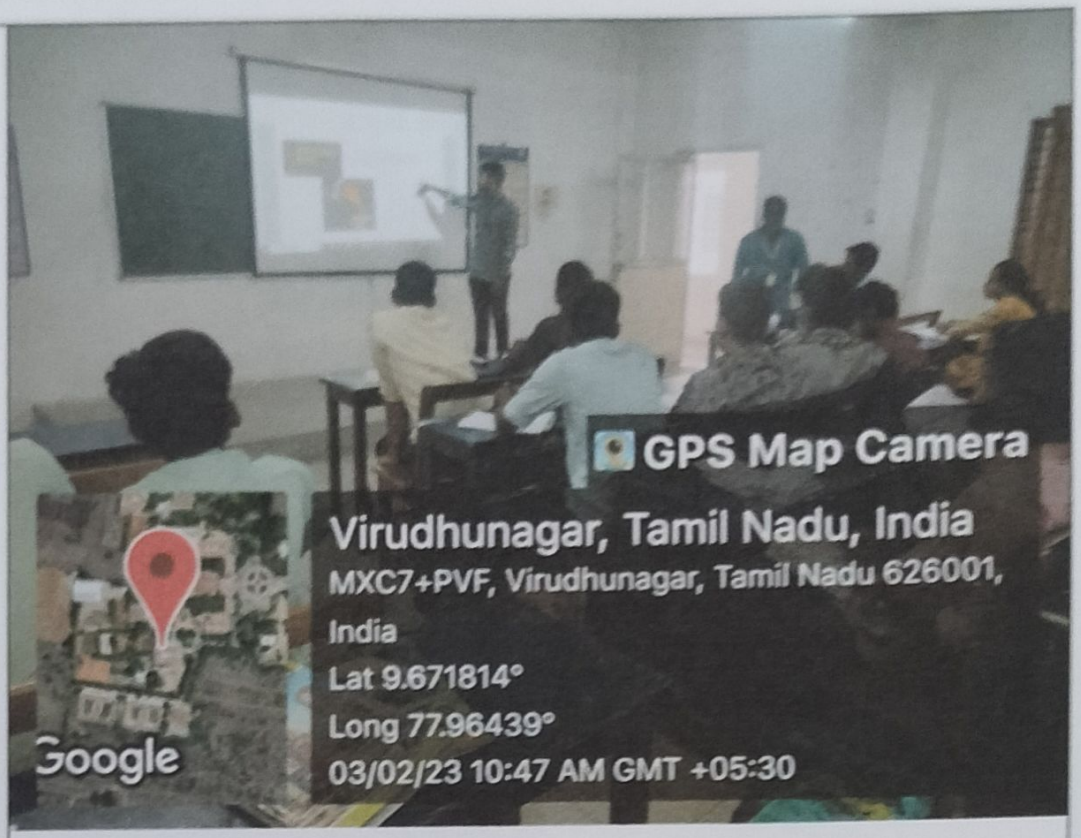
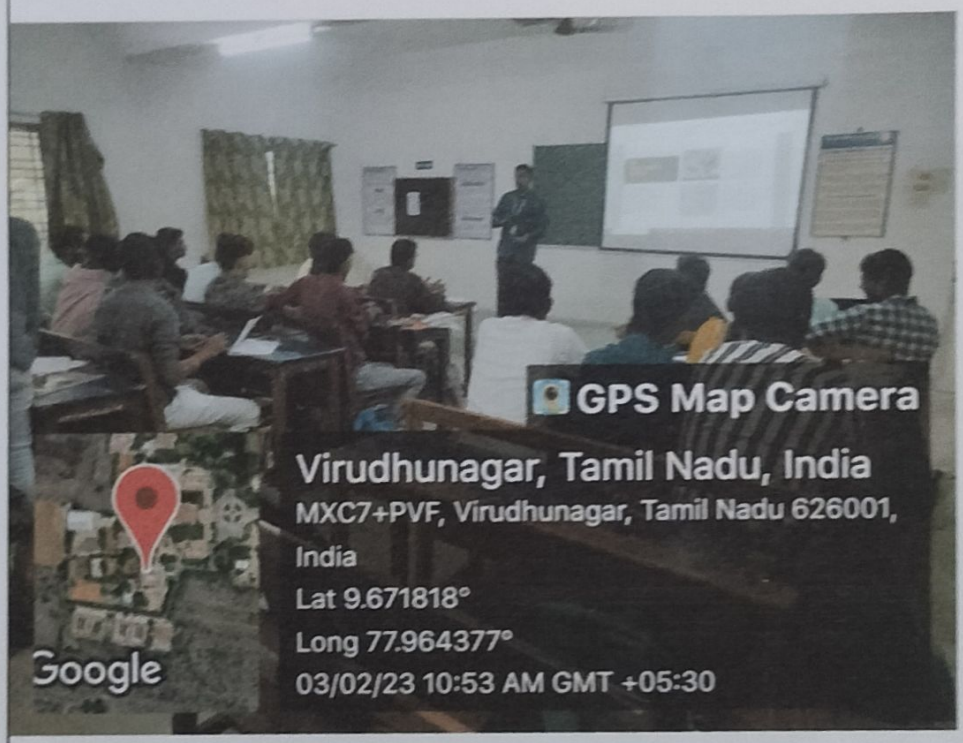
DEPARTMENT OF MECHATRONICS ENGINEERING

ACADEMIC YEAR: 2022 – 2023 (EVEN)

ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	P. Balasundar
Sub Code / Name	MT2252 Manufacturing Technology
Year / Branch	II MTRE
Pedagogic Tool used	Seminar & Demonstration of Machines
Purpose of the Tool used	To induce their creativity and to recall the important construction and working of Machines.
Remarks	The students are eagerly participated and explained their topics in the Seminar.
Proof	


GPS Map Camera
Virudhunagar, Tamil Nadu, India
MXC7+PVF, Virudhunagar, Tamil Nadu 626001, India
Lat 9.671814°
Long 77.96439°
03/02/23 10:47 AM GMT +05:30
Google


GPS Map Camera
Virudhunagar, Tamil Nadu, India
MXC7+PVF, Virudhunagar, Tamil Nadu 626001, India
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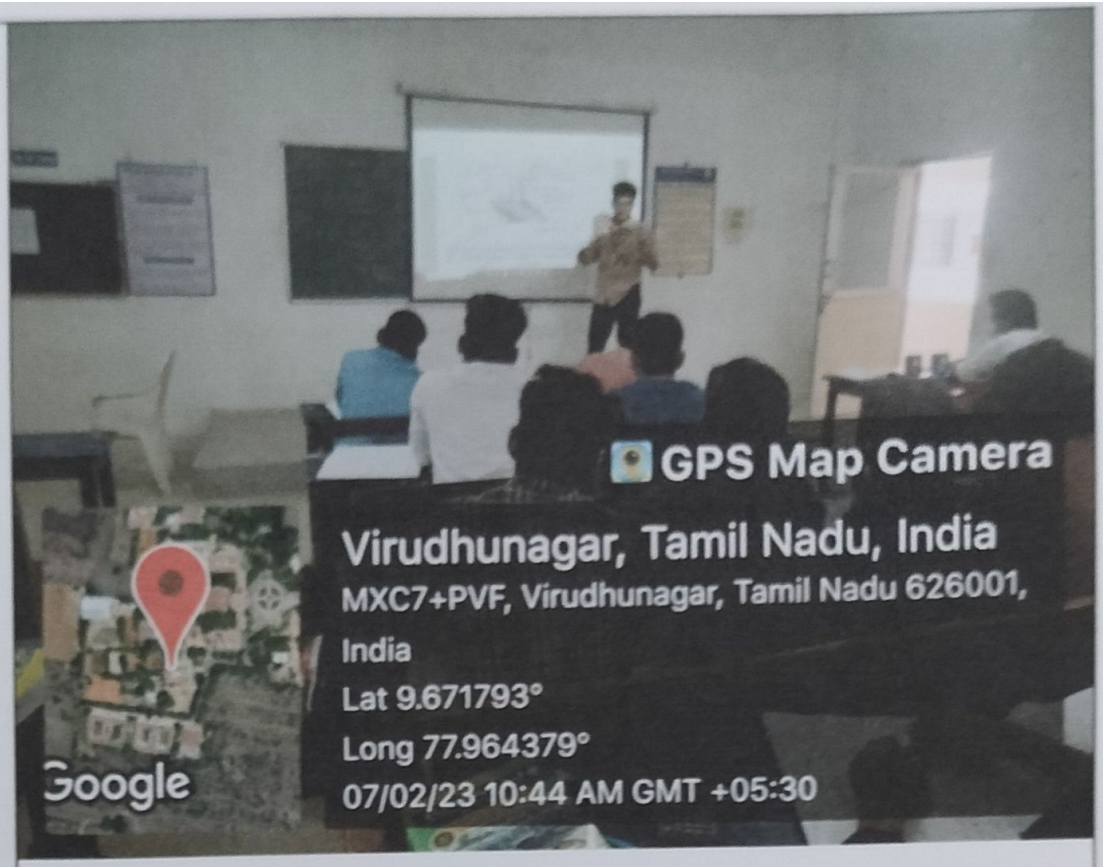
GPS Map Camera
Virudhunagar, Tamil Nadu, India
MXC7+PVF, Virudhunagar, Tamil Nadu 626001, India
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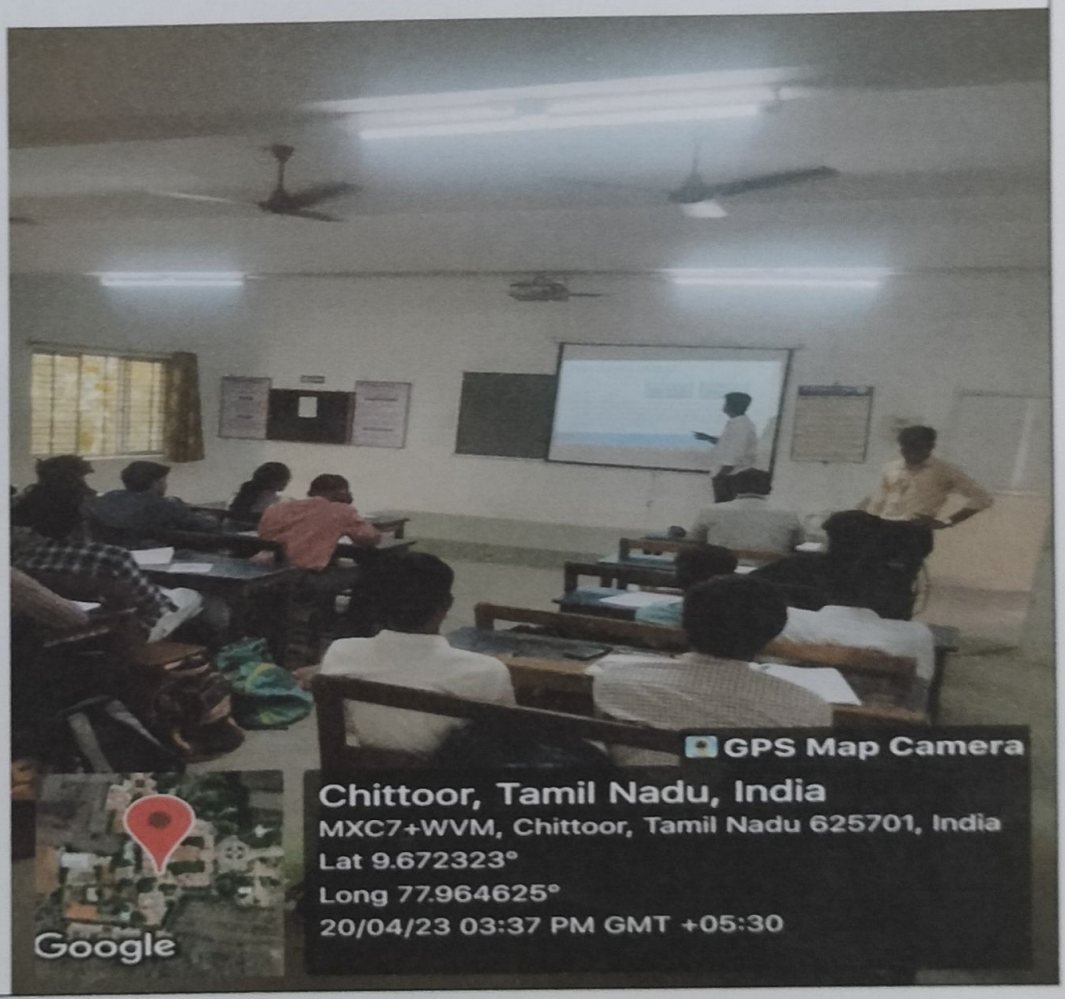
07/02/23 10:44 AM GMT +05:30
Google


GPS Map Camera
Chittoor, Tamil Nadu, India
MXC7+WVM, Chittoor, Tamil Nadu 625701, India
Lat 9.672323°
Long 77.964625°
20/04/23 03:37 PM GMT +05:30
Google


COMPRESSION MOLDING PRESS

P. Balaji

Faculty Signature

P. Balaji

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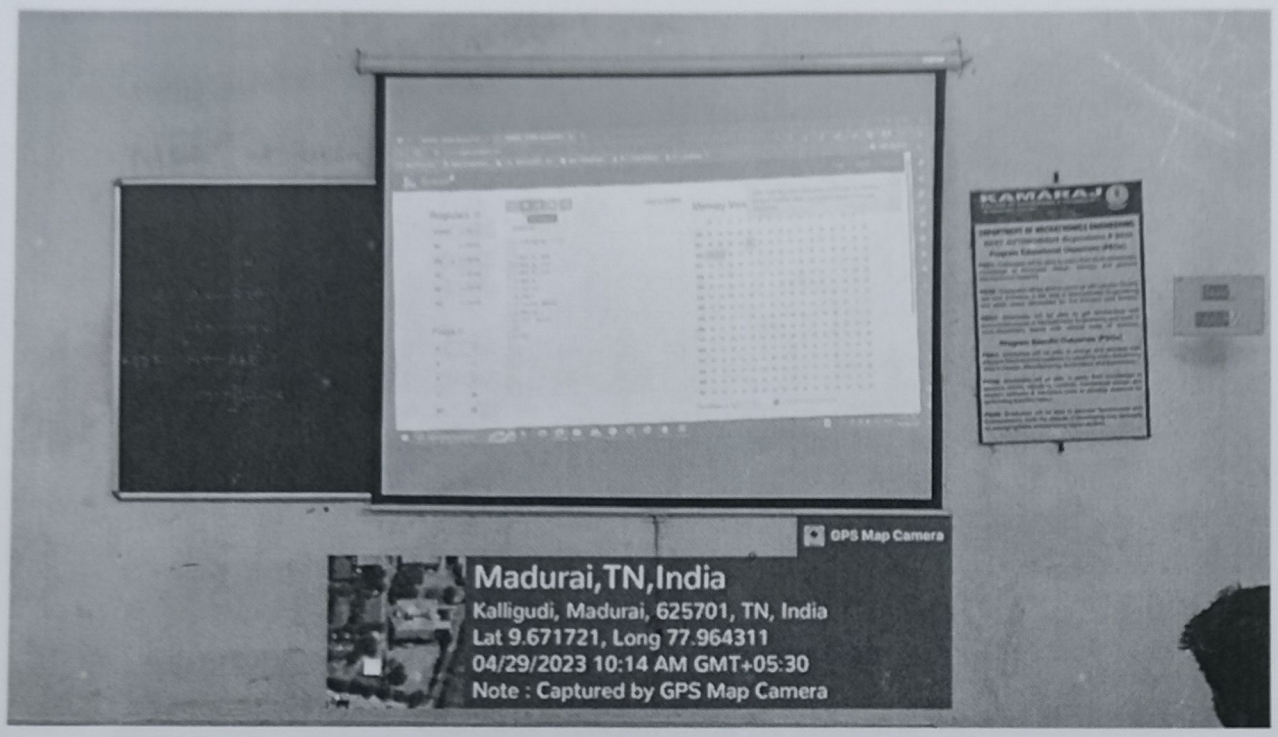
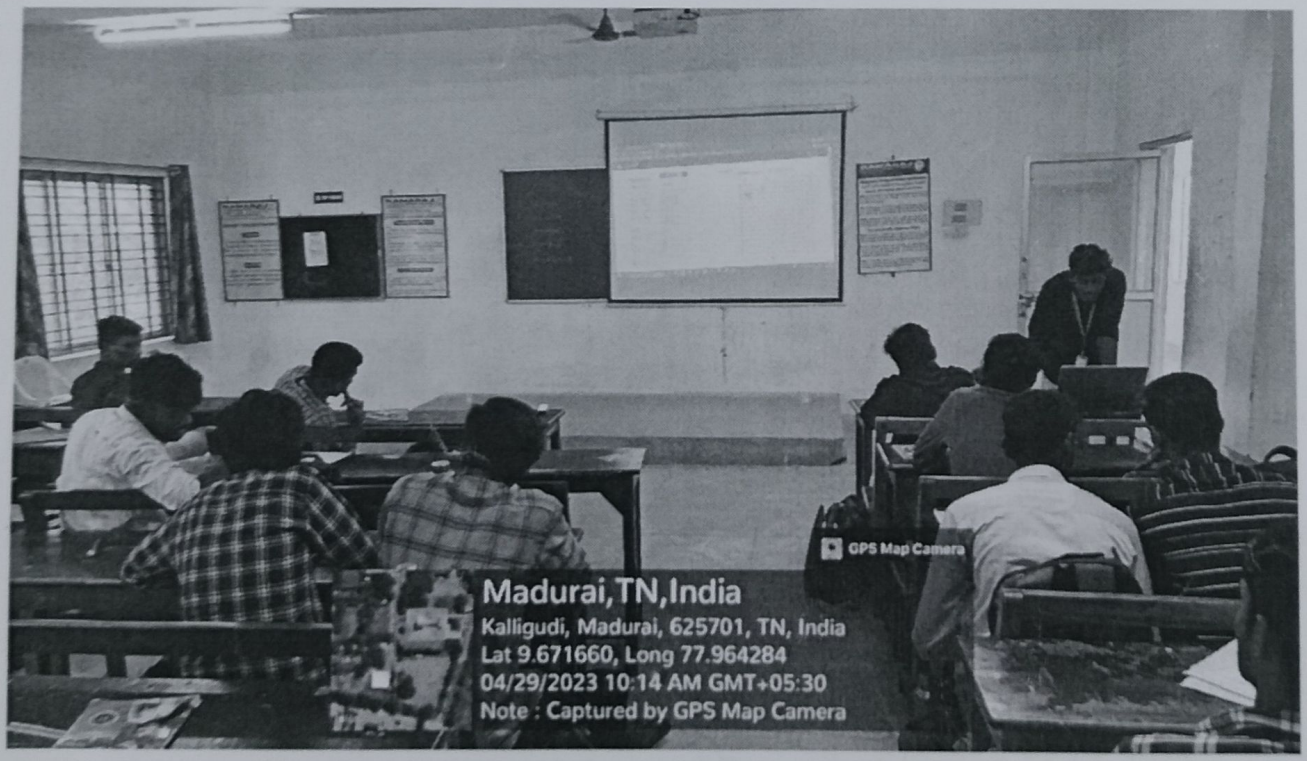
HoD / MTRE

MT2251-Digital Electronics and Microprocessors

Innovation by Faculty

Assembly language programming has been taught with the help of 8085 simulator





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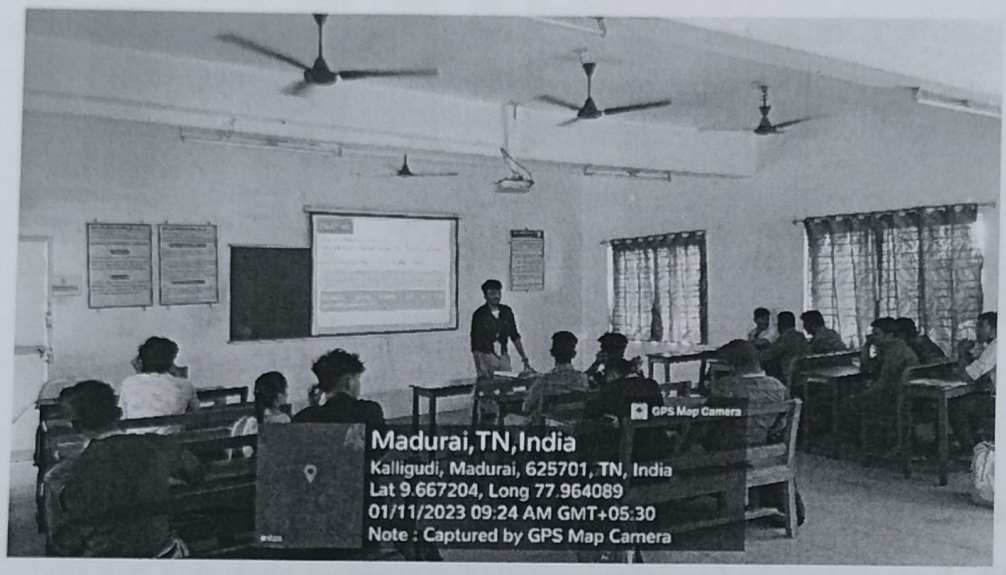
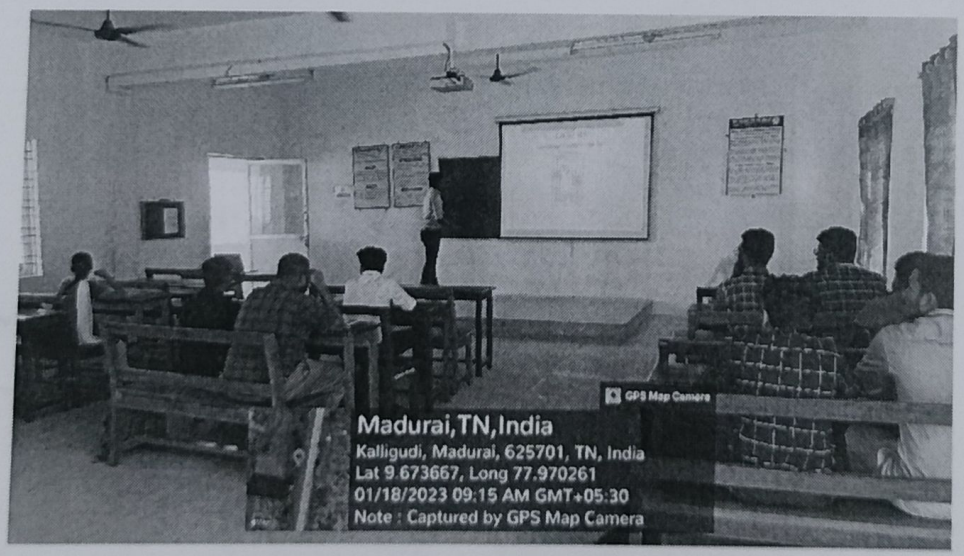
BEST Practices and Innovations /ICT Tool usage



1. Seminar presentation by students

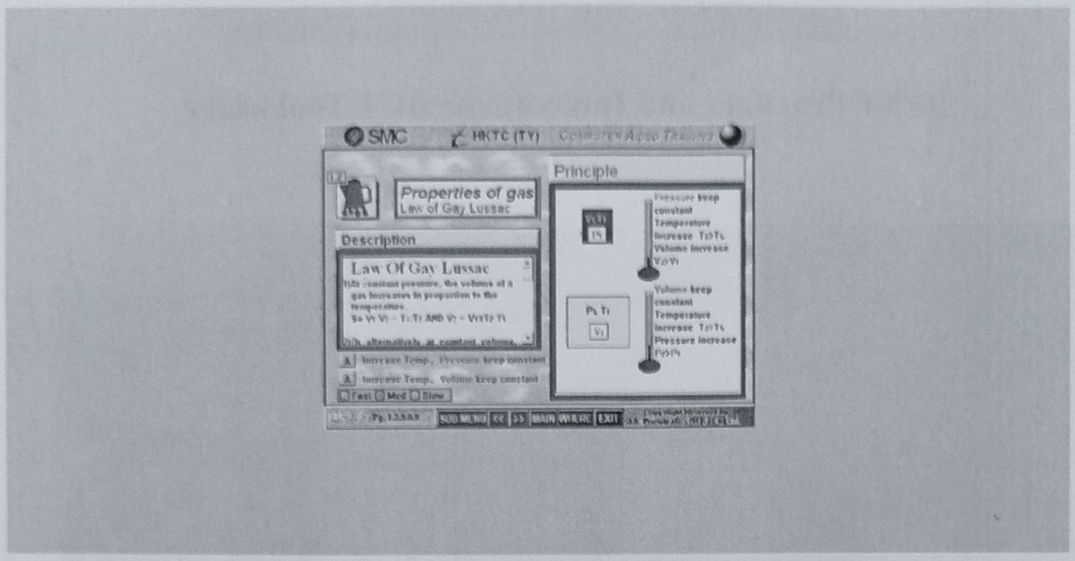
"Fluid Power advantages and disadvantages" on 21-01-2023.



2. Seminar presentation by students

"Fundamentals pf Pascals law and its applications" on 28-01-2023.

3. Using SMC Pneumatics software for improving teaching learning process



4. Journal reference for assignment.

Students were asked to refer journals for problem analysis/Case study. Students refereed various journals and submitted assignment-III.

5. YouTube link

https://www.youtube.com/channel/UCkiNpYErLoNKqE1yUCOAKjg

G. Lakhani.
Staff I/c

HOD / MTRE

EE2259 Control Systems Engineering

Problems and Python Programming

Polar Plots

Example:1

Consider the open loop transfer function of a closed loop control system. Draw a polar plot using python program

$$G(S)H(S) = \frac{6}{(S+0.5)(S+0.3)}$$

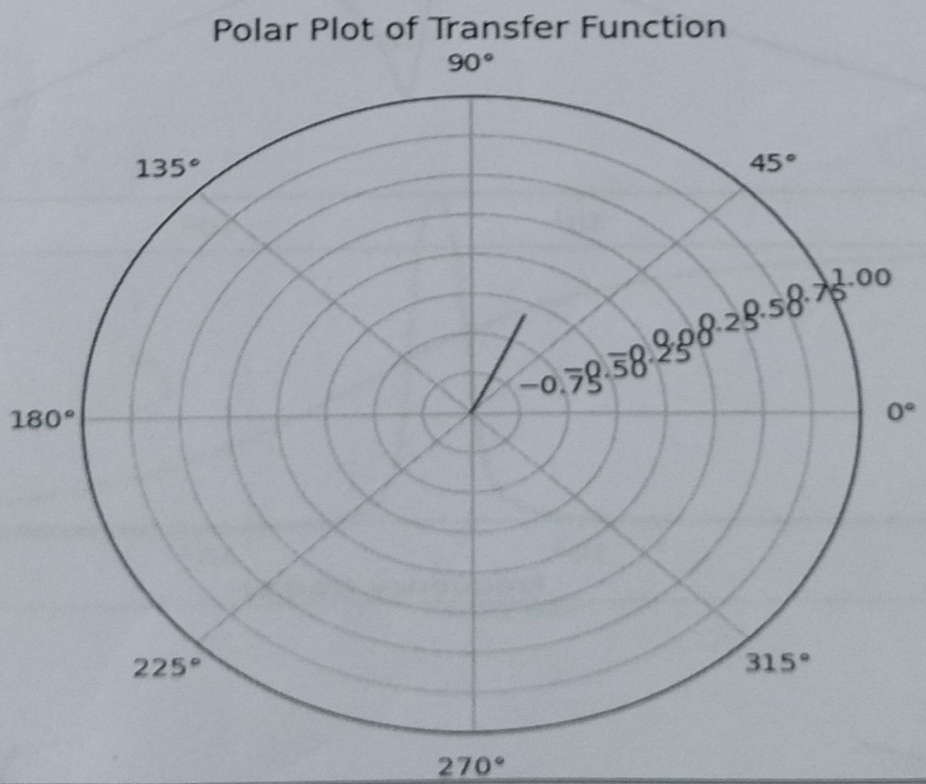
Python Code

```
import numpy as np
import matplotlib.pyplot as plt
from scipy import signal

# Define the transfer function
num = [6]
den = [0.5,0.3]
sys = signal.TransferFunction(num, den)

# Compute the frequency response
w, h = signal.freqresp(sys)

# Plot the polar plot
fig, ax = plt.subplots(subplot_kw={'projection': 'polar'})
ax.plot(h.real, h.imag)
ax.set_rlim([-1, 1])
ax.set_title('Polar Plot of Transfer Function')
plt.show()
```



Bode Plot

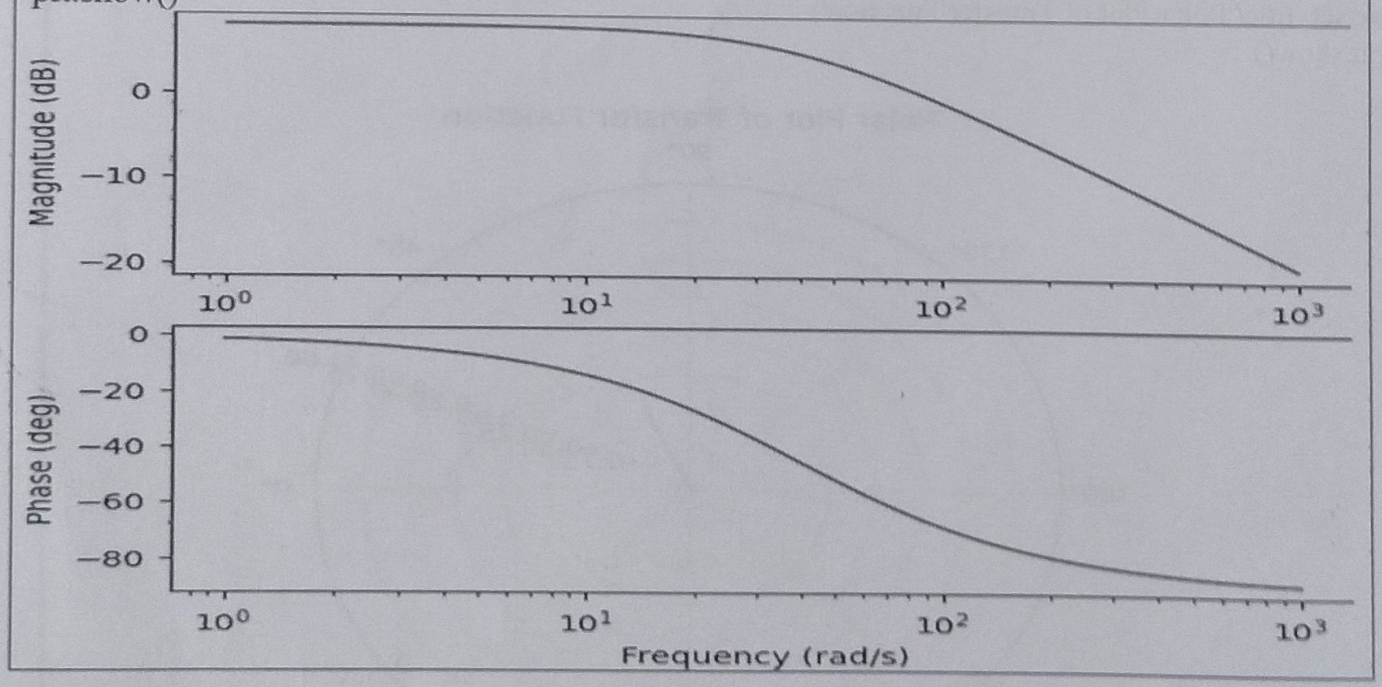
Example:1

Consider the open loop transfer function of a closed loop control system. Draw a bode plot using python program

$$G(S)H(S) = \frac{5}{(S+0.05)(S+2)}$$

Python Code

```
import numpy as np
import matplotlib.pyplot as plt
from scipy import signal
# Define the transfer function
num = [5]
den = [0.05, 2]
sys = signal.TransferFunction(num, den)
# Calculate the frequency response
w, mag, phase = signal.bode(sys)
# Plot the Bode plot
fig, (ax1, ax2) = plt.subplots(2, 1)
ax1.semilogx(w, mag)
ax1.set_xlabel('Frequency (rad/s)')
ax1.set_ylabel('Magnitude (dB)')
ax2.semilogx(w, phase)
ax2.set_xlabel('Frequency (rad/s)')
ax2.set_ylabel('Phase (deg)')
plt.show()
```



Faculty signature

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Class	: II	Course Code	: EE1471
Staff Name	: Dr.S.Rajeshbabu AP/EEE	Course Name	: CONTROL SYSTEMS ENGINEERING

Unit III

Frequency Response and System Analysis

Bode Plot

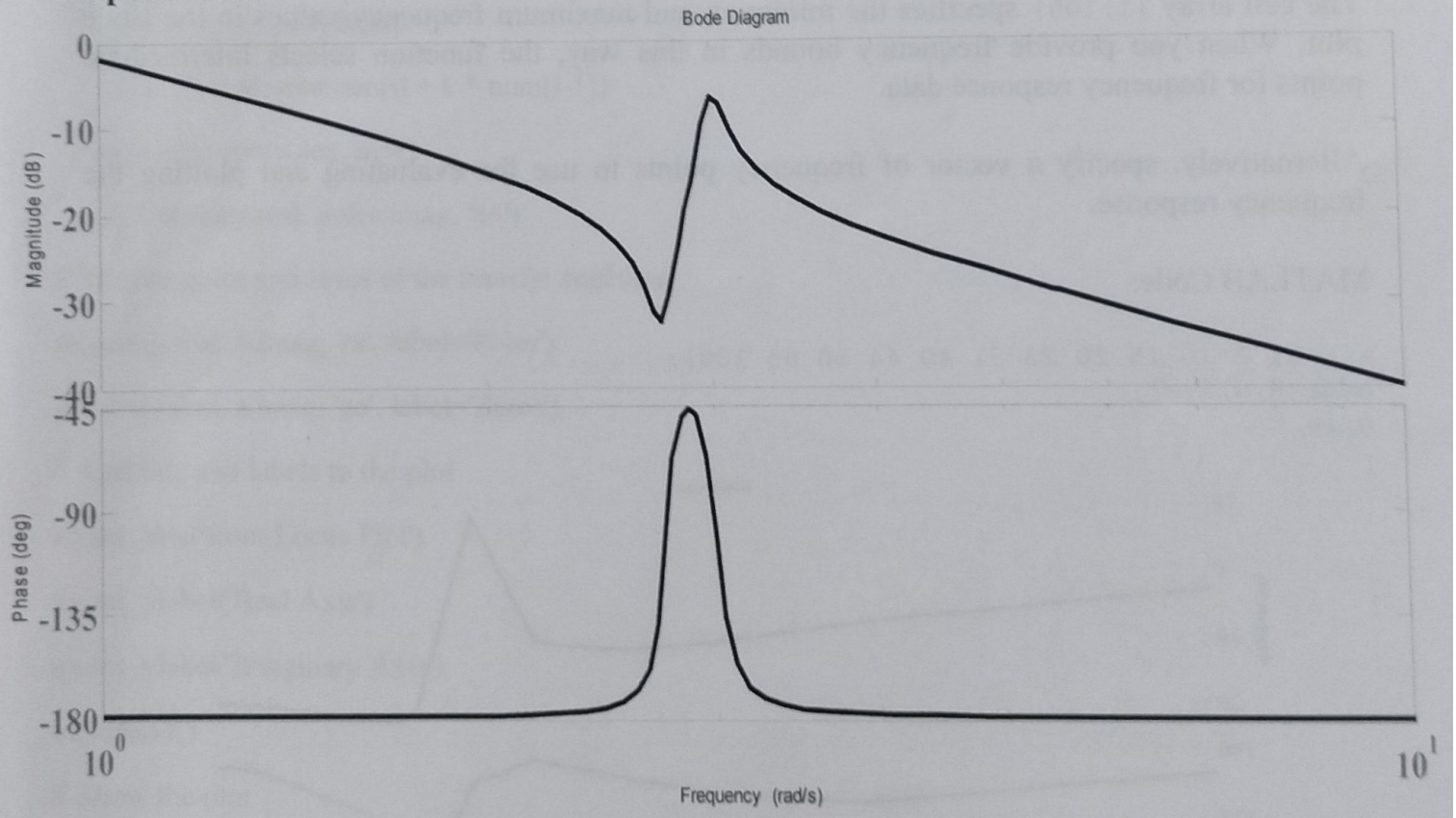
Create a Bode plot of the following continuous-time SISO dynamic system.

$$H(S) = \frac{s^2 + 0.1S + 7.5}{S^4 + 0.12s^3 + 9s^2}$$

Matlab Code:

```
H = tf([1 0.1 7.5],[1 0.12 9 0 0]);
bode(H)
```

Response Plot

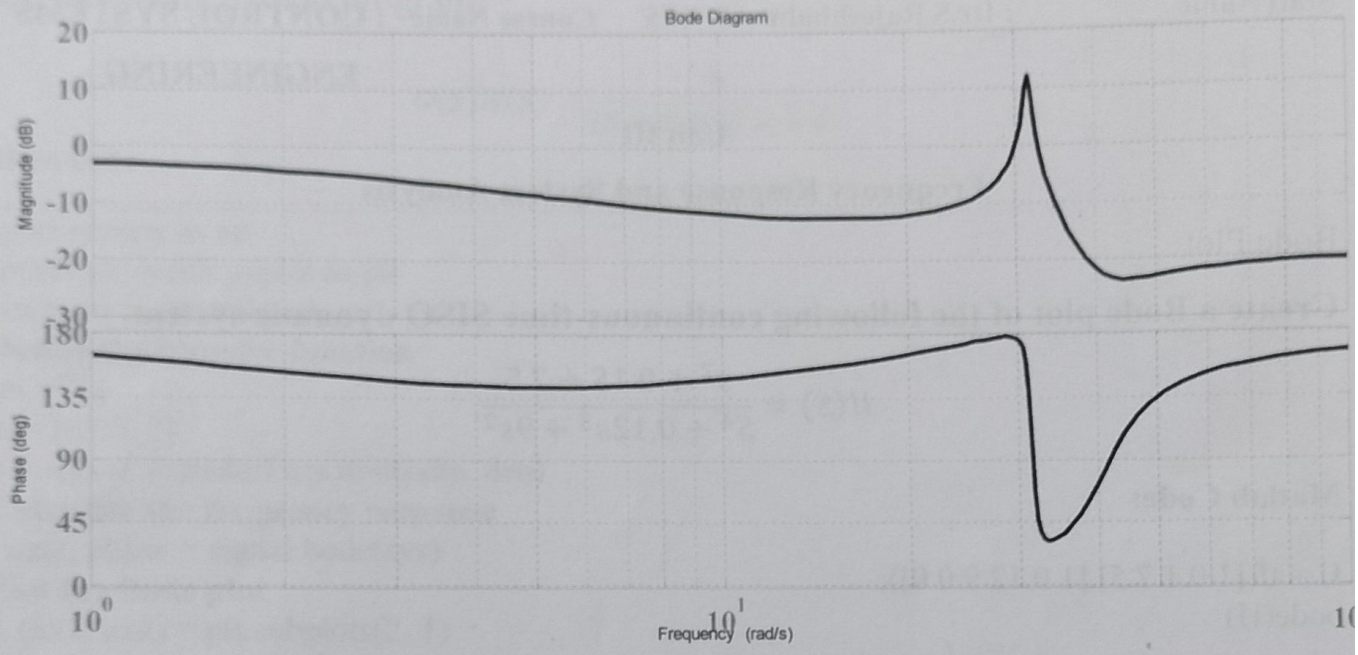


2. Create a Bode plot over a specified frequency range. Use this approach when you want to focus on the dynamics in a particular range of frequencies.

MATLAB Code:

```
H = tf([-0.1,-2.4,-181,-1950],[1,3.3,990,2600]);
bode(H,{1,100})
grid on
```

Plot:

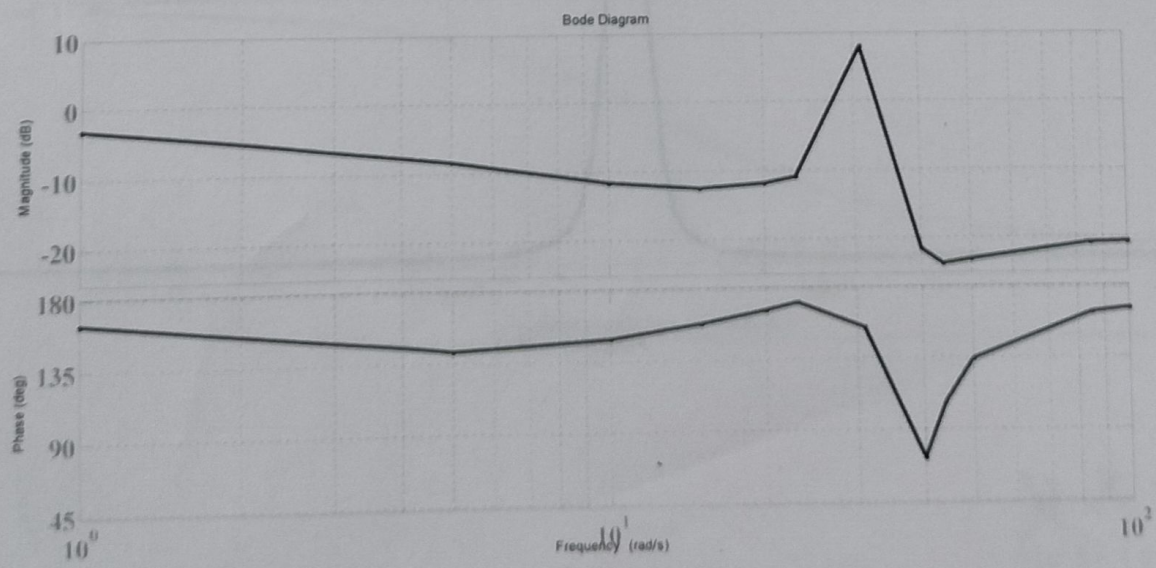


The cell array `{1,100}` specifies the minimum and maximum frequency values in the Bode plot. When you provide frequency bounds in this way, the function selects intermediate points for frequency response data.

Alternatively, specify a vector of frequency points to use for evaluating and plotting the frequency response.

MATLAB Code:

```
w = [1 5 10 15 20 23 31 40 44 50 85 100];
bode(H,w,'.-')
grid on
```



Polar Plot

```
import numpy as np
import matplotlib.pyplot as plt
# Define the transfer function
num = [2]
den = [0.3,0.5]
# Define the range of gains to plot the root locus
K = np.linspace(0, 10,250)
# Generate the poles and zeros of the transfer function
p = np.roots(den)
z = np.roots(num)
# Initialize the root locus plot
fig, ax = plt.subplots()
# Plot the root locus for each value of K
for k in K:
    den_new = [den[0]]
    for i in range(1, len(den)):
        den_new.append(den[i] + k * num[i-1])
    poles = np.roots(den_new)
    ax.plot(poles.real, poles.imag, 'b+')
# Plot the poles and zeros of the transfer function
ax.plot(p.real, p.imag, 'rx', label='Poles')
ax.plot(z.real, z.imag, 'go', label='Zeros')
# Add title and labels to the plot
ax.set_title('Root Locus Plot')
ax.set_xlabel('Real Axis')
ax.set_ylabel('Imaginary Axis')
ax.legend()
# Show the plot
plt.show()
```

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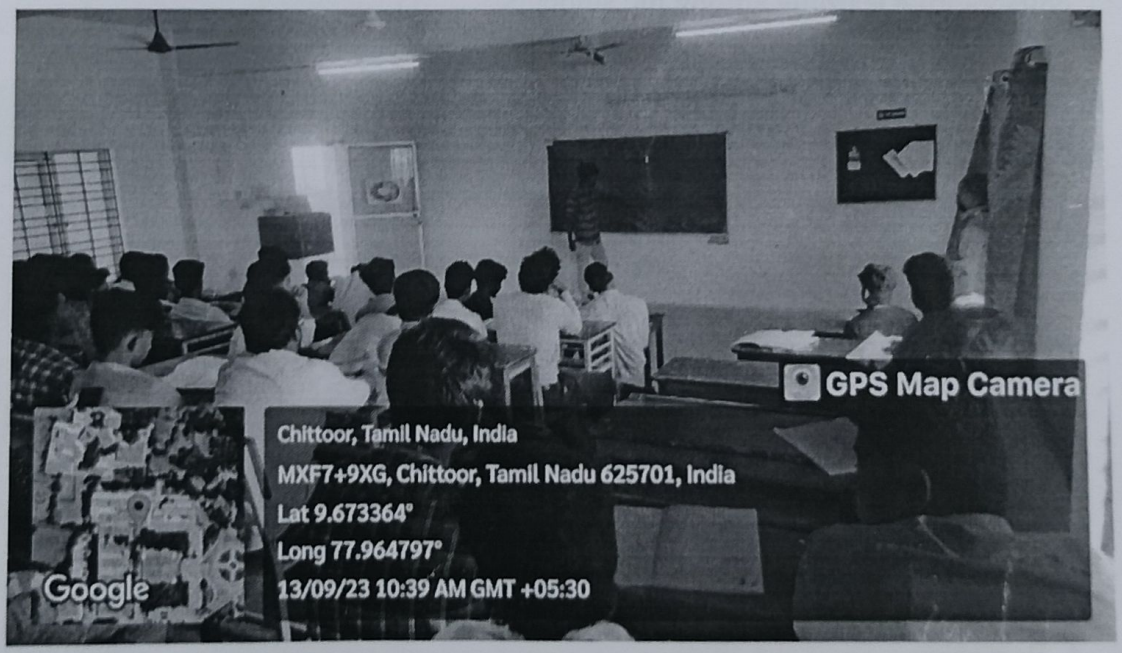
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR: 2023 – 2024 (~~EVEN~~) ODD

ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	R.GANESAN
Sub Code / Name	GE2201 Design Thinking
Year / Branch	II – EEE & II MTR
Date / Period	13.09.2023 & 9.10 Am
Number of Participants	54
Pedagogic Tool used	**Think Pair Share – Thinking in Color**
Purpose of the Tool used	The primary goal of this activity was to encourage critical thinking, promote active participation, and facilitate collaborative learning among the students.
Remarks	The activity not only enhanced students' understanding of the topic but also improved their communication and teamwork skills
Proof	

Staff in charge

Chair Person

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BEST PRACTICES 02

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
2023 - 2024 (ODD Semester)

Year	: II EEE & MTR	Course Code:	GE2201
Faculty Name	: Mr.R.Ganesan AP/EEE	Course Name:	Design Thinking

Report on Thinking in Color" Think Pair Share Activity

Activity Name : **Think Pair Share – Thinking in Color**

Date and Hour : 13.09.2023 & I, II

Participants : II EEE Students & II MTR Students

Introduction:

The "Thinking Color" Think Pair Share activity was conducted to engage students in a thought-provoking discussion about the perception and interpretation of colors. The primary goal of this activity was to encourage critical thinking, promote active participation, and facilitate collaborative learning among the students.

Procedure:

1. Team Formation: The students were divided into teams of up to six members each. This ensured a manageable group size that allowed for effective discussion and interaction.

2. Topic: The central topic of the activity was "Thinking Color." Students were given the freedom to interpret this topic in their own way, encouraging creativity and diverse perspectives.

3. Think Phase (20 minutes): Each team was given 20 minutes to individually contemplate and brainstorm ideas related to the topic. During this phase, students were encouraged to jot down their thoughts, ideas, and observations about colors.

4. Pair Phase: After the think phase, students paired up within their respective teams to discuss their individual ideas. This phase allowed for the sharing of perspectives and the refinement of initial thoughts through collaborative discussion.

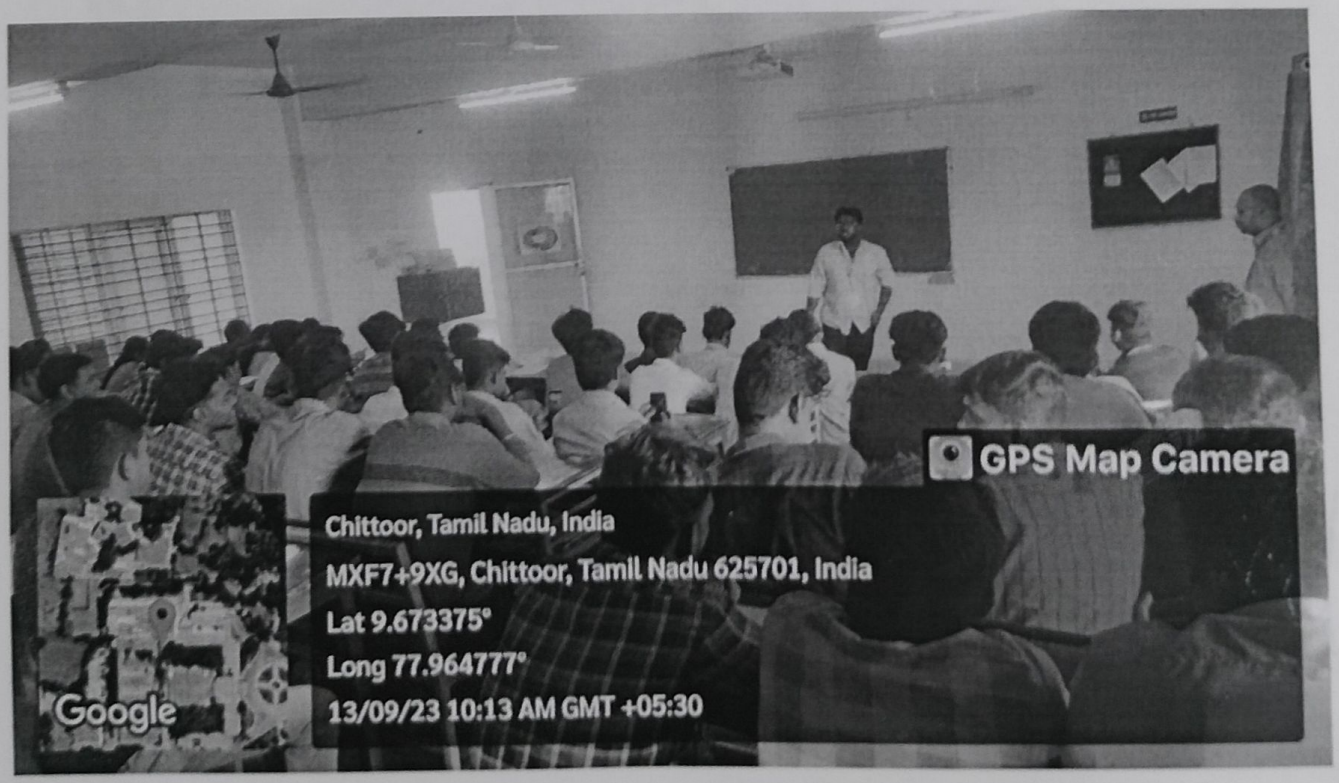
5. Share Phase: Following the pair phase, one student from each team was chosen to share the group's collective ideas with the entire class. This sharing process provided an opportunity for students to articulate their thoughts and engage in a larger group discussion.

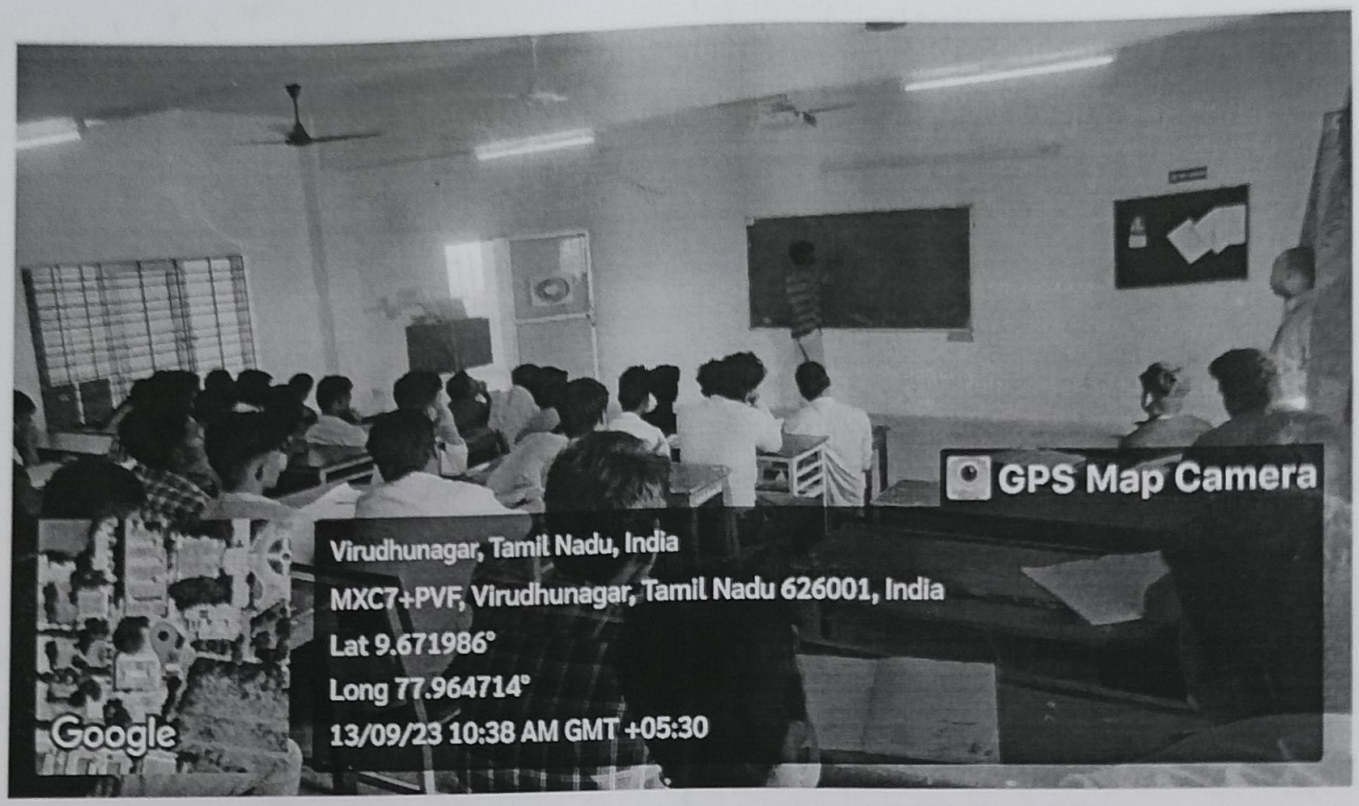
Observations:

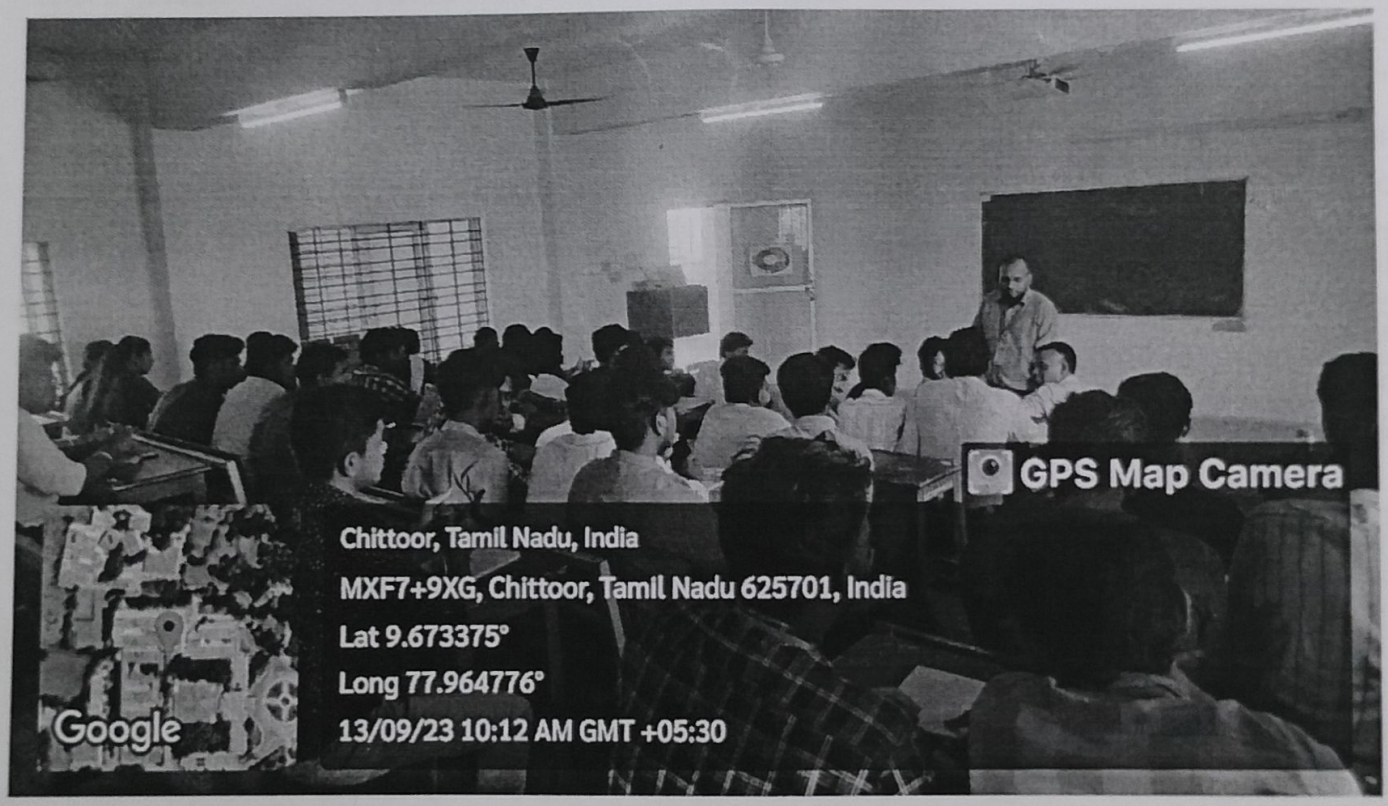
- All teams actively participated in the activity, demonstrating enthusiasm for the topic and a willingness to engage with their peers.
- During the think phase, students appeared deeply engaged in their contemplation, taking the activity seriously and demonstrating independent thought.
- In the pair phase, students were observed engaging in lively discussions, sharing insights, and refining their ideas through constructive dialogue.
- During the share phase, the selected representatives confidently presented their team's ideas to the class, fostering a sense of accomplishment and pride among the participants.
- The discussion that followed the sharing phase was vibrant, with students raising questions, providing feedback, and building on each other's ideas.

Conclusion:

The "Thinking Color" Think Pair Share activity successfully achieved its objectives of promoting critical thinking, active participation, and collaborative learning. It encouraged students to explore the topic of colors from various perspectives and facilitated meaningful discussions within the classroom. The activity not only enhanced students' understanding of the topic but also improved their communication and teamwork skills. It created an inclusive and interactive learning environment, allowing students to express their thoughts and engage with their peers. Overall, the "Thinking Color" Think Pair Share activity was a valuable addition to the classroom, fostering both individual and group learning experiences while promoting critical thinking and creativity.







Faculty In-charge

Head of the Department

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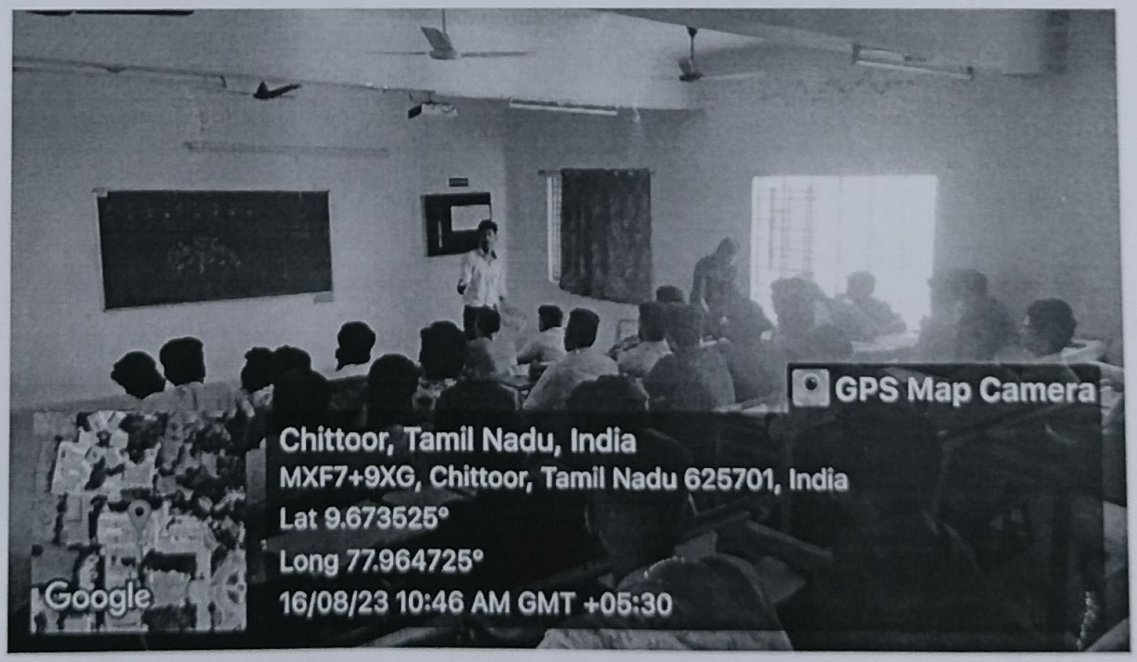
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR: 2023 – 2024 (~~EVEN~~) ODD

ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	R.GANESAN
Sub Code / Name	GE2201 Design Thinking
Year / Branch	II – EEE & II MTR
Date / Period	16.08.2023 & 9.10 Am
Number of Participants	56
Pedagogic Tool used	**Role Play – Design process in Design Thinking**
Purpose of the Tool used	The activity aimed to encourage active participation and collaborative problem-solving among the students.
Remarks	The activity served as an effective educational tool for teaching the Design Thinking process.
Proof	

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Chair Person

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BEST PRACTICES 01

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
2023 - 2024 (ODD Semester)

Year	: II EEE & MTR	Course Code:	GE2201
Faculty Name	: Mr.R.Ganesan AP/EEE	Course Name:	Design Thinking

Report on Design Thinking Role Play Activity

Activity Name : **Role Play – Design process in Design Thinking**

Date and Hour : 16.08.2023 & I, II

Participants : II EEE Students & II MTR Students

Introduction:

The Design Thinking Role Play Activity was conducted to provide students with a practical understanding of the design process within the framework of Design Thinking. The activity aimed to encourage active participation and collaborative problem-solving among the students. This report summarizes the key aspects of the activity and highlights the outcomes.

Objective:

The primary objectives of the role play activity were as follows:

1. To illustrate the stages and principles of the Design Thinking process.
2. To promote teamwork, communication, and creativity among students.
3. To encourage critical thinking and empathy in problem-solving.

Procedure:

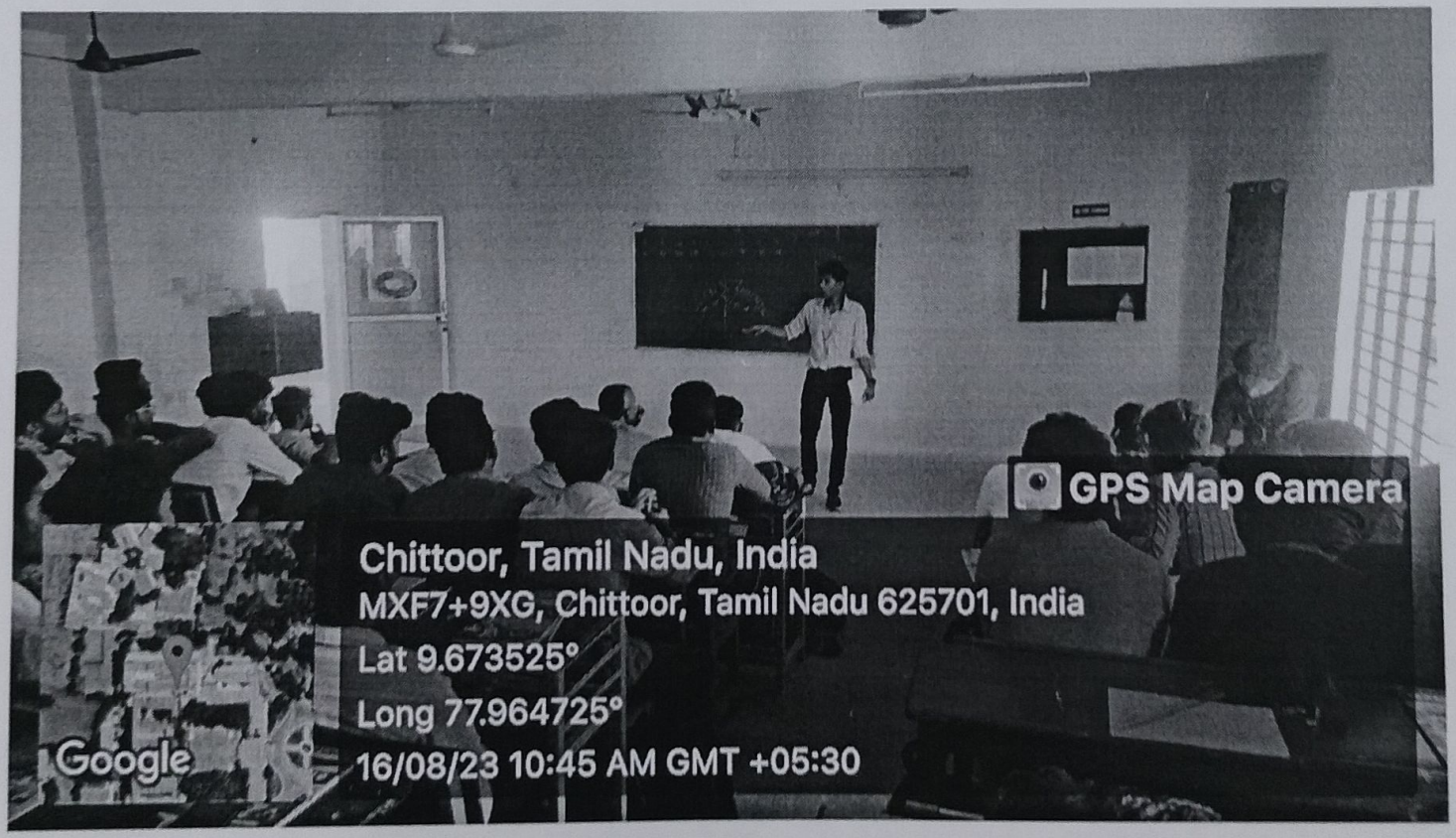
1. Formation of Teams: The students were divided into teams, with each team comprising a maximum of six members.
2. Topic Selection: The topic for the role play was "Design Process in Design Thinking."
3. Time for Individual Reflection: Each team was given 10 minutes to individually reflect on the key aspects of the design process within the context of Design Thinking.
4. Role Play: One member from each team was selected to share their thoughts and insights about the design process, while the other team members played various roles related to the design process stages.
5. Discussion and Feedback: After the role play, there was a discussion where students shared their observations, discussed the design process, and provided feedback to each other.

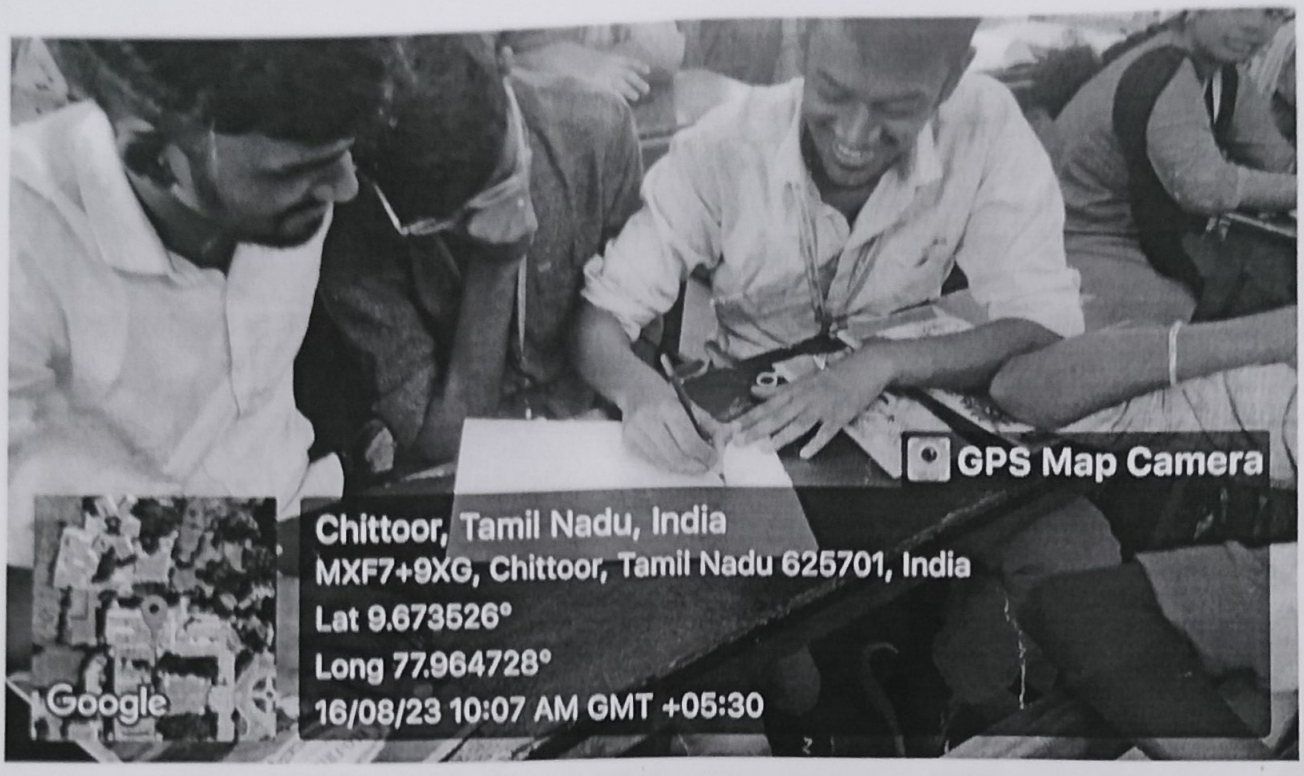
Key Observations and Outcomes:

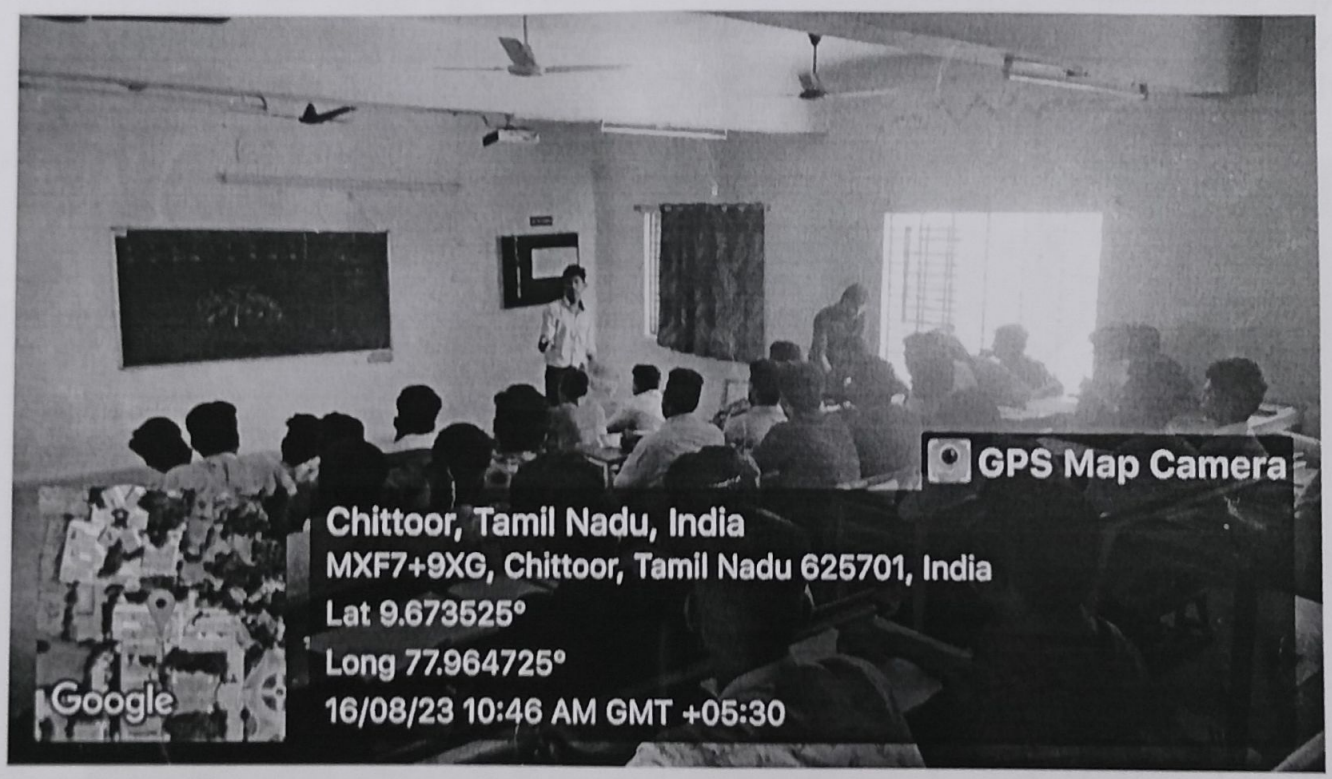
1. Active Participation: All students actively engaged in the role play and demonstrated enthusiasm throughout the activity.
2. Understanding of Design Process: The role play effectively conveyed the stages of the Design Thinking process, including empathizing, defining the problem, ideating, prototyping, and testing.
3. Improved Communication: The activity enhanced students' communication skills as they had to convey ideas, listen to their peers, and collaborate effectively.
4. Creative Problem-Solving: Students displayed creativity in addressing design challenges and came up with innovative solutions.
5. Empathy Development: The role play encouraged students to consider the needs and perspectives of users, promoting empathy in design.
6. Time Management: The 10-minute reflection period provided students with ample time to think and organize their thoughts.

Conclusion:

The Design Thinking Role Play Activity was successful in achieving its objectives by promoting a deeper understanding of the design process and fostering teamwork and creativity. Students actively participated and demonstrated their knowledge of Design Thinking principles. The activity served as an effective educational tool for teaching the Design Thinking process.







Faculty In-charge

Head of the Department

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COLLEGE OF ENGINEERING & TECHNOLOGY

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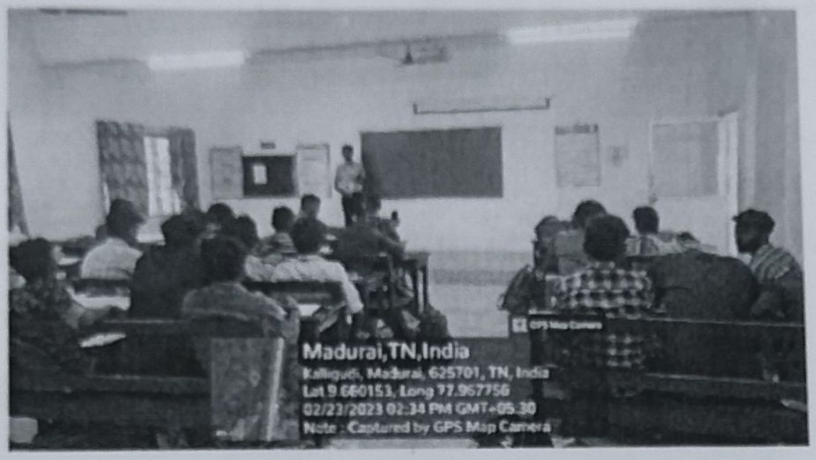
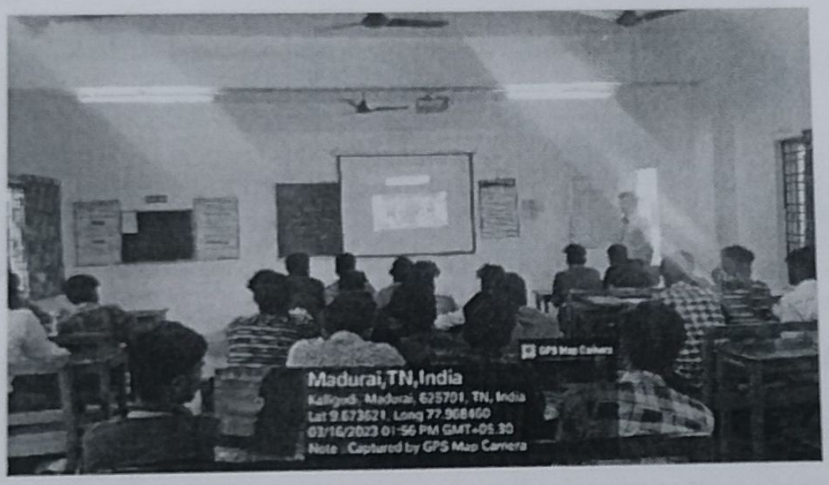
BEST Practices and Innovations /ICT Tool usage

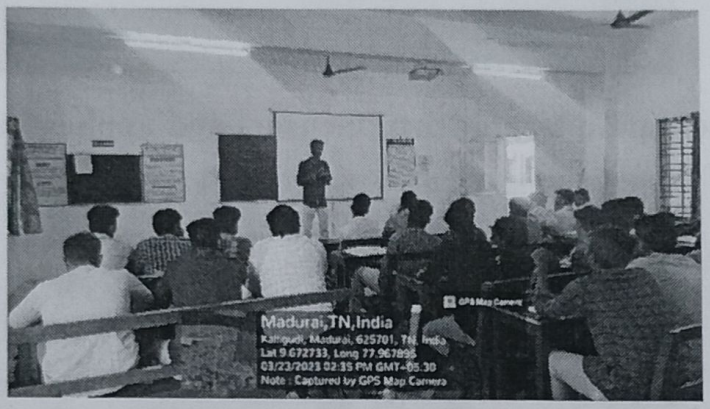


1. Seminar presentation by students "Sensors and applications" on 23-02-2023.



2. Seminar presentation by students "Resolver" on 23-02-2023.

3. Seminar presentation by students "Campass" on 20-03-2023



4. Seminar presentation to students "Introduction to Arduino controller" on 23-03-2023 by IV MTRE student

G. Sakthivel.
Staff In-Charge

HoD / MTRE

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Faculty Innovation Report

Department of Mechatronics Engineering

(Accredited by NBA, New Delhi)

2022 - 2023 (EVEN SEMESTER)

Year	: III	Course Code	: MT1631
Faculty Name	: A. GANESAN, AP/MTRE	Course Name	: AUTOTRONICS
Course code (as per NBA)	20MTC317	Regulation	: R2020

Faculty Innovation:

In this course, as a part of involving the students in TLP, they are asked to take a seminar on recent technologies in Automotive Industry.

S. No.	Student Name	Seminar Topic
1.	NAVEEN R	Traction Control System
2.	RAHUL G	
3.	GEM RELTON R	Cruise Control System
4.	VEERANAN C	
5.	KARTHIKEYAN S	Electronic Suspension
6.	SAKTHI BALA K	
7.	RAMANAVEL R	On Board Diagnostics
8.	NAVEEN PRAKASH M.E	
9.	ANANDAKRISHNAN V	Anti-Lock Braking system
10.	BHUVANESHWARAN S	
11.	SABARIVASAN S	MEMS in Airbags
12.	MANIKANDAN R	
13.	HARRISH BABU K	Centralized Door Locking System
14.	KRISHNA KUMAR P	
15.	HARISH RAMACHANDRAN V	Climate Control in Cars
16.	ESAKKIANAND R	

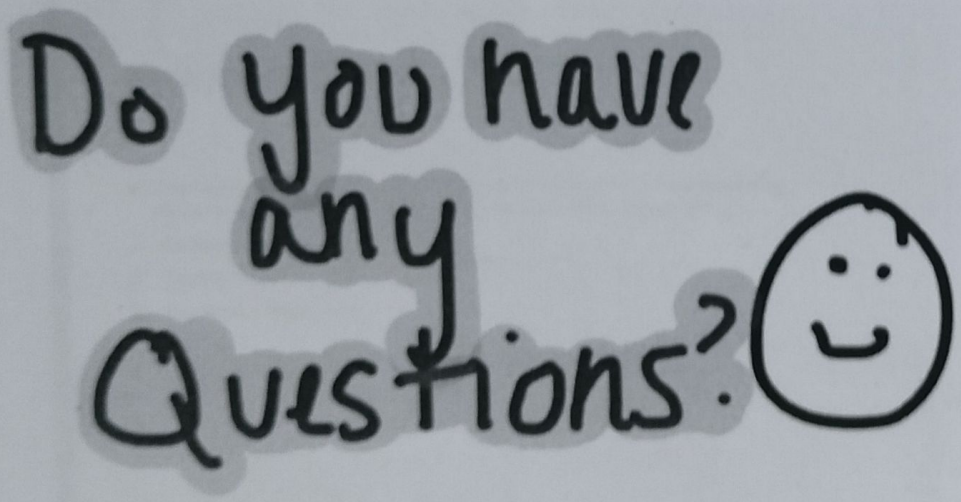
Faculty In-charge Chairperson Head of the Department

Benifits of OBD

- **Early detection of problems**: OBD can detect problems in the vehicle before they become major issues. This can help prevent breakdowns and reduce repair costs.
- **Improved fuel efficiency**: OBD can monitor the vehicle's fuel efficiency and provide feedback on how to improve it. This can lead to better gas mileage and cost savings.
- **Emissions monitoring**: OBD can monitor the vehicle's emissions and alert the driver if there is a problem. This can help reduce air pollution and comply with emissions regulations.
- **Simplified diagnostics**: OBD provides a standardized way to diagnose problems in the vehicle, making it easier and faster for mechanics to identify issues.
- **Enhanced safety**: OBD can monitor the vehicle's safety systems and alert the driver if there is a problem. This can help prevent accidents and improve overall safety on the road.

Limitations of OBD

- Limited Coverage.
- Incomplete Information.
- False Alarms.
- Compatibility Issues.
- Limited Access.



ON BOARD DIAGNOSTICS

R.Ramanavel
M.E.Naveen Prakash

What is OBD?

- OBD stands for On-Board Diagnostics and is a computer system inside of a vehicle that tracks and regulates a car's performance.
- OBD systems give the vehicle owner or repair technician access to the status of the various vehicle sub-systems.
- The OBD system is typically connected to the engine control module (ECM) or powertrain control module (PCM), and can monitor and diagnose issues related to engine performance, emissions, fuel efficiency, and other important vehicle functions.
- There are currently two types of OBD systems in use: OBD-I and OBD-II.

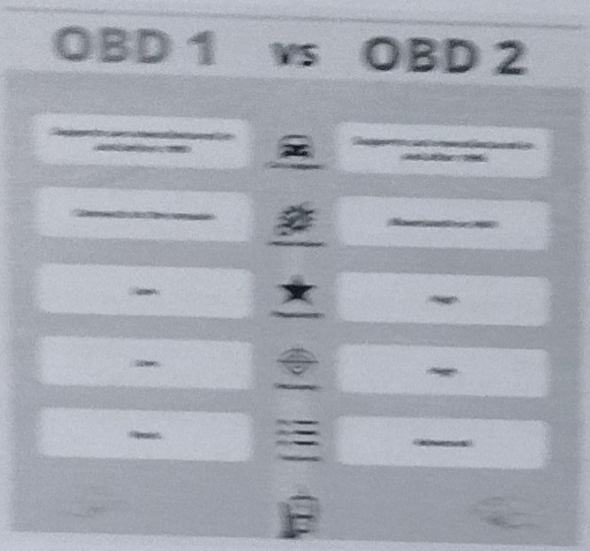
History of OBD

- The history of OBD begins in the 1980s. During this time, vehicle monitoring systems were developed in response to several factors, including:

1. Emissions control
2. Electronic fuel injection
3. Electronic components

OBD-I and OBD-II

- OBD-1 is the first generation of on-board diagnostics, which was introduced in the early 1980s and was used until the mid-1990s.
- It is a more basic system than OBD-2 and is less standardized across different manufacturers.
- OBD-1 systems typically use a proprietary diagnostic connector and require specialized equipment to read the diagnostic codes.
- OBD-2, on the other hand, was introduced in the mid-1990s and is still in use today. It is a more sophisticated system that uses a standardized set of diagnostic codes and a common diagnostic connector.
- Overall, OBD2 is a more advanced and standardized system compared to OBD1. However, many older vehicles still use OBD1 systems, and it may be necessary to use specialized tools or software to diagnose and repair problems with these vehicles.



How OBD works?

- The OBD system consists of a set of sensors that are located throughout the vehicle, including the engine, transmission, and emissions system.
- These sensors monitor various aspects of the vehicle's performance, such as engine speed, coolant temperature, and oxygen levels in the exhaust.
- The data collected by the sensors is then sent to the OBD computer, which is typically located under the dashboard on the driver's side of the vehicle.
- The OBD computer analyzes the data and compares it to pre-programmed standards and values. If the data falls outside of the acceptable range, the OBD computer will generate a fault code.

How OBD works?

- The fault code is then stored in the OBD computer's memory and can be accessed using a diagnostic tool.
- When a technician or mechanic connects a diagnostic tool to the OBD system, they can read the fault codes and use them to identify the specific problem or issue that is causing the vehicle to malfunction.
- Once the problem has been identified and repaired, the technician or mechanic can use the diagnostic tool to clear the fault codes from the OBD system's memory.

Features of OBD

Some common features of OBD systems include:

- **Diagnostic Trouble Codes (DTCs)** – These are codes that indicate a problem with a specific component in the vehicle.
- **Readiness Monitors** – These are tests that the ECU runs to ensure that all of the vehicle's systems are working properly.
- **Freeze Frame Data** – This is data that is captured by the ECU when a fault occurs, and includes information such as engine speed, vehicle speed, and coolant temperature.
- **Live Data** – This is real-time data that is provided by the OBD system, and includes information such as engine RPM, throttle position, and fuel trim.