



(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).


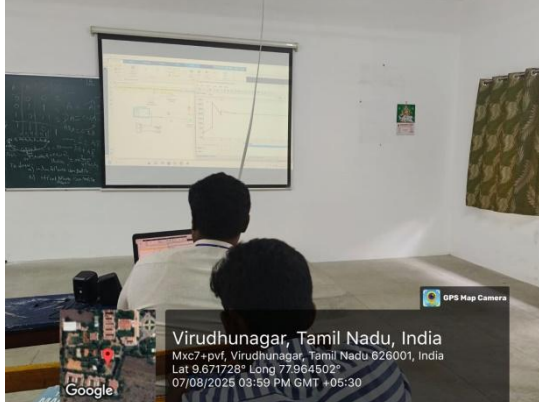
DEPARTMENT OF MECHATRONICS ENGINEERING
(Accredited by NBA, New Delhi)

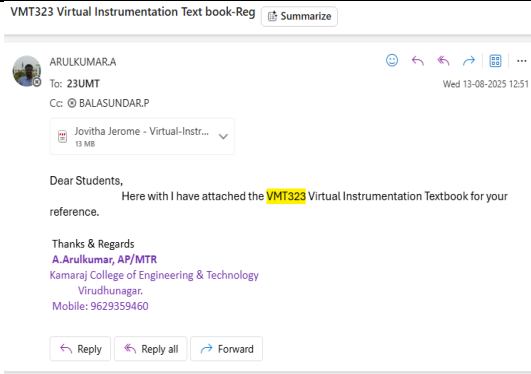
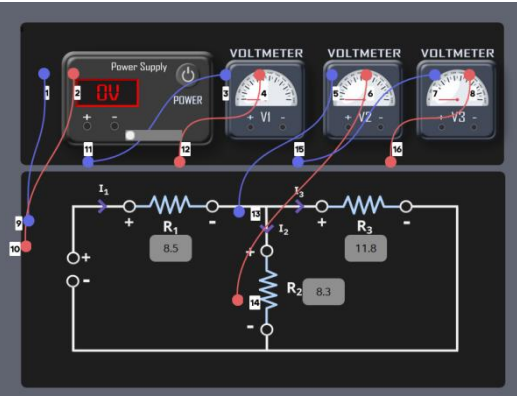
Academic Year 2025-2026 ODD & EVEN Semester



Innovations and ICT Tools/Activity Based Learning following in Class Room Teaching




S. No.	Year/ Sem	Name of the Subject	Name of the faculty	Name of the Topic	Type of activity (group activity/ Quiz/models/etc)	Proof(photos)
2025-2026						
1	II/III	MT2201- Analog Devices and Circuits	Mr. A. Arulkumar	LED Display	Seminar Presentation	




2	II/III	MT2201- Analog Devices and Circuits	Mr. A. Arulkumar	Railway Accident Prevention system using Light Senso	Seminar Presentation	
3	II/III	MT2201- Analog Devices and Circuits	Mr. A. Arulkumar	Railway Accident Prevention system using Light Sensor	Activity On Electronic Hoppy Circuits	
4	II/III	MT2201- Analog Devices and Circuits	Mr. A. Arulkumar	NPTEL Video Lectures link were shared to promote self-learning	NPTEL Video Lectures	




5	III/ V	VMT323- Virtual Instrumentation	Mr. A. Arulkumar	DAQ in Virtual Instrumentation	Quiz in Kahoot	 <p>Virudhunagar, Tamil Nadu, India Mxc7+pvf, Virudhunagar, Tamil Nadu 626001, India Lat 9.671715° Long 77.964433° 31/07/2025 03:32 PM GMT +05:30</p>
6	III/ V	VMT323- Virtual Instrumentation	Mr. A. Arulkumar	Applications of VI	Demo in Matlab Simulation Toolbox	 <p>Virudhunagar, Tamil Nadu, India Mxc7+pvf, Virudhunagar, Tamil Nadu 626001, India Lat 9.671728° Long 77.964502° 07/08/2025 03:59 PM GMT +05:30</p>




7	III/ V	VMT323- Virtual Instrumentation	Mr. A. Arulkumar	self-learning	Soft copy of text book was shared to promote self-learning	
8	II/III	MT2202 Electrical Circuits and Machines	Dr.S.Rajeshbabu	Online Simulation of Basic Electric Laws	Virtual Labs	




9	III/ V	MT2302 Kinematics and Dynamics of Machinery	Dr. P. Balasundar	Inversion of Single slider four bar chain mechanism	Model making	
10	III/ V	MT2302 Kinematics and Dynamics of Machinery	Dr. P. Balasundar	Working of Governors	Demonstration of Machines	 <p>GPS Map Camera Kalligudi, Tamil Nadu, India 🇮🇳 Mxf7+cr3, Kalligudi, Tamil Nadu 625701, India Lat 9.67338° Long 77.964432° Wednesday, 15/10/2025 02:56 PM GMT +05:30</p>




11	III/ V	MT2302 Kinematics and Dynamics of Machinery	Dr. P. Balasundar	Vibrations	Peer Learning	
12	III/ V	VMT325 Advanced Manufacturing	Dr. P. Balasundar	ion beam etching Process	Seminar Presentation	
13	III/ V	VMT325 Advanced Manufacturing	Dr. P. Balasundar	Fused Deposition Modelling (FDM)	Seminar Presentation	




14	III/ V	VMT325 Advanced Manufacturing	Dr. P. Balasundar	Laminated Object Manufacturing	Virtual Lab	 <p>Virudhunagar, Tamil Nadu, India Mxc7+pvf, Virudhunagar, Tamil Nadu 625701, India Lat 9.671775° Long 77.964422° 09/10/2025 10:30 AM GMT +05:30</p>
15	III/ V	VMT325 Advanced Manufacturing	Dr. P. Balasundar	Fused Deposition Modelling	Demonstration of machines	
16	II/ IV	MT2252 Manufacturing Technology	Dr. P. Balasundar	Gear generation Process	Seminar Presentation	 <p>Bengaluru, Karnataka, India 9°40'18. 77°57'52. 6, Rd Number 2, Seetharampalya, Hoodi, Bengaluru, Karnataka 625701, India Lat 9.67193° Long 77.96442° Thursday, 05/03/2026 02:30 PM GMT +05:30</p>


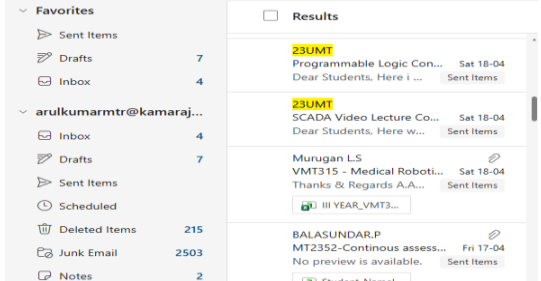
17	II/ IV	MT2252 Manufacturing Technology	Dr. P. Balasundar	Soldering Process	Seminar Presentation	 <p>Vellakulam, Tamil Nadu, India Nagammal Campus, Vellakulam, Tamil Nadu 625701, India Lat 9.671722° Long 77.964511° Thursday, 12/02/2026 03:00 PM GMT +05:30</p>
18	II/ IV	MT2252 Manufacturing Technology	Dr. P. Balasundar	Injection Molding Machine	Demonstration of machines	 <p>Tennamanallur, Tamil Nadu, India Mx17+6v6, Tennamanallur, Tamil Nadu 625701, India Lat 9.672998° Long 77.964644° Friday, 27/03/2026 03:07 PM GMT +05:30</p>
19	II/ IV	MT2252 Manufacturing Technology	Dr. P. Balasundar	Planer Machine	Demonstration of machines	 <p>Chittoor, Tamil Nadu, India Mxc7+wvm, Chittoor, Tamil Nadu 625701, India Lat 9.672438° Long 77.964627° Friday, 13/03/2026 01:56 PM GMT +05:30</p>

20	III/ VI	MT2351 Fluid Power Systems	Dr. P. Balasundar	Fluidics	Seminar Presentation	
21	III/ VI	MT2351 Fluid Power Systems	Dr. P. Balasundar	3/2 DCV, 4/2 & 5/3 DCV	Demonstration of Valve symbols	
22	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	Sensor Identification Task ((LDR, thermistor, proximity sensor)	Project based learning	
23	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	Error Measurement Experiment	Project based learning	

						
24	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	Ultrasonic Distance Measurement	Project based learning	
25	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	LDR Light Control System	Project based learning	
26	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	Smart Sensor Case Study	Project based learning	

						
27	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	Case studies of DAQ System	Seminar	
28	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	Applications of DAQ Systems in PV	Field Visit	 <p>Kalligudi, Tamil Nadu, India Mxf7+cr3, Kalligudi, Tamil Nadu 625701, India Lat 9.673578° Long 77.964803° Saturday, 28/03/2026 03:20 PM GMT +05:30</p>



29	II/IV	MT2253 Sensors and Instrumentation	Mr. A. Arulkumar	Renewable Energy Lab (Understanding of PV, Pyranometers, Current and Voltage measurement sensors)	Field Visit	
30	III/VI	MT2352-Industrial Automation	Mr. A. Arulkumar	Technical Quiz	Kahoot	
31	III/VI	MT2352-Industrial Automation	Mr. A. Arulkumar	Discussion on real-world Automation applications	Discussion	


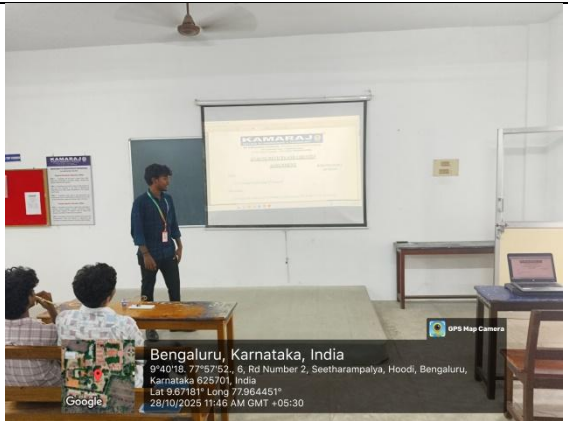

32	III/VI	MT2352- Industrial Automation	Mr. A. Arulkumar	Simulation of Open Source SCADA software for utility applications	Simulation	
33	III/VI	MT2352- Industrial Automation	Mr. A. Arulkumar	Video Lectures Link and Unit wise materials are shared	Office mail	

Innovations /Activity in Teaching Learning Process

**Department of Mechatronics Engineering
2025 - 2026 (ODD SEMESTER)**

Year	: II Year MTRE	Course Code	: MT2201
Faculty Name	:A.Arulkumar	Course Name	: Analog Devices and Circuits
Course code (as per NBA)	21MTC208	Regulation	: R2021


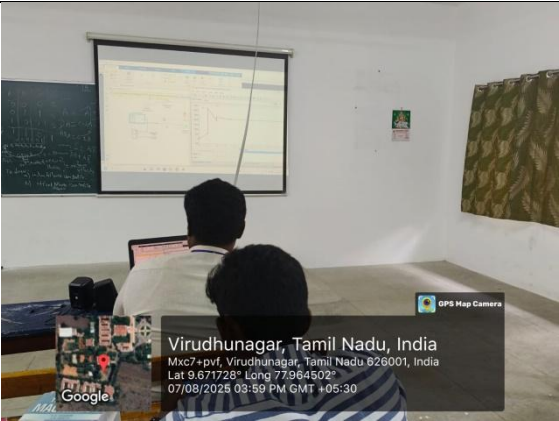
S N o	Type of Activity	Topic	Purpose	Photos
1	Seminar Presentation	Topic: LED Display. KEERTHANA MAI T C A ESAKKIAMMAL K & (24UMT006 & 24UMT017)	The topic covers POs 5, 8 & 9 by helping the students to learn a new tool and in improving their communication skills.	
2	Seminar Presentation	Topic: Railway Accident Prevention system using Light Sensor. 24UMT008 ANTONY FLORA A & 24UMT015 LATHIKA E	The topic covers POs 5, 9 & 10 by helping the students to learn a new tool and in improving their communication skills.	

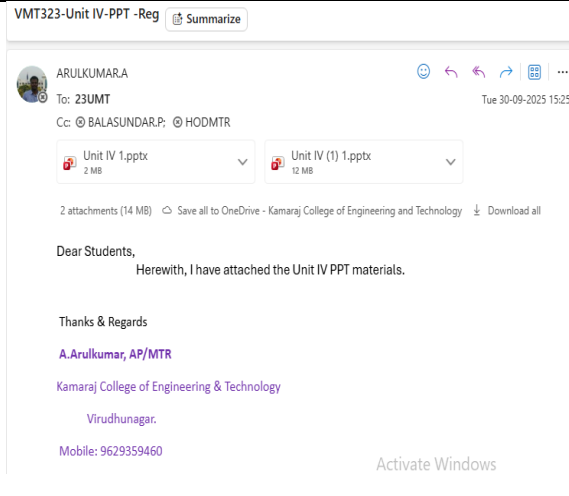
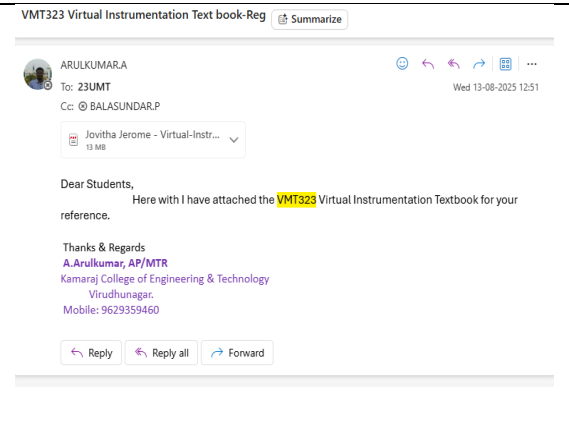
3	Activity On Electronic Hoppy Circuits	Topic: Railway Accident Prevention system using Light Sensor. 24UMT008 ANTONY FLORA A & 24UMT015 LATHIKA E	To engage students in building simple electronic hobby circuits that enhances practical skills and creativity in basic electronics.	
4	Seminar Presentation	Topic: Numeric Displays 24UMT029 RUBANKUMA R N	To engage students in building simple electronic hobby circuits that enhances practical skills and creativity in basic electronics.	
5	Activity On Electronic Hoppy Circuits	Topic: Alternating LED Flash circuit using 555 Timer IC 24UMT013 DINESH S	To apply hands-on learning to understand and implement practical circuits using the 555 timer.	

Innovations /Activity in Teaching Learning Process

Department of Mechatronics Engineering
2025 - 2026 (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 N o	Type of Activity	Topic	Purpose	Photos
1	Quiz in Kahoot	Topic: DAQ in Virtual Instrumentation.	The topic covers POs 5, 8 by helping the students to learn a Kahoot tool for Quiz and it improve their technical skills.	
2	Demo in Matlab Simulation Toolbox	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.	

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	

Course Incharge

Chair Person

HoD/MTRE



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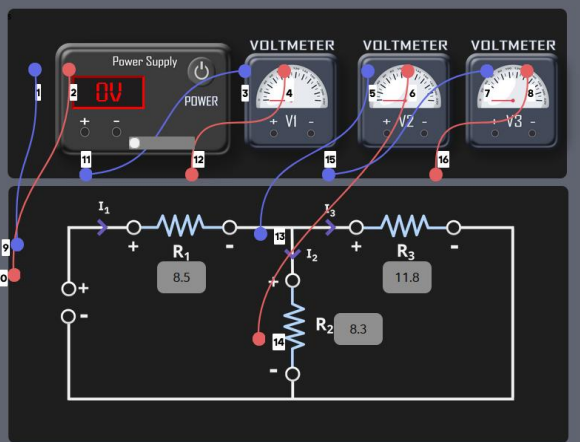
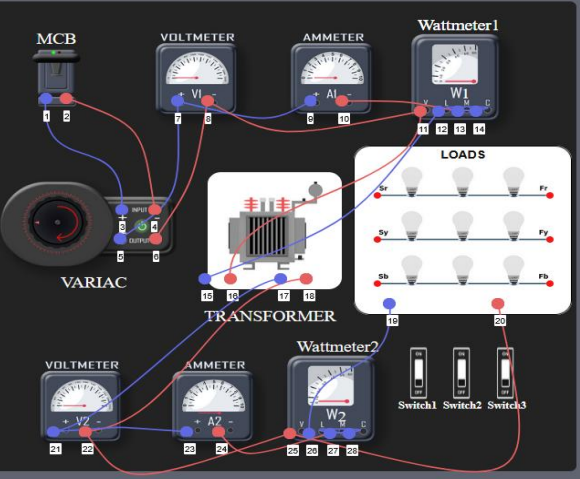
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Academic Year 2025-26 ODD

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.	Dr.S.Rajeshbabu	MT2202 Electrical Circuits and Machines	Virtual Labs	Online Simulation of Basic Electric Laws	


S. No.	Name of the Faculty	Subject code & name	ICT tool / ABL	Purpose	Remarks
2.	Dr.S.Rajeshbabu	MT2202 Electrical Circuits and Machines	Virtual Labs	Online Simulation of Network Theorems (Norton's Theorem)	
3.	Dr.S.Rajeshbabu	MT2202 Electrical Circuits and Machines	Virtual Labs	Online Simulation of Induction Motor	

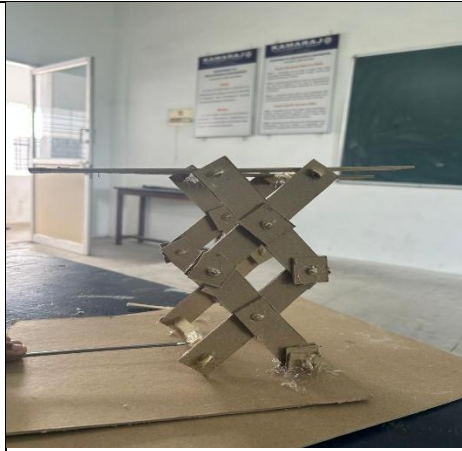
DEPARTMENT OF MECHATRONICS ENGINEERING

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ACADEMIC YEAR: 2025 – 2026 (ODD SEM)

ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

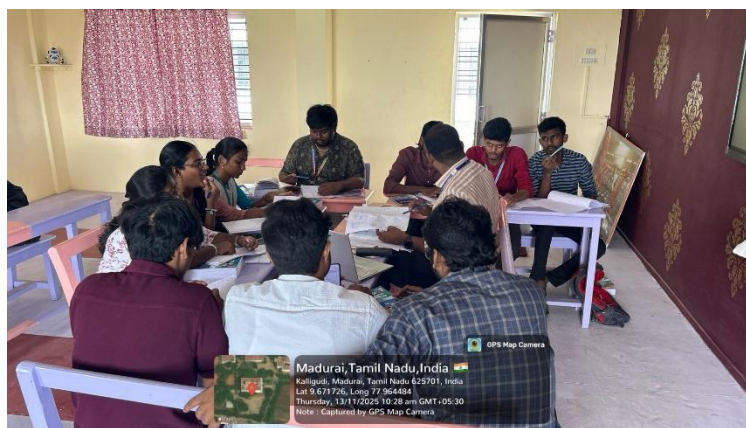
Name of the Faculty	Dr. P. Balasundar
Sub Code / Name	MT2302 Kinematics and Dynamics of Machinery
Year / Branch	III MTRE
Pedagogic Tool used	Model making, Peer learning and Coaching Classes for Problem solving
Purpose of the Tool used	<ul style="list-style-type: none"> To help students visualize and understand the working of various mechanisms through physical models. To encourage collaborative learning and stimulate deeper understanding through discussion and explanation among peers. To provide structured guidance in solving numerical problems related to kinematics and dynamics topics.
Outcomes	<ul style="list-style-type: none"> Enhanced conceptual clarity and improved ability to relate theoretical concepts to real-world applications. Reinforced understanding of core principles through mutual teaching. Strengthened analytical and problem-solving skills, leading to better academic performance in assessments.
Topic: Model making	 <p>Inversion of Single slider four bar chain mechanism - Beam Engine</p>



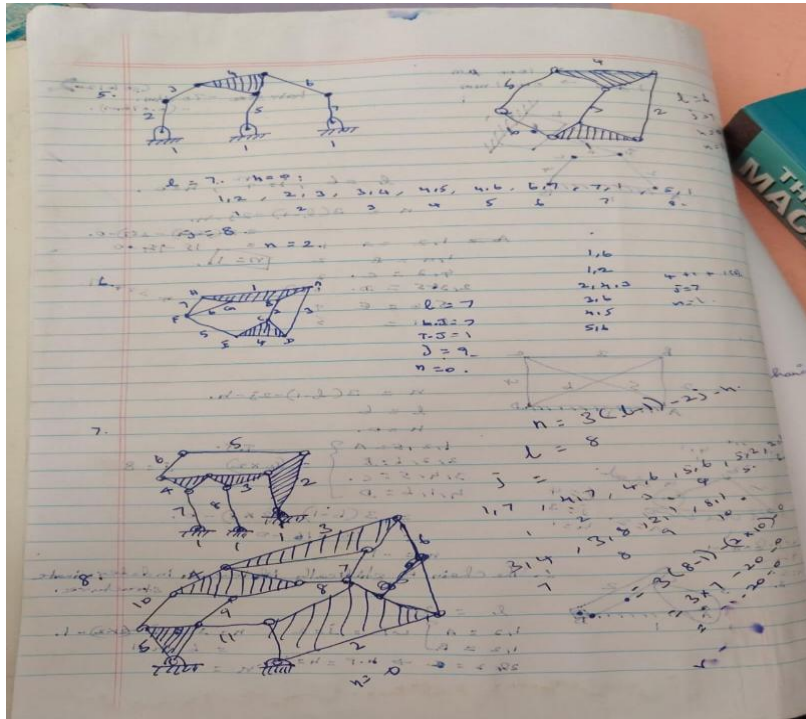
Scissor Mechanism – Ladder

Crank and Slot quick return mechanism

PEER LEARNING



Coaching Classes for Effective Problem solving



DEMONSTRATION OF INSTRUMENTS

To visually demonstrate the working mechanisms of governors and torsional vibration systems, enhancing understanding of their functional principles in Kinematics and Dynamics of Machinery.



Working of Governors



Torsional Vibrations


Outcome: Students gain hands-on insight into machinery behavior, improving their ability to analyze and apply concepts of speed control and vibration dynamics in practical engineering scenarios.

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ACADEMIC YEAR: 2025 – 2026 (ODD)

ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	Dr. P. Balasundar
Sub Code / Name	VMT325 Advanced Manufacturing
Year / Branch	III MTRE
Pedagogic Tool used	Seminar, Virtual lab and Real time machine demonstration for Effective Learning
Purpose of the Tool used	To provide students with an in-depth understanding of advanced manufacturing processes through technical seminars, virtual simulations and real-time machine demonstrations that bridge theory with practical exposure.
Outcomes	Students develop enhanced conceptual clarity, improved problem-solving skills and hands-on competency in modern manufacturing techniques, enabling better application of advanced processes in engineering practice.
Topic: ion beam etching Process	

Topic: Conventional Film Growth Techniques



Topic: Metal-Organic Chemical Vapor Deposition (MOCVD) Process



Topic: Fused Deposition Modelling (FDM)



Virtual Lab Demonstration – Laminated Object Manufacturing (LoM)



Real time machine demonstration - Fused Deposition Modelling (FDM)



Outcome: Students gain practical exposure to 3D printing workflow, material behaviour and process parameters, improving their ability to apply additive manufacturing techniques in real engineering applications.

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ACADEMIC YEAR: 2025 – 2026 (EVEN)

ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	Dr. P. Balasundar
Sub Code / Name	MT2252 / Manufacturing Technology
Year / Branch	II MTRE
Pedagogic Tool used	Seminar presentation and Demonstration of machines
Purpose of the Tool used	These active learning tools foster deeper understanding, practical exposure and collaborative engagement among students. They enhance academic performance by bridging the gap between theory and application.
Outcomes	Students gain conceptual clarity, improved technical communication, practical knowledge and industry awareness.

Seminar Presentation.

Topic: Gear generation Process



Seminar Presentation.
Topic: Soldering Process



Demonstration of machines.

Injection Molding Machine



Demonstration of machines.

Blow Molding Machine



Demonstration of machines.

Compression Molding Machine



Demonstration of machines.

Planer Machine



Demonstration of machines.

Tool and Cutter Grinding Machine



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ACADEMIC YEAR: 2025 – 2026 (EVEN)

ACTIVE LEARNING METHODS FOLLOWED IN CLASS ROOM TEACHING

Name of the Faculty	Dr. P. Balasundar
Sub Code / Name	MT2351 / Fluid Power Systems
Year / Branch	III MTRE
Pedagogic Tool used	Seminar presentation and Demonstration of ANSI Symbols
Purpose of the Tool used	These active learning tools foster deeper understanding, practical exposure and collaborative engagement among students. They enhance academic performance by bridging the gap between theory and application.
Outcomes	Students gain conceptual clarity, improved technical communication, practical knowledge and industry awareness.

Seminar Presentation.
Topic: Fluidics



Topic: Programmable Logic Circuits

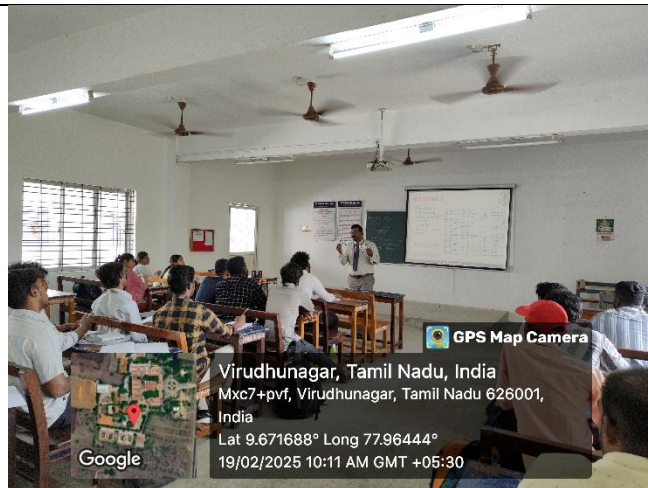


Seminar Presentation.
Topic: Muffler



Demonstration of Valve symbols.

Topic: 3/2 DCV, 4/2 & 5/3 DCV



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MT2253-Sensors and Instrumentation

Best Practices and innovations/ICT Tool usage/Proof for

Project based learning/Activity

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Activity 1: Sensor Identification Task ((LDR, thermistor, proximity sensor)



Activity 2: Error Measurement Experiment



Activity 3: Ultrasonic Distance Measurement



Activity 4: LDR Light Control System



Activity 5: Smart Sensor Case Study



Activity 6: Applications of Motion & Ranging Sensors in Rovers



Activity 7: Seminar on Case studies of DAQ System




Activity 8: Moisture Level sensing using Resistance type Sensors



Kalligudi, Tamil Nadu, India 
Mxf7+cr3, Kalligudi, Tamil Nadu 625701, India
Lat 9.673578° Long 77.964803°
Saturday, 28/03/2026 03:20 PM GMT +05:30

Activity 9: Applications of DAQ Systems in PV



Kalligudi, Tamil Nadu, India 
Mxf7+cr3, Kalligudi, Tamil Nadu 625701, India
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Saturday, 28/03/2026 03:32 PM GMT +05:30

Activity 10: Field Visits to Renewable Energy Lab (Understanding of PV,Pyranometers,Current and Voltage measurement sensors)

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MT2253-Sensors and Instrumentation

Performance of slow Learners follow up
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Special Coaching for Late Bloomers

The screenshot shows an email client interface with a search bar at the top containing the text 'sensors'. The left sidebar shows a navigation pane with folders like 'Favorites', 'Sent Items', 'Drafts', 'Inbox', and a list of folders for the email address 'arulikumarmtr@kamaraj...'. The main pane displays search results for 'sensors'.

Sender	Subject	Date	Attachments
24UMT	Unit-V	Tue 21-04	Page no's_othe... +9
24UMT	Unit-IV -Reg	Tue 21-04	Sensors for ho... +4
GANESAN.A; anest raj	OMT703 -Sensors and ...	15-05-2024	Tactile sensor.p... +13

Unit wise materials shared with official mail

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MT2352-Industrial Automation

Best Practices and innovations/ICT Tool usage/Proof for

Project based learning/Activity

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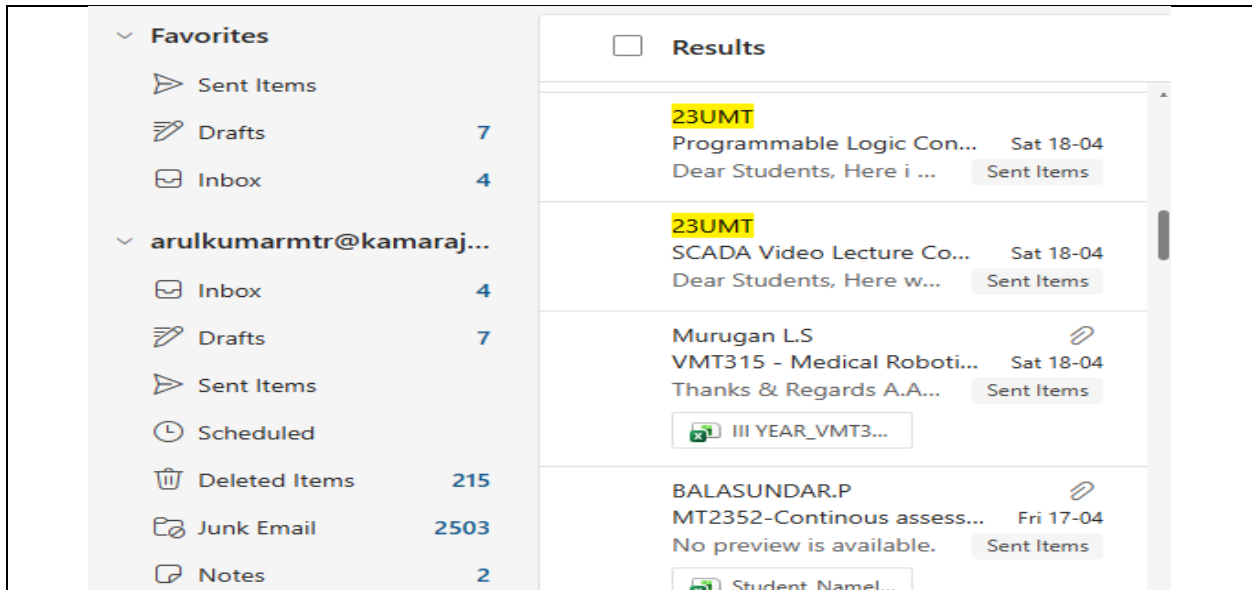
Technical Quiz conducted in Kahoot Platform



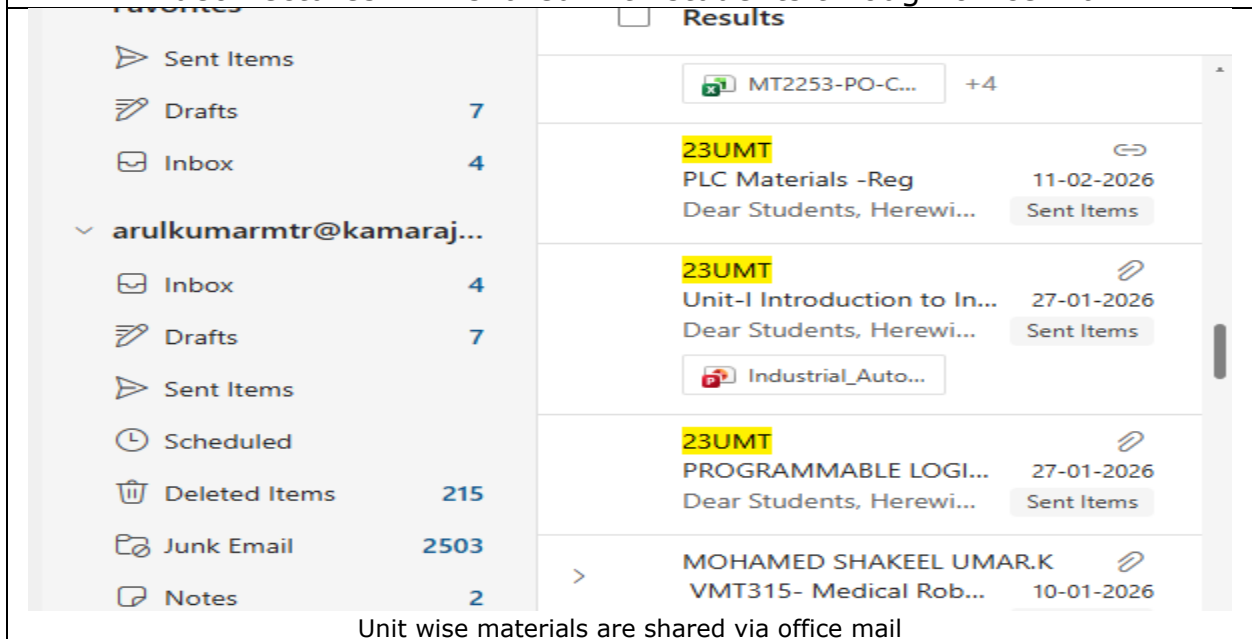
Discussion on real-world Automation applications
"Select a sensor/controller for water level measurement and justify why"



Simulation of Open Source SCADA software for utility applications



Video Lectures Link shared with students through office mail



Unit wise materials are shared via office mail