



SETHU INSTITUTE OF TECHNOLOGY

(An Autonomous Institution)

Pulloor, Kariapatti, Virudhunagar (Dist.) - Pin: 626 115.

Department of Mechanical Engineering

(Accredited by NBA, New Delhi)

(Approved Research Centre by Anna University, Chennai)

INNOVATIVE TEACHING METHODOLOGY

Year	Subject Code	Subject Name	Unit No	Name of the Topic for each unit	Innovation Methodology employed
II	R21UME401	Kinematics of Machinery	Unit 1	Basics of links and joints	Lab visit
			Unit 2	Velocity diagram of four bar mechanism	Animation Video
			Unit 3	Cam mechanism animation.	Presentation
			Unit 4	Gears and gear trains	NPTEL video
			Unit 5	Epicyclic gear train	Presentation
II	R21UME402	Applied Thermal Engineering	Unit 1	Gas Power cycles	NPTEL Video https://www.youtube.com/watch?v=rkQmRLfnbNE
			Unit 2	Diesel Pump	Animation https://youtu.be/JSymXTP8HTg
			Unit 3	Governors	Mind Mapping
			Unit 4	Multistage Air Compressor	Animation https://youtu.be/0B8K1ZCJ19A
			Unit 5	Vapour Absorption System	NPTEL Video https://youtu.be/4w3Obp8ILpA

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II	R21UME409	Operations Research for Mechanical Engineers	Unit 1	LPP Formulation	Role Play
			Unit 2	Transportation model	TORA Software
			Unit 3	Construction of Network	NPTEL
			Unit 4	Individual Replacement	Excel Calculation
			Unit 5	Dominance Property	NPTEL
II	R21UME404	Mechanics of Materials	Unit 1	Stresses in Composite Bars	Flipped Classroom
			Unit 2	Shear force and Bending Moment in Beams using software	Beam Software
			Unit 3	Torsion of a Solid Shaft	Lab Visit
			Unit 4	Euler's column theory	NPTEL Video
			Unit 5	Stresses in a thin cylindrical shell	NPTEL Video
II	R21UME410	C Programming for Mechanical Engineers	Unit 1	Pseudo code – Flow Chart	Programming flow chart
			Unit 2	If statement-decision making	Mind Map
			Unit 3	Arrays – Initialization – Declaration	Real World Examples
			Unit 4	Pointer Concepts - Sample Programs	Visualization
			Unit 5	C programming for problem solving of thermal engineering	Z-A Technique

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III	21UME601	Design of Transmission Systems	Unit 1	Selection of belts and pulleys	NPTEL Video https://youtu.be/nMsB6Soz4Hc
			Unit 2	Gear Terminology	Model Presentation
			Unit 3	Bevel gear: Tooth Terminology	Lab Visit
			Unit 4	Design of Multi Speed Gear Box	Automobile workshop visit
			Unit 5	Design of Plate Clutches	Animated Video https://youtu.be/6DL0j0eKD8Y
III	21UME702	Mechatronics and IOT	Unit 1	Sensors and Transducers - Performance Terminology	Visualization NPTEL https://youtu.be/xHPZ0jK6-u8
			Unit 2	Pneumatic and Hydraulic Systems	Animated Video https://youtu.be/JwCTkm43CxQ
			Unit 3	Arduino board – Arduino Uno – Digital I/O pins - power pins – accessories – breadboard	Real World Example
			Unit 4	Programmable Logic Controllers – Basic Structure	Mind Mapping
			Unit 5	Mechatronic System	Case Study
III	21UME603	Finite Element Analysis	Unit 1	Rayleigh Ritz method	NPTEL Video https://www.youtube.com/watch?v=rFztdZ7-b2M
			Unit 2	1-D Linear bar element, quadratic element and nodal approximation	Simulation in ANSYS https://www.youtube.com/watch?v=6ztKgTwEsxE&t=10s
			Unit 3	Finite Element Analysis	Online Quiz https://forms.gle/wDNwRnxMFur3bpV37
			Unit 4	Transverse vibration of beams	NPTEL video https://www.youtube.com/watch?v=NJiS3g-Ovqw
			Unit 5	2 - Dimension Heat Transfer	Simulation in ANSYS https://www.youtube.com/watch?v=FrBM6NXCp0E&t=118s

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III	21MEV206	New Product Development	Unit 1	Critical path analysis	NPTEL Video
			Unit 2	Fundamentals of DFMEA & PFMEA	NPTEL Video
			Unit 3	Various Inspection methods – Manual measuring, CMM – GOM (Geometric Optical Measuring),	Lab Visit
			Unit 4	New product qualification for Dimensions	Flipped Classroom
			Unit 5	3D Printing	Equipment Lab visit
III	21MEV306	Drone Technologies	Unit 1	History of Drone	Presentation
			Unit 2	Stabilization of Drone	Lab Visit
			Unit 3	Storage Devices in Drones	NPTEL Video
			Unit 4	Agriculture Application of Drones	Animated Video
			Unit 5	Aviation Regulation	Presentation
III	21MEV502	Failure Analysis and NDT Techniques	Unit 1	Deficient Design	Case study Analysis technique https://youtu.be/Ph3faQ-f5-w?si=1LVJVzVUfwXD-API
			Unit 2	Liquid Penetrant Testing	Pre-recorded demonstration video lecture https://youtu.be/IMld2Td83Sw?si=82Su5EYpregmUHS-
			Unit 3	Eddy current testing techniques	Comparative study Activity https://youtu.be/2TsJEkFG7Y4?si=BNLzN3DO9YkaN9F4
			Unit 4	Radiographic Inspection techniques.	NPTEL Video https://youtu.be/7DEmgecSndE?si=Foa037PadA7cB4_P
			Unit 5	Acoustic Emission Testing	Animated Video https://youtu.be/FWO6-L0nePA?si=mdgS--knfuTrokIU

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III	21MEV903	Industrial Safety	Unit 1	Safety Engineering & Accident-causing mechanisms	Visualization https://www.youtube.com/watch?v=91YpCY-1Fy0&list=PLbRMhDVUMngdXebaRB59KdKwstzuAovua&index=6
			Unit 2	Types of maintenance with real time maintenance analysis	Visualization https://www.youtube.com/watch?v=4RrStzAoDQ0
			Unit 3	Types of corrosion and prevention	Visualization https://www.youtube.com/watch?v=r4Xytb-KEao
			Unit 4	Decision tree concept	Visualization https://www.youtube.com/watch?v=2MYJcY6cvpc
			Unit 5	Overhauling of electrical motor, common troubles and remedies of electric motor	Case Study
IV	21MEV901	Maintenance Engineering	Unit 1	Maintenance Organization	NPTEL Video
			Unit 2	Types of Lubrication	Animated Video
			Unit 3	Methods and Instruments for CM	Animated Video
			Unit 4	Repair Methods for Beds	NPTEL Video
			Unit 5	Repair methods for Material handling equipment	NPTEL Video

