

SETHU INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING
ACADEMIC YEAR 2021 - 2022 (EVEN) – INNOVATIVE TEACHING LIST
2nd YEAR – 4TH SEMESTER

Class	Course Code	Course name	Course Instructors	Name of the topic(for each unit)	Innovation methodology employed	Web link
II Year	19UME401	Theory of Machines	Mr. V. Ramachandran Mr. S. Saravanan Mr. M. Vimal Kumar Mr. C. Tamilarasan	1.Slider crank Mechanism 2.Mechanism 3. Velocity and acceleration diagram 4. Basics of mechanism Models Making 5. Velocity and acceleration analysis of four bar mechanism, slider crank mechanism.	1.Models 2.Mind Mapping 3. Animated Video technique 4. Group Assignment for Model Submission 5. Animated Visualization Power Point	1.Photo for Models used in class room 2.Explanation Proof. 3. https://youtu.be/o4D1Lw3igMs 4.Photo Proof of model and Team Members List 5. Animated PPT Available

				Presentation	
			1.Forces on the Reciprocating Parts of an Engine 2.Governor 3.Gyroscopes	1.Models 2. NPTEL video 3.Laboratory Visit	1.Photo for Models used in class room 2. https://youtu.be/OIZXxPVpmBs 2.Photo Proof for Student Visit in lab
			1.Balancing of rotating masses 2. Types of cams, types of followers	1.Animated Visualization Power Point Presentation(Problem) 2.Visualization for cam and Follower Motion	1.PPT Available 2. PPT Available
			1.Spur Gear nomenclature 2. Gear train	1. NPTEL and You tube video 2. NPTEL and You tube video	https://youtu.be/n1EzCOnZn3s https://youtu.be/lu_Qw4Y4XRQ https://youtu.be/5f3wBIRY8dQ
			1.Free vibration	1.Laboratory Visit and Industrial Visit	1.Photo Proof for Student Visit in lab and Industry

II Year	19UME402	Applied Thermal Engineering	Dr. V. Vignesh Mr. V. Sundara Mahalingam Mr. B. Rajeshkannan Mr. S. Balaji	Otto Cycle	Animated Videos	https://www.youtube.com/watch?v=hk4oFsjfnPc https://www.youtube.com/watch?v=K8RzTmeVWfM https://www.youtube.com/watch?v=sQze1iFl3CY
				Lubrication systems and Battery ignition system	Video presentation-NPTEL Video	https://www.youtube.com/watch?v=1EZVgBOKxRQ https://www.youtube.com/watch?v=OMLSNwQiiKg
				Impulse and reaction turbine	Video presentation-NPTEL Video	https://www.youtube.com/watch?v=3AD_Hiy2QjM https://www.youtube.com/watch?v=dS3GpvIl6fc
				Multistage air compressor	Video presentation-NPTEL Video	https://www.youtube.com/watch?v=0B8K1ZCJ19A https://www.youtube.com/watch?v=yLWzBuk5IRs
				Vapour absorption Systems	Video presentation-NPTEL Video	https://www.youtube.com/watch?v=4w3Obp8ILpA https://www.youtube.com/watch?v=OTCAkrT3YwU
II Year	19UME403	Manufacturing Technology (Integrated)	Mr. S. Saravanan Mr. K. Amirtharaj Mr. J. David Gnanaraj Mr. V. Ananda	Material removal processes, mechanics of metal cutting	Video presentation-NPTEL Video	https://www.youtube.com/watch?v=iaOqlDuSoNs

			Natarajan			
				Estimation of Machining Time	Video presentation- NPTEL Video	https://www.youtube.com/watch?v=dje_JXy-CD0
				Introduction to Drilling Technology	Video presentation- NPTEL Video	https://www.youtube.com/watch?v=VE_xMqM-p0k
				Milling machine - indexing	Video presentation- NPTEL Video	https://www.youtube.com/watch?v=Rf90Jbbcr3M&t=53s
				Non-traditional abrasive machining: Ultrasonic, Abrasive jet and abrasive water jet machining	Video presentation- NPTEL Video	https://www.youtube.com/watch?v=06QxjEAMrKc&list=PLwFw6Nkm8oWqFJUxiUuu5c0uHK076lz2K
II Year	19UME404	Mechanics of Materials	Mr. G.K. Thamil Selvan Mr. T.P. Balaji Mr. P.R. Rajkumar	Compressive Test	Lab Visit	-
				Shear Force and Bending Moment Diagram	Online beam calculator Beamguru.com Skyciv.com	-

			Mr. P. Meenatchisundaram	Torsion of shafts	Lab Visit	-
				Buckling Analysis in long columns	Ansys Software	-
				Effect of Internal Pressure on the Dimensions of a Thin cylinders	NPTEL Video	https://www.youtube.com/watch?v=tzz-RMgMWA8
II Year	19UME405	Automobile Engineering	Mr. K. Amirtharaj Dr. I. Vijay Arasu Dr. C. Muthusamy Mr. J. Arul Jeeva Nijanthan	vehicle construction, chassis, frame, body and sensors	NPTEL	https://www.digimat.in/nptel/courses/video/107106088/L01.html
				Clutch ,gearbox, gear shift mechanisms, propeller shaft, Differential, and rear axle, Differential	Transport section visit & Animated videos	https://www.youtube.com/watch?v=SOgoejxzF8c
				steering gear Box, Suspension Systems and Braking system		Transport section visit
				Emission norms	Video lecturer	https://www.youtube.com/watch?v=rverDfFA0CM https://www.youtube.com/watch?v=bZ3_MVchfiA
				Electric vehicles and High Beam		Group discussion

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SETHU INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING
ACADEMIC YEAR 2021 - 2022 (ODD) – INNOVATIVE TEACHING LIST
3rd YEAR – 6th SEMESTER

Class	Course Code	Course name	Course Instructors	Name of the topic(for each unit)	Innovation methodology employed	Weblink
III Year	19UME 601	Design of Transmission Systems	Mr. P. Karuppasamy Mr. R. Jayaprakash Mr. R. Jayaprakash Dr. C. Kailasanathan	Selection of belts and pulleys	NPTEL Videos	https://youtu.be/nMsB6Soz4Hc
				Gear Terminology	Model Presentation	-
				Bevel gear: Tooth terminology	Lab Visit	-
				Design of multi speed gear box.	Automobile workshop visit	-
				Design of plate clutches	Animated Videos	https://youtu.be/6DL0j0eKD8Y
III Year	19UME 602	Smart Manufacturing	Mr. V. Ananda Natarajan Mr. B. Rajesh	Industry 4.0	Puzzle	--

			Kannan Mr. J. Arul Jeeva Nijanathan Mr. S. Paramasamy	Robots in Manufacturing	Cross word	--
				Liquid additive manufacturing systems	NPTEL LECTURE VIDEO	https://www.youtube.com/playlist?list=PLwdnzIV3ogoWI8QEu4hsT-n_r8UbWbquy
				Powder additive manufacturing systems	Z-A Technique	---
				Solid additive manufacturing systems	Simulation	---
III Year	19UME 603	Operations Research		Mr. P. Meenatchisundaram Mr. K.M. Ahamed Sheriff Mr. T.P. Balaji Mr. V. Ramachandran	Unit 1 – Linear Model	Excel solver
			Unit 2 – Transportation and Assignment Model		TORA Software	NA
			Unit – 3- Sequencing and Network Model		TORA Software	NA

				Unit 4 – Inventory and Replacement Model	Excel Calculation	NA
				Unit 5 – Queuing theory and Game thoery	Flipped Classroom	NA
III Year	19UME 604	Mechatronics	Mr. V. Sundara Mahalingam Mr. S. Balaji Mr. M. Vimal Kumar Mr. G.K. Thamil Selvan	Unit 1 – Sensors Performance Terminology	Nptel Videos	Unit 1 - https://youtu.be/xHPZ0jK6-u8
				Unit 2 - Electrical Actuation Systems – I & II	Nptel Videos	Unit 2 - https://youtu.be/YBpflWTE6ak & https://youtu.be/9vpqyhOxwFs
				Unit 3 - Mechanical System Model	Nptel Videos	Unit 3 - https://youtu.be/LYMpjQPEjMU
				Unit 4 - Program Logic Controllors	Nptel Videos	Unit 4 - https://youtu.be/MS3qJq2jvu0

				Unit 5 - Myoelectrical ly Controlled Robotic Arm	Nptel Videos	Unit 5 - https://youtu.be/UsDygs3fqc
III Year	19UME 902	Gas Dynamics and Jet Propulsion (PE)	Mr. T. Gangadharan Mr. S. Devanand	Mach number		
				Isentropic flow in variable area duct	You tube video NPTEL video	https://youtu.be/Ntridyss88Q https://youtu.be/0diCwbRN9MA
				Flow with friction Fanno flow	NPTEL video	https://youtu.be/2gzGDU3PDO0 https://youtu.be/zHcYRpAPoO8
				Flows with Heat Rayleigh Flows		
				Shock Waves in Aero space application	You tube video	https://youtu.be/j493HvCkMbM
				How Jet Engine works	You tube video	https://youtu.be/L24Wf0VITE0
Liquid Propellant Rocket Engine	You tube video	https://youtu.be/9Y3fG-YrIII https://youtu.be/QQB1Iw3zJbc https://youtu.be/3isXaIQ3Lkk				
Rocket Engine works						

				Cryogenic Engines		
III Year	19UME 909	Power Plant Technology (PE)	Dr. K. Arun Balasubramanian Dr. G. Venkatesan	Mhd Power Plant Turbines	Visualization Lab Visit	https://www.youtube.com/watch?v=E9lvm8ethyk -Animation https://www.youtube.com/watch?v=308aun2cgac –Nptel Lab Visit-Turbines
				Fbc Boiler Draught	Visualization	https://www.youtube.com/watch?v=Vepl3r9ppqa –Fbc https://www.youtube.com/watch?v=5ih63ask-fq
				Lay Out Of Nuclear Reactor Nuclear Power Generation	Visualization	https://www.youtube.com/watch?v=Ke114an1yp8 Animation https://www.youtube.com/watch?v=Uuld0kvmwg
				Diesel Power Plant Gas Power Plant	Lab Visit Visualization	Lab Visit For Diesel Power Plant https://www.youtube.com/watch?v=_Hxxi5oumfq
				Solar Power Plant		Lab Visit For Solar Power Plant https://www.youtube.com/watch?v=Arpiqs

				Geothermal Energy	Lab Visit Visualization	<u>5yx5s</u>
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SETHU INSTITUTE OF TECHNOLOGY
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ACADEMIC YEAR 2021 - 2022 (EVEN) – INNOVATIVE TEACHING LIST
4th YEAR – 8th SEMESTER

Course code	Course name	Course Instructors	Name of the topic(for each unit)	Innovation methodology employed	Weblink
15UME801	Professional Ethics	Mr. S. Paramasamy Dr. A. Saravana Kumar Mr. S.A. Sethu Raaman Dr. A. Perumal	Profession and Professionalism	VIDEO	https://www.youtube.com/watch?v=5kaT4Fb4c5o
			Code of Ethics	NPTEL VIDEO	https://www.youtube.com/watch?v=nlh9V5gd8hg
			Morel Leadership	NPTEL VIDEO	https://www.youtube.com/watch?v=QM1Z8Vc9i9k&list=PLCED514A7A4086453
15UME920	Production Planning and	Mr. S.A. Sethu Raaman Dr. G. Nagaraj	Break even analysis	NPTEL videos	https://www.youtube.com/watch?v=PHA_GAv2juU

	Control (PE)		Recording techniques for method study	NPTEL videos	https://www.youtube.com/watch?v=YeIpWzN2wMQ
			Value analysis	Animated videos	https://www.youtube.com/watch?v=dvdfxr0fMzs
			Material resource planning	Case studies	-
			ABC analysis	Animated videos	https://www.youtube.com/watch?v=BWbnKgFNcKg
15UME924	Computer Integrated Manufacturing (PE)	Dr. B. Muthu Chozha Rajan Mr. P. Karuppasamy	wire frame modeling, surface modeling and solid modeling	CAD Software (AutoCAD, CREO etc.,)	Show the wire frame modeling, surface modeling and solid modeling using various cad software's
			The seven layer OSI model	Coursera video lectures	<u>Link:</u> https://www.coursera.org/lecture/my-favorite-lectures-hkust/4-4-osi-reference-model-layer-7-4-0gxvc
			Group technology	NPTEL video lectures	Link: https://www.youtube.com/watch?v=y3-5ENFtqrQ
			Material handling and storage system	Industrial visit	Plan to show the various Material handling and storage system in industries
			Lean and Agile Manufacturing	Group discussion (Debate)	Discuss the concepts, merits and demerits of Lean and Agile Manufacturing

