

**SETHU INSTITUTE OF TECHNOLOGY**  
**DEPARTMENT OF MECHANICAL ENGINEERING**  
**INNOVATIVE TEACHING LIST**

Class	Course Code	Course name	Course Instructors	Name of the topic(for each unit)	Innovation methodology employed	Web link
II Year	19UME302	Fundamentals of Manufacturing Process	Dr. K. Vinayagar Dr. G. Venkatesan Mr. K. Amirtharaj Mr. K. Amirtharaj	Design of Riser system	Visualization	<a href="https://www.youtube.com/watch?v=NDEC_sGRNaM">https://www.youtube.com/watch?v=NDEC_sGRNaM</a>
				Arc Welding Processes	Virtual Lab Visit	<a href="http://www.nitttrkol.ac.in/vlab-me-mtl-exp-1.php#top">http://www.nitttrkol.ac.in/vlab-me-mtl-exp-1.php#top</a>
				Deformation Processing	Visualization	<a href="https://www.youtube.com/watch?v=5l6taZ2rLp8">https://www.youtube.com/watch?v=5l6taZ2rLp8</a>
				SHEET METAL PROCESSES	Virtual Lab Visit	<a href="https://msvs-dei.vlabs.ac.in/SheetMetal_Experiment.php?https://www.youtube.com/embed/SJStL4uRDYk">https://msvs-dei.vlabs.ac.in/SheetMetal_Experiment.php?https://www.youtube.com/embed/SJStL4uRDYk</a>
				Injection	Visualization	<a href="https://www.youtube.com/watch?v=SoTfSOF">https://www.youtube.com/watch?v=SoTfSOF</a>

				Molding		<a href="#">j6q0</a>
II Year	19UME303	Engineering Thermodynamics	Mr. M. Pasumpon Mr. M. Pasumpon Mr. C. Shravan Kumar Mr. C. Shravan Kumar	Steady Flow Energy Equation and its application	Animated video	<a href="https://youtu.be/qnJmFdTLMpQ">https://youtu.be/qnJmFdTLMpQ</a>
				Heat pump	NPTEL	<a href="https://youtu.be/L_TxVkdvlRM">https://youtu.be/L_TxVkdvlRM</a>
				Rankine cycle	Animated video	<a href="https://youtu.be/QFZN71MY71o">https://youtu.be/QFZN71MY71o</a>
				Maxwell Relations	NPTEL	<a href="https://youtu.be/mnp2hOVhwYE">https://youtu.be/mnp2hOVhwYE</a>
				Psychrometric process	Mind Mapping	-
II Year	19UME304	Fluid Mechanics and Machinery	Mr. V. Ramachandran Mr. V. Ramachandran Dr. C. Muthusamy Mr. V. Ananda Natarajan	Properties of fluids	Visualization	<a href="https://youtu.be/zqLicugjwZE">https://youtu.be/zqLicugjwZE</a>
				Euler's equation and Bernoulli's energy equation	Visualization	<a href="https://youtu.be/oK8UxWI-85Y">https://youtu.be/oK8UxWI-85Y</a> and <a href="https://youtu.be/9I4o3-vrm98">https://youtu.be/9I4o3-vrm98</a>
				Buckingham's $\pi$ theorem	Visualization	<a href="https://youtu.be/6VeCQeb7TZk">https://youtu.be/6VeCQeb7TZk</a>
				Hydraulic Turbines	Virtual Lab Visit Visualization	Virtual Lab Visit <a href="https://youtu.be/9jAZ2eWy-Q4">https://youtu.be/9jAZ2eWy-Q4</a>

				Hydraulic Pumps	Virtual Lab Visit Visualization	Virtual Lab Visit <a href="https://youtu.be/H1AsPLYCyWk">https://youtu.be/H1AsPLYCyWk</a>
II Year	19UME305	Engineering Mechanics	Mr. S. Saravanan Mr. J. Arul Jeeva Nijanthan Mr. J. Arul Jeeva Nijanthan Mr. T. Gangadharan	Laws of Mechanics	Visualization	NPTEL VIDEO <a href="https://www.youtube.com/watch?v=LG0YzGeAFxk">https://www.youtube.com/watch?v=LG0YzGeAFxk</a>
				Equilibrium , Varignon's theorem	Visualization	<a href="https://www.nptelvideos.com/engineering_mechanics/">https://www.nptelvideos.com/engineering_mechanics/</a> , <a href="https://www.youtube.com/watch?v=6eK8bKbJwFo">https://www.youtube.com/watch?v=6eK8bKbJwFo</a>
				Parallel axis theorem and perpendicular axis theorem	Visualization	<a href="https://www.youtube.com/watch?v=nmhhayBU1bc">https://www.youtube.com/watch?v=nmhhayBU1bc</a>
				Work Energy Equation of particles	Visualization	<a href="https://www.nptelvideos.com/video.php?id=1501&amp;c=16">https://www.nptelvideos.com/video.php?id=1501&amp;c=16</a>
				Motion of particles with friction	Visualization	<a href="https://www.nptelvideos.com/video.php?id=1496&amp;c=16">https://www.nptelvideos.com/video.php?id=1496&amp;c=16</a>

II Year	19UME306	Materials Engineering	Mr. T.P. Balaji Dr. I. Vijay Arasu Mr. J. David Gnanaraj Mr. J. David Gnanaraj	Phase Diagrams	Video presentation- NPTEL Video	<a href="https://www.youtube.com/watch?v=BJrTZ07bHm4&amp;list=PLfIFNJ1DPG4lENg4VUTWYKxxB911aHu">https://www.youtube.com/watch?v=BJrTZ07bHm4&amp;list=PLfIFNJ1DPG4lENg4VUTWYKxxB911aHu</a>
				TTT & CCR Diagram	Video presentation- NPTEL Video	<a href="https://www.youtube.com/watch?v=-YN7nP6KwTs">https://www.youtube.com/watch?v=-YN7nP6KwTs</a>
				Hardness testing machines	Lab visit	
				HSLA Steels	Video presentation- NPTEL Video	<a href="https://www.youtube.com/watch?v=EVqUuaK6c9A&amp;t=649s">https://www.youtube.com/watch?v=EVqUuaK6c9A&amp;t=649s</a>
				Types of ceramics	Video lecture (Youtube)	<a href="https://www.youtube.com/watch?v=YJITp7dwrPk">https://www.youtube.com/watch?v=YJITp7dwrPk</a>

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III Year	19UME501	Heat and Mass Transfer	Mr. V. Ananda Natarajan Mr. V. Ananda Natarajan Dr. K. Arun Balasubramanian Mr. C. Shravan Kumar	One Dimensional Steady State Heat Conduction.	NPTEL VIDEO	<a href="https://www.youtube.com/watch?v=o7Mq4Rdyd1k">https://www.youtube.com/watch?v=o7Mq4Rdyd1k</a>
				Introduction to boiling and condensation	NPTEL VIDEO	<a href="https://www.youtube.com/watch?v=6OGnB9tywtI">https://www.youtube.com/watch?v=6OGnB9tywtI</a>
				Basic Concepts and Laws of Radiation	NPTEL VIDEO	<a href="https://nptel.ac.in/courses/112103276/">https://nptel.ac.in/courses/112103276/</a>
				Heat exchanger Classification.	NPTEL VIDEO	<a href="https://www.youtube.com/watch?v=3t-Pk9aiUtE">https://www.youtube.com/watch?v=3t-Pk9aiUtE</a> <a href="https://www.youtube.com/watch?v=TzFZ49h6Yx0">https://www.youtube.com/watch?v=TzFZ49h6Yx0</a>
				Convective Mass	NPTEL	<a href="https://www.youtube.com/watch?v=a9CACg_iiCo">https://www.youtube.com/watch?v=a9CACg_iiCo</a>

				Transfer	VIDEO	
III Year	19UME50 2	Design of Machine Elements	Mr. B. Mohamed Fazil Mr. B. Mohamed Fazil Mr. P. R. Rajkumar Mr. P. R. Rajkumar	Direct, bending and torsional stress equation		<a href="https://www.youtube.com/watch?v=ITuWnr13aKI">https://www.youtube.com/watch?v=ITuWnr13aKI</a>
				Design of Couplings, Design of Knuckle Joints	Demonstratio n using Models	
				Design of welded joints	Demonstratio n using welded joint specimens and NPTEL Videos	<a href="https://www.youtube.com/watch?v=7b1bd-lgra0">https://www.youtube.com/watch?v=7b1bd-lgra0</a>
				Design of Helical Springs, Flywheels	Lab demonstration using models	-
				Rolling Contact Bearings	Using Models	-
III Year	19UME50 3	Object Oriented Python Programming (INTEGRATE D)	Mr. P. Meenatchisundaram Mr. P. Meenatchisundaram Mr. S. Devanand Mr. S. Devanand	Variables, I/O method types, Lists, Tuples, Dictionaries	IDLE Python / Jupyter Notebook	-
				If, Else, Elif Loop, While Loop, For	IDLE Python / Jupyter Notebook	-

				Loop, Function		
				Modules, Queue, Numpy	IDLE Python / Jupyter Notebook	-
				Objects and Classes	Online Compiler	<a href="https://www.programiz.com/python-programming/online-compiler/">https://www.programiz.com/python-programming/online-compiler/</a>
				String Formatting – File Handling	IDLE Python / Jupyter Notebook	
III Year	19UME50 4	Measurements and Instrumentation (INTEGRATE D)	Mr. P. Karuppasamy Mr. K.M. Ahamed Sheriff Mr. J. Arul Jeeva Nijanthan Dr. A. Saravana Kumaar	systematic and random errors	NPTEL Video	<a href="https://www.youtube.com/watch?v=Mdn2VbIACA">https://www.youtube.com/watch?v=Mdn2VbIACA</a> U
				Vernier, micrometer, Slip gauges	Lab visit	-
				CMM	Lab visit	-
				Force measuring set up	Lab visit	-
				Selection of Sensors and transducers	NPTEL Video	<a href="https://www.youtube.com/watch?v=1uPTyjxZzyo">https://www.youtube.com/watch?v=1uPTyjxZzyo</a>
III Year	19UME90 3	Applied Hydraulics and Pneumatics (E1)	Mr. P. Karuppasamy (A,B) Dr. I. Vijay Arasu (C,D)	Working of Hydraulic system.	Animation video of Basic Hydraulic system.	<a href="https://www.youtube.com/watch?v=W2t6etPOP-E">https://www.youtube.com/watch?v=W2t6etPOP-E</a>
				Pumps	Model	-

				Different types valves and circuits	Lab visit	-
				Cascade method	Screen cast	<a href="https://youtu.be/8beqN5fUZvA">https://youtu.be/8beqN5fUZvA</a>
				PLC	Video Presentation	<a href="https://youtu.be/mLJoVHwQsFI">https://youtu.be/mLJoVHwQsFI</a>
III Year	19UME910	Unconventional Machining Process (E1)	Mr. S. Paramasamy (A,B) Mr. T. Gangadharan (C,D)	Ultrasonic Machining	NPTEL Video	<a href="https://youtu.be/E4VZ_rFqpG4">https://youtu.be/E4VZ_rFqpG4</a>
				Electro discharge machining	Animated video	<a href="https://www.youtube.com/watch?v=kh4DSOtef4k">https://www.youtube.com/watch?v=kh4DSOtef4k</a>
				Electro chemical machine	Animated video	<a href="https://youtu.be/b1nX7WVIN7U">https://youtu.be/b1nX7WVIN7U</a>
				Electron beam machining	NPTEL Video	<a href="https://youtu.be/Xdu4bSSli5A">https://youtu.be/Xdu4bSSli5A</a>
				Abrasive flow machining	NPTEL video	<a href="https://youtu.be/zu4MG_R8-KA">https://youtu.be/zu4MG_R8-KA</a>



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15UME701	Project Management and Finance	Dr. A. Perumal Dr. A. Saravana Kumar Mr. S.A. Sethu Raaman Dr. A. Perumal	UNIT -1 Project organizational structure	NPTEL Video Lecture	Weblink: <a href="https://youtu.be/RjOA7AxOVj8">https://youtu.be/RjOA7AxOVj8</a>
			UNIT -2 Developing project network using PERT/CPM	NPTEL Video Lecture	Weblink: <a href="https://youtu.be/LsH3ABRICqk">https://youtu.be/LsH3ABRICqk</a>
			UNIT -3 Resources and critical chain scheduling	Video Lecture	Weblink: <a href="https://youtu.be/mpc_FdAt75A">https://youtu.be/mpc_FdAt75A</a>
			UNIT -4 Tools and techniques used in quality management	Mind mapping procedure	---
			UNIT -5 Construction and evaluation of balance sheet	Case study	---

15UME702	Finite Element Analysis	Mr. C. Tamilarasan Mr. J. David Gnanaraj Mr. R. Jayaprakash Mr. R. Jayaprakash	Weighted residual methods and Rayleigh Ritz method.	NPTEL Videos	<a href="https://www.youtube.com/watch?v=rFztdZ7-b2M&amp;list=PLSGws_74K018SmggufD-pbzG3thPIpF94&amp;index=18">https://www.youtube.com/watch?v=rFztdZ7-b2M&amp;list=PLSGws_74K018SmggufD-pbzG3thPIpF94&amp;index=18</a> <a href="https://www.youtube.com/watch?v=_k3KcWQuwQA&amp;list=PLSGws_74K018SmggufD-pbzG3thPIpF94&amp;index=19">https://www.youtube.com/watch?v=_k3KcWQuwQA&amp;list=PLSGws_74K018SmggufD-pbzG3thPIpF94&amp;index=19</a>
			1-D Linear bar element, quadratic element and nodal approximation	Simulation in ANSYS	-
			Two dimensional finite element analysis	Online Quiz	<a href="https://forms.gle/wDNwRnxMFur3bpV37">https://forms.gle/wDNwRnxMFur3bpV37</a>
			Transverse vibration of beams ,Vibration of Continuous Systems	NPTEL Videos	<a href="https://www.youtube.com/watch?v=NJiS3g-Ovqw">https://www.youtube.com/watch?v=NJiS3g-Ovqw</a>
			One-dimensional heat transfer problems, Scalar variable problems in 2-Dimensions	Simulation in ANSYS	-
15UME703	Mechatronics	Dr. B. Muthu Chozha Rajan Dr. B. Muthu Chozha Rajan Mr. S. Saravanan Mr. S. Saravanan	Sensors and Transducers – Performance Terminology	NPTEL Video Lectures	<a href="https://youtu.be/xHPZ0jK6-u8">https://youtu.be/xHPZ0jK6-u8</a>
			Pneumatic and Hydraulic Systems	Animated videos	<a href="https://youtu.be/YImRa-9zDF8">https://youtu.be/YImRa-9zDF8</a>
			PID Controllers –	NPTEL video	<a href="https://youtu.be/9CHZu81Iqhw">https://youtu.be/9CHZu81Iqhw</a>

			Digital Controllers	lectures	
			Programmable Logic Controllers – Basic Structure	Lab Visit	---
			Case Studies of Mechatronics Systems - Pick and place robot	Case study	---
15UGM952	Automation in Agriculture Engineering (E5)	Dr. K. Vinayagar (A,B) Dr. G. Nagaraj (C,D)	Introduction -Agriculture Automation	Visualization	<a href="https://www.youtube.com/watch?v=ixjXjyJlbtK">https://www.youtube.com/watch?v=ixjXjyJlbtK</a> <a href="https://www.youtube.com/watch?v=Qmla9NLFBvU&amp;t=272s">https://www.youtube.com/watch?v=Qmla9NLFBvU&amp;t=272s</a>
			Tillage implements	Visualization	<a href="https://www.youtube.com/watch?v=FjgTX8vFLc4">https://www.youtube.com/watch?v=FjgTX8vFLc4</a> <a href="https://www.youtube.com/watch?v=DsipD8fLjuU">https://www.youtube.com/watch?v=DsipD8fLjuU</a>
			Pneumatic System and its application	Visualization	<a href="https://www.youtube.com/watch?v=ixjXjyJlbtK">https://www.youtube.com/watch?v=ixjXjyJlbtK</a> <a href="https://www.youtube.com/watch?v=LuJD0rlStZM">https://www.youtube.com/watch?v=LuJD0rlStZM</a>
			IoT based Smart Irrigation	Visualization	<a href="https://www.youtube.com/watch?v=RzUlllX7zyY">https://www.youtube.com/watch?v=RzUlllX7zyY</a> <a href="https://www.youtube.com/watch?v=fzP9Q-N_jg">https://www.youtube.com/watch?v=fzP9Q-N_jg</a> <a href="https://www.youtube.com/watch?v=j4HBIOf5ZDA">https://www.youtube.com/watch?v=j4HBIOf5ZDA</a>
			Agricultural robots	Visualization	<a href="https://www.youtube.com/watch?v=Rl77FVobxVI">https://www.youtube.com/watch?v=Rl77FVobxVI</a> <a href="https://www.youtube.com/watch?v=Q">https://www.youtube.com/watch?v=Q</a>

					<a href="#">LFdkiO8Oko</a>
15UGM951	Smart Manufacturing (E5)	Dr. Perumal (A,B,C,D)	New Technologies For Future Manufacturing	Visualization	<a href="https://www.youtube.com/watch?v=rIdoIKukpnU">https://www.youtube.com/watch?v=rIdoIKukpnU</a>
			Introduction To Additive Manufacturing	LAB DEMO	-
			Future Robot Technology And Tasks	Visualization	<a href="https://www.youtube.com/watch?v=zuGzgPRC8Gk">https://www.youtube.com/watch?v=zuGzgPRC8Gk</a>
			Iot Applications	Visualization	<a href="https://www.youtube.com/watch?v=N_z4OaSuoAA">https://www.youtube.com/watch?v=N_z4OaSuoAA</a>
			Types Of Cloud Services	Visualization	<a href="https://www.youtube.com/watch?v=1BMO7YkwR6Y">https://www.youtube.com/watch?v=1BMO7YkwR6Y</a>

**OPEN ELECTIVES**

<b>Course Code</b>	<b>Course Name</b>	<b>Course Coordinator</b>	<b>Name of the Topic (for each unit)</b>	<b>Innovation Methodology Employed</b>	<b>WEBLINK</b>
19UME97 1	Industrial Psychology and Work Ethics	Mr. K.M. Ahamed Sheriff	Performance Management	NPTEL Video	<a href="https://youtu.be/YV3BjBlcPzM">https://youtu.be/YV3BjBlcPzM</a>
			Organization Culture	NPTEL Video	<a href="https://youtu.be/Bxm3j8JOXs4">https://youtu.be/Bxm3j8JOXs4</a>
			Job Analysis in Industrial Psychology	YouTube Video	<a href="https://www.youtube.com/watch?v=nX1gDP4_WmM">https://www.youtube.com/watch?v=nX1gDP4_WmM</a>
			Industrial Sociology	NPTEL Video	<a href="https://www.youtube.com/watch?v=XiAGKds7_A4">https://www.youtube.com/watch?v=XiAGKds7_A4</a>
			Ethical Decision Making Process	YouTube Video	<a href="https://www.youtube.com/watch?v=fnPEUAnGdEY">https://www.youtube.com/watch?v=fnPEUAnGdEY</a>

<b>Course Code</b>	<b>Course Name</b>	<b>Course Coordinator</b>	<b>Name of the Topic (for each unit)</b>	<b>Innovation Methodology Employed</b>	<b>WEBLINK</b>
15UME97 4	Principles of Management	Mr. K.M. Ahamed Sheriff	Evolution of Management	NPTEL Video	<a href="https://www.youtube.com/watch?v=yWF4tT6o2mM">https://www.youtube.com/watch?v=yWF4tT6o2mM</a>
			Decision Making Process	NPTEL Video	<a href="https://www.youtube.com/watch?v=pMm5TnupegI">https://www.youtube.com/watch?v=pMm5TnupegI</a>
			Organizational Structure and Culture	NPTEL Video	<a href="https://www.youtube.com/watch?v=MbuIcngKshM">https://www.youtube.com/watch?v=MbuIcngKshM</a>
			Organization Culture	NPTEL Video	<a href="https://www.youtube.com/watch?v=Bxm3j8JOXs4">https://www.youtube.com/watch?v=Bxm3j8JOXs4</a>
			Budgetary and non-budgetary control techniques	NPTEL Video	<a href="https://www.youtube.com/watch?v=0OJ2PIGiwJE">https://www.youtube.com/watch?v=0OJ2PIGiwJE</a>

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II Year	19UME401	Theory of Machines	Mr. V. Ramachandran <b>Mr. S. Saravanan</b> 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. <a href="https://youtu.be/o4D1Lw3igMs">https://youtu.be/o4D1Lw3igMs</a> 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	<b>1.Photo for Models used in class room</b> <b>2. <a href="https://youtu.be/OIZXxPVpmBs">https://youtu.be/OIZXxPVpmBs</a></b> <b>2.Photo Proof for Student Visit in lab</b>
			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	<a href="https://youtu.be/n1EzCOnZn3s">https://youtu.be/n1EzCOnZn3s</a> <a href="https://youtu.be/lu_Qw4Y4XRQ">https://youtu.be/lu_Qw4Y4XRQ</a> <a href="https://youtu.be/5f3wBIRY8dQ">https://youtu.be/5f3wBIRY8dQ</a>
			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	<b>Dr. V. Vignesh</b> Mr. V. Sundara Mahalingam Mr. B. Rajeshkannan Mr. S. Balaji	Otto Cycle	Animated Videos	<a href="https://www.youtube.com/watch?v=hk4oFsjfnPc">https://www.youtube.com/watch?v=hk4oFsjfnPc</a> <a href="https://www.youtube.com/watch?v=K8RzTmeVWfM">https://www.youtube.com/watch?v=K8RzTmeVWfM</a> <a href="https://www.youtube.com/watch?v=sQze1iFl3CY">https://www.youtube.com/watch?v=sQze1iFl3CY</a>
				Lubrication systems and Battery ignition system	Video presentation-NPTEL Video	<a href="https://www.youtube.com/watch?v=1EZVgBOKxRQ">https://www.youtube.com/watch?v=1EZVgBOKxRQ</a> <a href="https://www.youtube.com/watch?v=OMLSNwQiiKg">https://www.youtube.com/watch?v=OMLSNwQiiKg</a>
				Impulse and reaction turbine	Video presentation-NPTEL Video	<a href="https://www.youtube.com/watch?v=3AD_Hiy2QjM">https://www.youtube.com/watch?v=3AD_Hiy2QjM</a> <a href="https://www.youtube.com/watch?v=dS3GpvIl6fc">https://www.youtube.com/watch?v=dS3GpvIl6fc</a>
				Multistage air compressor	Video presentation-NPTEL Video	<a href="https://www.youtube.com/watch?v=0B8K1ZCJ19A">https://www.youtube.com/watch?v=0B8K1ZCJ19A</a> <a href="https://www.youtube.com/watch?v=yLWzBuk5IRs">https://www.youtube.com/watch?v=yLWzBuk5IRs</a>
				Vapour absorption Systems	Video presentation-NPTEL Video	<a href="https://www.youtube.com/watch?v=4w3Obp8ILpA">https://www.youtube.com/watch?v=4w3Obp8ILpA</a> <a href="https://www.youtube.com/watch?v=OTCAkrT3YwU">https://www.youtube.com/watch?v=OTCAkrT3YwU</a>
II Year	19UME403	Manufacturing Technology (Integrated)	Mr. S. Saravanan Mr. K. Amirtharaj <b>Mr. J. David Gnanaraj</b> <b>Mr. V. Ananda</b>	Material removal processes, mechanics of metal cutting	Video presentation-NPTEL Video	<a href="https://www.youtube.com/watch?v=iaOqIDuSoNs">https://www.youtube.com/watch?v=iaOqIDuSoNs</a>



			<b>Natarajan</b>			
				Estimation of Machining Time	Video presentation- NPTEL Video	<a href="https://www.youtube.com/watch?v=dje_JXy-CD0">https://www.youtube.com/watch?v=dje_JXy-CD0</a>
				Introduction to Drilling Technology	Video presentation- NPTEL Video	<a href="https://www.youtube.com/watch?v=VE_xMqM-p0k">https://www.youtube.com/watch?v=VE_xMqM-p0k</a>
				Milling machine - indexing	Video presentation- NPTEL Video	<a href="https://www.youtube.com/watch?v=Rf90Jbbcr3M&amp;t=53s">https://www.youtube.com/watch?v=Rf90Jbbcr3M&amp;t=53s</a>
				Non-traditional abrasive machining: Ultrasonic, Abrasive jet and abrasive water jet machining	Video presentation- NPTEL Video	<a href="https://www.youtube.com/watch?v=06QxjEAMrKc&amp;list=PLwFw6Nkm8oWqFJUxiUuu5c0uHK076lz2K">https://www.youtube.com/watch?v=06QxjEAMrKc&amp;list=PLwFw6Nkm8oWqFJUxiUuu5c0uHK076lz2K</a>
II Year	19UME404	Mechanics of Materials	Mr. G.K. Thamil Selvan Mr. T.P. Balaji <b>Mr. P.R. Rajkumar</b>	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	<a href="https://www.youtube.com/watch?v=tzz-RMgMWA8">https://www.youtube.com/watch?v=tzz-RMgMWA8</a>
II Year	19UME405	Automobile Engineering	Mr. K. Amirtharaj Dr. I. Vijay Arasu Dr. C. Muthusamy <b>Mr. J. Arul Jeeva Nijanthan</b>	vehicle construction, chassis, frame, body and sensors	NPTEL	<a href="https://www.digimat.in/nptel/courses/video/107106088/L01.html">https://www.digimat.in/nptel/courses/video/107106088/L01.html</a>
				Clutch, gearbox, gear shift mechanisms, propeller shaft, Differential, and rear axle, Differential	Transport section visit & Animated videos	<a href="https://www.youtube.com/watch?v=SOgoejxzF8c">https://www.youtube.com/watch?v=SOgoejxzF8c</a>
				steering gear Box, Suspension Systems and Braking system		Transport section visit
				Emission norms	Video lecturer	<a href="https://www.youtube.com/watch?v=rverDfFA0CM">https://www.youtube.com/watch?v=rverDfFA0CM</a> <a href="https://www.youtube.com/watch?v=bZ3_MVchfiA">https://www.youtube.com/watch?v=bZ3_MVchfiA</a>
				Electric vehicles and High Beam		Group discussion

				control		
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**SETHU INSTITUTE OF TECHNOLOGY  
DEPARTMENT OF MECHANICAL ENGINEERING  
INNOVATIVE TEACHING LIST**

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

			<b>Kannan</b> Mr. J. Arul Jeeva Nijanthan Mr. S. Paramasamy	Robots in Manufacturing	Cross word	--
				Liquid additive manufacturing systems	NPTEL LECTURE VIDEO	<a href="https://www.youtube.com/playlist?list=PLwdnzIV3ogoWI8QEu4hsT-n_r8UbWbquy">https://www.youtube.com/playlist?list=PLwdnzIV3ogoWI8QEu4hsT-n_r8UbWbquy</a>
				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 <b>Mr. T.P. Balaji</b> Mr. V. Ramachandran	Unit 1 – Linear Model	Excel solver	NA
				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	<b>Mr. V. Sundara Mahalingam</b> Mr. S. Balaji Mr. M. Vimal Kumar Mr. G.K. Thamil Selvan	Unit 1 – Sensors Performance Terminology	Nptel Videos	<a href="https://youtu.be/xHPZ0jK6-u8">Unit 1 - https://youtu.be/xHPZ0jK6-u8</a>
				Unit 2 - Electrical Actuation Systems – I & II	Nptel Videos	<a href="https://youtu.be/YBpflWTE6ak">Unit 2 - https://youtu.be/YBpflWTE6ak</a> & <a href="https://youtu.be/9vpqyhOxwFs">https://youtu.be/9vpqyhOxwFs</a>
				Unit 3 - Mechanical System Model	Nptel Videos	<a href="https://youtu.be/LYMpjQPEjMU">Unit 3 - https://youtu.be/LYMpjQPEjMU</a>
				Unit 4 - Program Logic Controllors	Nptel Videos	<a href="https://youtu.be/MS3qJq2jvu0">Unit 4 - https://youtu.be/MS3qJq2jvu0</a>

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

				Cryogenic Engines		
III Year	19UME 909	Power Plant Technology (PE)	Dr. K. Arun Balasubramanian <b>Dr. G. Venkatesan</b>	Mhd Power Plant Turbines	Visualization Lab Visit	<a href="https://www.youtube.com/watch?v=E9lvm8ethyk">https://www.youtube.com/watch?v=E9lvm8ethyk</a> -Animation <a href="https://www.youtube.com/watch?v=308aun2cgac">https://www.youtube.com/watch?v=308aun2cgac</a> –Nptel Lab Visit-Turbines
				Fbc Boiler Draught	Visualization	<a href="https://www.youtube.com/watch?v=Vepl3r9ppqa">https://www.youtube.com/watch?v=Vepl3r9ppqa</a> –Fbc <a href="https://www.youtube.com/watch?v=5ih63ask-fq">https://www.youtube.com/watch?v=5ih63ask-fq</a>
				Lay Out Of Nuclear Reactor Nuclear Power Generation	Visualization	<a href="https://www.youtube.com/watch?v=Ke114an1yp8">https://www.youtube.com/watch?v=Ke114an1yp8</a> Animation <a href="https://www.youtube.com/watch?v=Uuld0kvkmwg">https://www.youtube.com/watch?v=Uuld0kvkmwg</a>
				Diesel Power Plant Gas Power Plant	Lab Visit Visualization	Lab Visit For Diesel Power Plant <a href="https://www.youtube.com/watch?v=_Hxxi5oumfq">https://www.youtube.com/watch?v=_Hxxi5oumfq</a>
				Solar Power Plant Geothermal Energy	Lab Visit Visualization	Lab Visit For Solar Power Plant <a href="https://www.youtube.com/watch?v=Arpiqs5vx5s">https://www.youtube.com/watch?v=Arpiqs5vx5s</a>



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Course code	Course name	Course Instructors	Name of the topic(for each unit)	Innovation methodology employed	Weblink
15UME801	Professional Ethics	Mr. S. Paramasamy <b>Dr. A. Saravana Kumar</b> Mr. S.A. Sethu Raaman Dr. A. Perumal	Profession and Professionalism	VIDEO	<a href="https://www.youtube.com/watch?v=5kaT4Fb4c5o">https://www.youtube.com/watch?v=5kaT4Fb4c5o</a>
			Code of Ethics	NPTEL VIDEO	<a href="https://www.youtube.com/watch?v=nlh9V5gd8hg">https://www.youtube.com/watch?v=nlh9V5gd8hg</a>
			Morel Leadership	NPTEL VIDEO	<a href="https://www.youtube.com/watch?v=QM1Z8Vc9i9k&amp;list=PLCED514A7A4086453">https://www.youtube.com/watch?v=QM1Z8Vc9i9k&amp;list=PLCED514A7A4086453</a>
15UME920	Production Planning and	Mr. S.A. Sethu Raaman <b>Dr. G. Nagaraj</b>	Break even analysis	NPTEL videos	<a href="https://www.youtube.com/watch?v=_PHA_GAv2juU">https://www.youtube.com/watch?v=_PHA_GAv2juU</a>

	Control (PE)		Recording techniques for method study	NPTEL videos	<a href="https://www.youtube.com/watch?v=YeIpWzN2wMQ">https://www.youtube.com/watch?v=YeIpWzN2wMQ</a>
			Value analysis	Animated videos	<a href="https://www.youtube.com/watch?v=dvdfxr0fMzs">https://www.youtube.com/watch?v=dvdfxr0fMzs</a>
			Material resource planning	Case studies	-
			ABC analysis	Animated videos	<a href="https://www.youtube.com/watch?v=BWbnKgFNcKg">https://www.youtube.com/watch?v=BWbnKgFNcKg</a>
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> <a href="https://www.coursera.org/lecture/my-favorite-lectures-hkust/4-4-osi-reference-model-layer-7-4-0gxvc">https://www.coursera.org/lecture/my-favorite-lectures-hkust/4-4-osi-reference-model-layer-7-4-0gxvc</a>
			Group technology	NPTEL video lectures	Link: <a href="https://www.youtube.com/watch?v=y3-5ENFtqrQ">https://www.youtube.com/watch?v=y3-5ENFtqrQ</a>
			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