



**SWARNANDHRA COLLEGE OF ENGINEERING AND TECHNOLOGY**

(Autonomous)

Narsapur, West Godavari District, A.P. 534280

**DEPARTMENT OF MECHANICAL ENGINEERING**

**CONTENT BEYOND SYLLABUS**

**A.Y.2023-2024 (Odd Semester)**

S.NO	SEMESTER	COURSE CODE	COURSE NAME	FACULTY HANDLED	CONTENT BEYOND SYLLABUS	DELIVERY METHODS
1.	III	20ME3T01	Mechanics of solid	Dr.R.Lalitha Narayana	1.Theories of failure 2.Theorems of Elasticity	Active learning, Power point presentation, Videos
		20ME3T02	Fluid Mechanics Hydraulic System	Mr.V.Ram Babu	1. Tribology 2. submersible pump	Active Learning, Flipped Learning , Power point presentation, Videos
		20ME3T03	Production Technology	Mr. Abdul Azeez	1. Squeeze casting and ICE casting process 2.Laser welding Technology 3. Technology innovation in Extrusion Process 4. Nano injection molding Technology	Active Learning, Flipped Learning , Power point presentation, Videos, Animations,
		20ME4T01	Engineering Thermodynamics	Mr.G.Veerandra Kumar	1. Vander Waals Equation of a real gas	Active Learning, Power point presentation, Videos
2.	V	20ME5T01	Design of Machine Elements	Mr. CH. Harish Kumar	1. Basics of GD&T Design of Belt drive for continuously variable transmission (CVT)	Active Learning, Power point presentation, Videos
		20ME5T02	Machine Tools & Metrology	Mr.M. Saravanan Mr. L. Ravi Kishore	1. Tool Dynamometers 2. Sensors and advanced	Active Learning, Power point presentation, Videos

					materials for measurement and quality improvement 3. Optical Surface texture Metrology 4. Mechanical comparators	
		20ME5T03	Thermal Engineering	Mr. B.Srinivas Mr.G.Veerandra Kumar	1.Comparison of Air standard & Fuel air cycles 2.Electronic Ignition Systems 3.Analytical methods for Performance estimation	Active Learning, Power point presentation, Videos
		20ME5E04	Production Planning Control	Dr.R.Sanjeev Kumar Mr. S.Surendar	1. Twin Technology 2. Block chain Technology	Flipped Learning , Power point presentation, Videos,
3.	VII	20ME7E09	Industry 4.0	Dr.Francis Luther King Dr.G. Robert Singh	1. Industry 5.0 2. Impact of Industry 4.0 in MSME sector in india	Active learning, Power point presentation, Videos
		20ME7E02	Total Quality Management	Dr.Francis Luther King Mr.S.Surendar	1. Impact of implementing TQM tools in Academic Institutions	Active Learning, Power point presentation, Videos
		20RB7E11	Micro electro mechanical systems	Dr.R.Sanjeev Kumar Dr.D. Bhanu Prakash	1. Chemical and Biological sensors 2.Microfluidic devices	Active Learning, Flipped Learning , Power point presentation, Videos, Animations,



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**A.Y.2023-2024 (Even Semester)**

S.NO	SEMESTER	COURSE CODE	COURSE NAME	FACULTY HANDLED	PEDAGOGY INITIATIVES	DELIVERY METHODS
1.	IV	20ME4T02	Metallurgy & Material Science	Mr. N. Bulli Raju Mr. L.Ravi Kishore	1. Tungsten carbides 2. Cryogenic liquids 3. Diamond dust abrasive material 4. Magnesium metal powder	Active learning, Power point presentation, Videos
		20ME4T01	Theory of Machines	Mr.B.Mahesh Krishna Mr.V.Ram Babu	1. Linkage 3.10 software for motion generation of various mechanisms 2.Determination of velocity and acceleration using software 3.Modelling of gyroscope	Active Learning, Flipped Learning
2.	VI	20ME6T02	Heat Transfer	Mr. B.Srinivas	1.One dimensional conduction heat transfer without heat generation in sphere 2.Semi infinite body and finite bodies of cylinders and cubes 3.Fouling of heat exchanger	Active Learning, Flipped Learning , Power point presentation, Animations,
		20ME6E02	Automobile Engineering	Mr.L.Ravi Kishore Mr. B.Srinivas	1. Defects in Frames 2. Over drive	Active Learning, Power point presentation, Videos

					3.Hill holder	
		20ME6E03	Unconventional Machining Process	Mr.CH.Harish Kumar	1. Magnetostriction Transducer 2. Recent developments in EDM Process	Active Learning, Power point presentation, Videos
		20ME6T03	CAD/CAM	Dr.R.Sanjeev Kumar Mr.Abdul Azeez	1. Types of Technologies for improving computer graphics quality 2. Six Axis machining 3. Inspection technology, Machine vision	Active Learning, Power point presentation, Videos
		20ME6T01	Introduction to Artificial Intelligence & Machine Learning	1.Dr.Francis Luther King 2. Mr. N. Bulli Raju	1. Generative AI 2. Fuzzy logic	Active Learning, Power point presentation, Videos



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A.Y.2022-2023 (Odd Semester)

S.NO	SEMESTER	COURSE CODE	COURSE NAME	FACULTY HANDLED	CONTENT BEYOND SYLLABUS	DELIVERY METHODS
1.	III	20ME3T01	Mechanics of solid	Mr. V. John Bunyan Dr. D. Bhanu Prakash	1. Quantum Mechanics 2. Fracture Mechanics	Active learning, Power point presentation, Videos
		20ME3T02	Fluid Mechanics Hydraulic System	Dr. R. Lalitha Narayana Mr. N. Bulli Raju	1. Basics of CFD 2. Rheology –An Introduction	Active Learning, Power point presentation, Videos
		20ME3T03	Production Technology	Ms. B. Haritha	1. Lost foam casting, Ice casting formation 2. Vacuum arc Double electrode re-melting 3. Friction stir Welding 4. Plastics in Biomedical applications, 4D printing	Active Learning, Flipped Learning , Power point presentation, Videos, Animations,
			Engineering Thermodynamics	Mr.B.Srinivas Mr.G.Veerandra Kumar	1. Ideal gases 2. Real Gases	Active Learning, Power point presentation, Videos
		20ME5T01	Design of Machine Elements	Mr. CH. Harish Kumar	1. Basics of GD& T 2. Design of belt drive for continuously variable Transmission (CVT)	Active Learning, Power point presentation, Videos
		20ME5T02	Machine Tools & Metrology	Mr.M.Saravanan	1. Tool dynamometer 2. Cutting force and torque	Active Learning, Power point presentation, Videos
		20ME5T03	Thermal Engineering	Dr.R.LalithaNarayana Mr.G.Veerandra Kumar	1.Comparison of Air standard & Fuel air cycles 2.Electronic Ignition Systems	Active Learning. Power point presentation,

2.	V				3.Analytical methods for Performance estimation	
		20ME5E03	Instrumentation Control System	Mr. L.Ravi Kishore	1. Measurement of displacement by Sensors 2. Advanced materials for measurement 3. integrated Electronic Piezoelectric accelerometers 4. Hierarchical suitability, strategic control points	Power point presentation, Videos, Flipped Learning
		20ME5E04	Production Planning Control	Dr.R.Sanjeev Kumar	1. Agile Manufacturing 2. Line Balancing	Power point presentation, Videos, GD
3.	VII	19ME7T01	3D printing & Design	Dr.Francis Luther King Mr.V.John Bhunyan	1. 3D printing in the R&D of medical Devices 2. 4D Printing	Power point presentation, Videos, Active Learning
		19ME7E13	Industrial Robotics	Mr. L.Ravi Kishore	1. Roboalalyser software for Manipulator 2. Roboalalyser software for representing IK and FK robots 3. Reward based Planning and grid based planning 4. Interfacing of sensors with Arduino board in Manufacturing	Power point presentation, Videos, Active Learning
		19ME7E14	Refrigeration & Air Conditioning	Mr.B.Srinivas	1.Global Warming and Ozone depletion aspects 2.VApour absorption refrigerating system using engine exhaust	Power point presentation, Videos, Group discussion



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S.N O	SEMESTER	COURSE CODE	COURSE NAME	FACULTY HANDLED	CONTENT BEYOND SYLLABUS	DELIVERY METHODS
1.	IV	20ME4T02	Metallurgy & Material Science	Ms. B. Haritha	1. Bonding in Solids 2. Cryogenic Liquids 3. Diamond dust abrasive material 4. Magnesium metal powder	Active learning, Power point presentation, Videos
		20ME4T01	Theory of Machines	Mr.V.John Bunyan Mr.V.Ram Babu	1. Linkage 3.10 software for motion generation of various mechanisms 2.Determiation of velocity and acceleration using software 3.Modelling of gyroscope	Active Learning, Power point presentation, Videos
2.	VI	20ME6T02	Heat Transfer	Mr. B.Srinivas	1.One dimensional conduction heat transfer without heat generation in sphere 2.Semi Infinite body and finite bodies of cylinders and cubes 3.Fouling of heat exchanger	Active Learning, Flipped Learning , Power point presentation, Videos, Animations,
		20ME6E02	Automobile Engineering	Mr. L.Ravi Kishore	1.Hill Holder 2.Over Drive	Active Learning, Power point presentation, Videos
		20ME6E03	Unconventional	Mr. G Veerandra	1. Hrdro dynamic jet	Active Learning, Power

			Machining Process	Kumar	machining 2.Rheological machining	point presentation, Videos
		20ME6T03	CAD/CAM	Mr. N. Bulli Raju Mr.M.Sarvanan	1. Hidden Line methods 2. Fractals, Fractal lines, Fractal surfaces 3. Transducer for NC machine tools 4. Computer software, simulation and database of FMS system issues	Active Learning, Power point presentation, Videos
		20ME6T01	Artificial Intelligence Machine Learning	Dr.Francis Luther King	1. Data science concepts for beginners 2.Subet of AI-Deep learning and NLP	Power point presentation, Videos
		20ME5O01	Waste to Energy Conversion	Dr.R.Sanjeev Kumar	1. waste to energy conversion for a sustainable future	Power point presentation, Videos, Flipped Learning
3.	VIII	19ME8E18	Power Plant Engineering	Mr. G Veerandra Kumar Mr.V.Ram Babu	1.Biogas from Orex 2.ETP	Active learning, Power point presentation, Videos
		19ME8E23	Flexible Manufacturing System	Mr. L.Ravi Kishore	1. FMS in automotive software 2. JIT strategy chates 3. CNC Turning & Machining centre 4. Intelligent systems in AS/RS	Active Learning, Power point presentation, Videos
		19ME8E24	Statistical Quality Control	Mr. S.Surendhar	1. Probability plots 2. Control chart for multiple stream process 3. Analysis of patterns on control chart	Active Learning, Flipped Learning , Power point presentation, Videos, Animations,