

PROGRAM STRUCTURE

I SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	171HS1T01	English - I		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
2	171BS1T01	Mathematics - I		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using ordinary differential equations, system of linear equations in various engineering disciplines.
3	171HS1T02	Environmental Studies				
4	171BS1T03	Engineering Chemistry				
5	171ES1T02	Engineering Mechanics	✓			Students are able to acquire skills related to principles of friction, kinetics, kinematics, resolving forces, trusses etc which forms the crux of design sciences.

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
6	171ES1T01	Computer Programming	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions that enable them to be employed as a software developer.
7	171HS1L01	English Communication Skills Lab - I		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral forms of language which is very much essential for career growth.
8	171BS1L01	Engineering Chemistry Lab				
9	171ES1L01	Computer Programming Lab	✓			Students are able to acquire programming skills related to Structured programming, arrays, functions, pointers, structures and unions enabling them to be employed as a software developer.

II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
10	171HS2T03	English - II		✓		Students are able to demonstrate communication skills express their thoughts fluently in both written as well as oral form of language which is very much essential for the career growth and enhances the language competency.
11	171BS2T02	Mathematics - II		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using partial differential equations and their applications in various engineering disciplines.
12	171BS2T06	Mathematics - III		✓		Students are able to demonstrate problem solving skills by evaluating improper and vector integrals applicable in various engineering disciplines.
13	171BS2T07	Engineering Physics				
14	171ES2T03	Engineering Drawing		✓		Students are able to acquire skills related to creating technical drawings by displaying from different angles of projection and adding dimensional information.

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15	171ES2T05	Basic Electrical and Electronics Engineering	✓			Students are able to acquire skills related to basic electrical and electronic principles enabling them to be employed for designing civil engineering constructional elements.
16	171HS2L02	English Communication Skills Lab - II		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral forms of language which is very much essential for career growth.
17	171BS2L02	Engineering Physics Lab				
18	171ES2L02	Engineering Work shop and IT work shop		✓		Students are able to acquire skills related to system troubleshooting, implement MS office tools, develop LaTeX documents and to work with Linux commands. Students are able to acquire skills related to building various joints in different trades for several applications.

III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
19	R1621031	Metallurgy & Materials Science	✓			Students are able to acquire skills related to mechanical behavior of materials under different loading conditions enabling them to be employed as a materials engineer.
20	R1621032	Mechanics of Solids	✓			-Students are able to acquire skills related to bending and shear stresses for beams of various loads and supports enabling them to be employed as a stress analysis engineer in core design industries.
21	R1621033	Thermodynamics	✓			Students are able to acquire skills related to various thermodynamic systems and power cycles and enabling them to be employed as Thermodynamic engineer.
22	R1621026	Managerial Economics and Financial Analysis			✓	Students are able to apply the knowledge of economic and financial management enabling them to become an entrepreneur in any domain of their choice.

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
23	R1621034	Fluid Mechanics & Hydraulic Machinery	✓			Students are able to acquire skills related to concepts of fluid, statics, dynamics and performance characteristics of turbines and pumps and enabling them to be employed as a fluid engineer.
24	R1621035	Computer Aided Engineering Drawing Practice		✓		Computer Aided Drawing practice is designed to improve the skills of the students as they will be able to draft packages and commands for computer aided drawing and modelling. Students will be able to gain the skills to draw complex drawing by using these tools.
25	R1621036	Electrical And Electronics Engineering Lab		✓		Electrical and electronics lab helps the students to improvise their technical skills as they get to know how to determine the efficiency of dc shunt, Single phase transformers. This subject also helps to obtain the characteristics and performance of Dc shunt motors. This subject helps student to solve the Dc motor and transformers related problems at the mine site.
26	R1621037	Mechanics of Solids and Metallurgy Lab		✓		Students are able to acquire skills related to testing of material behaviour under various direct loads, Microstructure of metals Non metals.

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
27	R1622031	Kinematics of Machinery	✓			This subject helps the students to improve their skills as they are able to understand the nature and role of the kinematics of machinery, the mechanisms and machines, it also helps the students to upgrade their skills by exposes the students to various kinds of power transmission devices like belt, rope, chain and gear drives and their working principles and their merits and demerits.
28	R1622032	Thermal Engineering -I	✓			Students are able to acquire skills related to working of Incentives, Compressors and enabling them to be employed in thermal Power Plants.
29	R1622033	Production Technology	✓			Students are able to acquire skills related to various manufacturing process, different joining techniques and bulk metal deforming processes.
30	R1622034	Design of Machine members-I	✓			Students are able to acquire skills related to design of machine members and enabling them to be employed in design engineering field.

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31	R1622035	Machine Drawing		✓		Students are able to acquire skills related to machine components, part drawings and assembly drawings enabling them to be placed in mechanical design and drafting companies.
32	R1622036	Industrial Engineering and Management			✓	This subject helps the student to demonstrate competency become as the students have interactions between engineering, business, technological and environmental spheres in the modern society. This subject also understands student's role as engineers and their impact to society at the national and global context which enabling them to become an entrepreneur.
33	R1622037	Fluid Mechanics and Hydraulic Machinery Lab		✓		Students are able to demonstrate technical skills in determining the efficiencies of pumps and turbines, enabling them to be employed in piping design industries.
34	R1622038	Production Technology Lab		✓		Students are able to acquire skills related to knowledge on casting, welding and sheet metal forming processes enabling them to be employed in manufacturing sector.

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
35	RT31031	Dynamics of Machinery	✓			Students are able to acquire skills in analyzing the machines in dynamic conditions and enabling them to be employed in automotive and aerospace industries.
36	RT31032	Metal Cutting and Machine Tools	✓			Students are able to acquire skills and fundamental knowledge on principles of material removal processes, enabling them to be employed in manufacturing industries
37	RT31033	Design of Machine members-I	✓			Students are able to acquire skills related to design of machine members and enabling them to be employed in design engineering field.
38	RT31034	Instrumentation and Control systems	✓			Students are able to acquire skills related to working of measuring instruments and control systems and enabling them to be employed in material characterization laboratories.
39	RT31035	Thermal Engineering - II	✓			Students are able to acquire skills on basic knowledge of Rankine cycles, boilers, chimneys, gas turbines and enabling them to be employed in thermal power plants.

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
40	RT31036	Metrology	✓			Students are able to acquire skills related to the measurement of linear and angular measuring instruments.
41	RT31037	Machine Tools Lab		✓		Students are able to acquire skills to operate various machine tools and enable them to be employed in Manufacturing sector.
42	RT31038	Metrology and Instrumentation Lab		✓		Students are able to acquire technical skills in measuring linear and angular measurements and calibrate pressure gauge, Temperature detectors and LVDT enabling them to be employed in material characterization labs and various manufacturing industries.
43	RT31016	IPR& Patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.

VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
44	RT32031	Operations Research	✓			Students are able to acquire analytical skills in finding optimal solutions of different models using various decision making techniques.
45	RT32032	Interactive Computer Graphics	✓			Students are able to demonstrate technical skill to develop graphical applications using line, polygon, curve drawing and clipping algorithms, design 2d and 3d applications.
46	RT32033	Design of Machine members-II	✓			Students are able to acquire skills to understand the concepts in design of bearings, engine parts, and gears enabling them to be employed in design-based industries
47	RT32034	Robotics	✓			Students are able to acquire skills to understand the concepts of robot kinematics, Dynamics and trajectory planning enabling them to be employed in robot manufacturing industries

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
48	RT32035	Heat Transfer	✓			Students are able to acquire analytical skills on the concept of heat transfer through conduction, convection, radiation and performance of heat exchangers and enabling them to be employed in piping design industries.

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
49	RT32036	Industrial Engineering Management			✓	Students are able to demonstrate Competency to understand the knowledge of industrial engineering domain and enabling them to be an entrepreneur.
50	RT32037A	Refrigeration and Air Conditioning	✓			Students are able to acquire skills on working of refrigeration and air conditioning and enabling them to be employed in refrigeration and air conditioning industries.
51	RT32037B	Computational Fluid Dynamics		✓		Students are able to acquire skills in analyzing the numerical methods related to fluid modelling.
52	RT32037C	Condition Monitoring	✓			Students are able to acquire skills in detecting the faults in the systems by monitoring several parameters to prevent major failures.
53	RT32037D	Rapid Prototyping		✓		Students are able to acquire skills related to the knowledge of Additive manufacturing (AM) principles and the knowledge of liquid, solid and powder based rapid prototyping systems and enabling them to be employed in Additive manufacturing industries.

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B. Tech Mechanical Engineering

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
54	RT32038	Heat Transfer Lab		✓	.	Students are able to demonstrate problem solving skills in calculating the heat transfer coefficient through conduction, convection and radiation.

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
55	RT41031	Automobile Engineering	✓			Students are able to acquire skills related to the fundamental working principles and technologies and enabling them to be employed in automotive sector.
56	RT41032	CAD/CAM	✓			-Students are able to demonstrate problem solving skills for improving productivity and enhancing the best practices of the company.
57	RT41033	finite Element Methods	✓			Students are able to acquire skills in solving differential equations in fields of structural analysis, heat transfer and fluid flow and enabling them to be employed in mechanical design companies as a FEA-Engineer
58	RT41034	Unconventional Machining Processes	✓			Students are able to acquire skills on modern machining processes and working principles enabling them to be employed in manufacturing industries
59	RT41035	MEMS	✓			Students are able to acquire skills related to the fundamental knowledge on processes of micro-electro-mechanical systems and materials used for manufacturing micro-electro-mechanical systems and enabling them to be employed in electronic industries.

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
60	RT41036	Nano technology	✓			Students are able to acquire skills in developing the concept and fundamentals of Nanotechnology
61	RT41037	Material Characterization techniques	✓			Students are able to acquire skills related to knowledge on different characterization techniques and can be placed in material characterization labs
62	RT41038	Design for Manufacture	✓			Students are able to demonstrate technical skills in design of manufacturing through consideration of cost, quality and reliability.
63	RT41039	Automation in Manufacturing	✓			Students are able to demonstrate skills for automating the manufacturing processes.
64	RT4103A	Industrial hydraulics and Pneumatics	✓			Students are able to demonstrate problem solving skills in analyzing the concepts of hydraulic systems, pneumatic systems and its components.
65	RT4103L	Simulation Lab		✓		Students are able to acquire skills related to fundamental knowledge on various analytical tools for engineering simulation and enabling them to be employed in areas of computer aided design
66	RT4103M	Design/Fabrication project		✓		Students are able to demonstrate skills to develop ability to conceptualize a product, apply standard/innovative design techniques for developing an innovative product design.

VIII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
67	RT42031	Production Planning and control			✓	This subject helps the student to demonstrate competency in the concepts of production and service systems, it also helps to know the principles and techniques in the design, planning and control of these systems to optimize and make best use of resources in achieving their objective which helps them to enable them a good entrepreneur.
68	RT42032	Green Engineering Systems	✓			Students are able to demonstrate problem solving skills in analyzing the significance of alternative sources of energy, green energy systems.
69	RT42033A	Experimental Stress Analysis	✓			Students are able to demonstrate problem solving skills in finding the response of structure to different types of loads
70	RT42033B	Mechatronics	✓			Students are able to demonstrate Competency to understand the knowledge of mechatronics and enabling them to be employed in electronics industries.

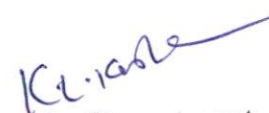
S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
71	RT42033C	Advanced Materials	✓			Students are able to acquire skills related to the basic concepts of synthesis and characterization of advanced materials and enabling them to be employed as materials engineer and metallurgist.
72	RT42033D	Power Plant Engineering	✓			Students are able to acquire skills in analyzing the power plant economics and environmental considerations enabling them to be employed in power sectors.
73	RT42034A	Non-Destructive Evaluation	✓			Students are able to acquire skills in characterizing the material behavior through different Non-destructive evaluation methods and enabling them to be employed in automotive and aerospace industries
74	RT42034B	Advanced Optimization techniques	✓			Students are able to demonstrate problem solving skills in optimization of parameters in various engineering applications
75	RT42034C	Gas Dynamics and Jet Propulsion	✓			Students are able to acquire skills This course impart skills in analyzing the behavior of isentropic flow of ideal gases and enabling them to be employed gains employment in thermal power plants.

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B. Tech Mechanical Engineering

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
76	RT42034D	Quality & Reliability Engineering	✓			Students are able to acquire skills in improving the quality and reliability of systems and enabling them to be employed in quality control and quality assurance fields
77	RT42035	Project Work		✓		Students will be able to demonstrate problem identification, analysis, design solutions or applications in Mechanical engineering domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
Total		77	44	23	5	


Program Coordinator


Head of the Department

Head of the Department
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