

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.

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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				

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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.
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 Workshop and IT workshop		✓		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	171ES3T13	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	171ES3T11	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	171ES3T12	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	171HS3T04	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.
23	171ES3T14	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.

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24	171ME3T01	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	171ES3L05	Basic Electrical And Electronics Engg. Lab	✓			Electrical and electronics lab helps the students to improve 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	171ES3L06	Mechanics of Solids and Metallurgy Lab		✓		Students are able to acquire skills related to testing of material behavior under various direct loads and microstructure of metals and nonmetals.
27	171HS3A09	Professional Ethics and Human Values		✓		Students are able to acquire skills which help them in becoming a professional with ethical and human values.
28	171HS3A10	Employability Skills-I	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
29	171ME4T02	Kinematics of Machinery	✓			Students are able to acquire skills related to the concepts of kinematics of machine elements, chains and mechanisms and enabling them to be employed in mechanical design field.
30	171ME4T03	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.
31	171ME4T04	Production Technology	✓			Students are able to acquire skills related to various manufacturing processes, different joining techniques and bulk metal deforming processes.
32	171ME4T05	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.
33	171ME4T06	Industrial Engineering and Management			✓	Students are able to demonstrate Competency related to managerial skill set and enable them to be an entrepreneur.
34	171ME4T07	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 industries
35	171HS4T08	Intellectual Property rights and patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
36	171ME4L01	Production Technology Lab		✓		Students are able to acquire skills related to various manufacturing process, different joining techniques and bulk metal deforming processes.
37	171ES4L07	Fluid mechanics and Hydraulic Machinery Lab		✓		Students are able to demonstrate technical skills in working with turbines, pumps and understand flow behavior at various sections of harnessing energy from alternate energy sources.
38	171HS4A11	Employability Skills -II	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.

V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
39	R1631031	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.
40	R1631032	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
41	R1631033	Design of Machine members-II	✓			Students are able to acquire skills related to design of machine members and enabling them to be employed in design engineering field.
42	R1631034	Operations Research	✓			Students are able to acquire analytical skills in finding optimal solutions of different models using various decision-making techniques.
43	R1631035	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.
44	R1631036	Theory of Machines Lab		✓		Students are able to acquire analytical skills in analysis of mechanisms for a specified type of motion in machine.
45	R1631037	Machine Tools Lab		✓		Students are able to acquire skills to operate various machine tools enabling them to be employed in Manufacturing sector.

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
46	R1631038	Thermal Engineering Lab		✓		Students are able to acquire analytical skills on working and performance of I.C. Engines and Reciprocating compressors.
47	R1631029	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
48	R1632031	Metrology	✓			Students are able to acquire skills related to the measurement of linear and angular measuring instruments.
49	R1632032	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.
50	R1632033	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	R1632034	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.
52	R163201B	Data Base Management Systems	✓			Students are able to acquire skills related to SQL commands, constraints, views, models, transactions, storage and indexing enabling them to be employed for backend developer
53	R163201D	Waste Water Management	✓			This subject demonstrates technical skills of students by making them know planning and the design of waste water collection, conveyance and treatment systems for a community/town/city, also helps them to knowledge of characterization of waste water generated in a community.

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54	R1632036	Heat Transfer Lab		✓		Students are able to demonstrate problem solving skills in calculating the heat transfer coefficient through conduction, convection and radiation.
55	R1632037	Metrology & 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.
56	R1632038	Computational Fluid Dynamics Lab		✓		Students are able to demonstrate skills on developing numerical methods and governing equations related to fluid flow and heat transfer.
57	R1632029	Professional Ethics & Human Values				

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
58	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.
59	RT41032	CAD/CAM	✓			Students are able to demonstrate problem solving skills for improving productivity and enhancing the best practices of the company.
60	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
61	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
62	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.

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63	RT41036	Nano technology	✓			Students are able to acquire skills in developing the concept and fundamentals of Nanotechnology
64	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
65	RT41038	Design for Manufacture	✓			Students are able to demonstrate technical skills in design of manufacturing through consideration of cost, quality and reliability.
66	RT41039	Automation in Manufacturing	✓			Students are able to demonstrate skills for automating the manufacturing processes.
67	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.
68	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
69	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
70	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.
71	RT42032	Green Engineering Systems	✓			Students are able to demonstrate problem solving skills in analyzing the significance of alternative sources of energy; green energy systems.
72	RT42033A	Experimental Stress Analysis	✓			Students are able to demonstrate problem solving skills in finding the response of structure to different types of loads
73	RT42033B	Mechatronics	✓			Students are able to demonstrate Competency to understand the knowledge of mechatronics and enabling them to be employed in electronics industries.

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74	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.
75	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.
76	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
77	RT42034B	Advanced Optimization techniques	✓			Students are able to demonstrate problem solving skills in optimization of parameters in various engineering applications
78	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.
79	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

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80	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		80	46	24	4	


Program Coordinator
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