Sant Baba Bhag Singh

UNIVERSITY

LEARN | ACHIEVE | SUCCEED

PO, PEO, PSO and CO

of

(Mechanical Engineering)

Amrinder Singh
CoD, ME

Dr. Vijay Dhir
Dean

Sant Baba Bhag Singh University
Village Khiala
P.O. Padhiana
Distt. Jalandhar

SANT BABA BHAG SINGH UNIVERSITY
DEPARTMENT NAME: MECHANICAL ENGINEERING

	PROGRAMME OUTCOMES (POs)
PO1	**Engineering knowledge**:Apply the knowledge of mathematics, science, engineering fundamentals, and engg. specialization to the solution of complex engineering problems.
PO2	**Problem analysis**:Identify, formulate, research literature, and analyze engineering problems to arrive at substantiated conclusions using first principles of mathematics, natural, and engineering sciences.
PO3	**Design/development of solutions**:Design solutions for complex engineering problems and design system components, processes to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**:Use research-based knowledge including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**:Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	**The engineer and society**:Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	**Environment and sustainability**:Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics**:Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and team work**:Function effectively as an individual, and as a member or leader in teams, and in multidisciplinary settings.
PO10	**Communication**:Communicate effectively with the engineering community and with society at large. Be able to comprehend and write effective reports documentation. Make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**:Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team. Manage projects in multidisciplinary environments.
PO12	**Life-long learning**:Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

HoD, ME

Dean, UIET

SANT BABA BHAG SINGH UNIVERSITY

DEPARTMENT NAME: MECHANICAL ENGINEERING

PROGRAMME SPECIFIC OUTCOMES (PSOs)	
PSO1	Graduates of the program will identify, analyze and solve engineering problems related to product design, thermal engineering and manufacturing systems by acquiring knowledge in Engineering mathematics, science and Engineering fundamentals.
PSO2	Gradutaes will provide solutions to the real life multidisciplinary engineering problems using engineering knowledge, critical thinking, creativity and utilizing modern techniques and computing skills.
PSO3	Developing managerial skills by engaging in Planning, including methods design, process plan, process automation, and quality assurance systems to work effectively in a team and in a society by following ethical, societal, cultural, environmental, health, safety and legal practices.

HoD, ME

Dean, UIET

CO-PO Mapping

DEPARTMENT NAME: MECHANICAL ENGINEERING

Programme Name: UG

Course Name: Workshop/Manufacturing Practices **Course Code: ME105**

Course Year/Semester: 1/1 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Understanding different manufacturing techniques and their relative advantages/ disadvantages with respect to different applications with selection of a suitable technique for meeting a specific fabrication need	PO5, PO1, PO12	PSO1
CO2	Acquire a minimum practical skill with respect to the different manufacturing methods and develop the confidence to design & fabricate small components for their project work.	PO5, PO1, PO12	PSO1,PSO2,PSO3
CO3	Introduction to different manufacturing methods in different fields of engineering	PO1, PO2	PSO1,PSO2
CO4	Practical exposure to different fabrication techniques and Creation of simple components using different materials.	PO5, PO9, PO12	PSO1,PSO2,PSO3

Programme Name: UG

Course Name: Engineering Graphics & Design **Course Code: ME101**

Course Year/Semester: 1/2 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Introduction to engineering design and its place in society and engineering communication	PO1,	PSO1
CO2	Exposure to the visual aspects and engineering graphics of engineering design standard	PO1, PO5, PO10	PSO1,PSO2
CO3	Exposure to solid modelling	PO1, PO5, PO10	PSO1,PSO2
CO4	Exposure to computer-aided geometric design and creating working drawings	PO5, PO9, PO12	PSO1,PSO2

Programme Name: UG

Course Name: Engineering Mechanics **Course Code: ME221**

Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Determine resultants in plane force systems	PO1, PO2	PSO1
CO2	Identify and quantify all forces associated with a static framework	PO1, PO2, PO4	PSO1
CO3	Draw Shear Force Diagram and Bending Moment Diagram in various kinds of beams subjected to different kinds of loads	PO1, PO2, PO4	PSO1

Programme Name: UG

Course Name: Thermodynamics **Course Code: ME223**

Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Students can evaluate changes in thermodynamic properties of substances	PO1, PO2	PSO1
CO2	The students will be able to evaluate the performance of energy conversion devices	PO1, PO2, PO3, PO4	PSO1
CO3	The students will be able to differentiate between high grade and low-grade energies	PO1, PO2, PO4	PSO1

Programme Name: UG

Course Name: Machine Drawing **Course Code: ME225**

Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Draw the machine elements including keys, couplings, cotters, riveted, bolted, and welded joints	PO1	PSO1
CO2	Understand the representation of materials used in machine drawing.	PO1, PO10, PO12	PSO1
CO3	Construct an assembly drawing using part drawings of machine components	PO1, PO3, PO10	PSO1

Programme Name: UG

Course Name: Applied Thermodynamics **Course Code: ME220**

Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Understanding of various practical power cycles and heat pump cycles.	PO1, PO2	PSO1
CO2	Analyze energy conversion in various thermal devices such as combustors, air coolers, nozzles, diffusers, steam turbines and reciprocating compressors	PO1, PO2, PO3, PO4	PSO1
CO3	Understand phenomena occurring in high speed compressible flows	PO1, PO2, PO4	PSO1

Programme Name: UG

Course Year/Sem Fluid Mechanics and Fluid machines **Course Code: ME222**

Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Mathematically analyze simple flow situations	PO1, PO2, PO4	PSO1
CO2	Formulate and solve one dimensional compressible fluid flow problems	PO1, PO2, PO3, PO4	PSO1
CO3	Able to evaluate the performance of pumps and turbines	PO1, PO2, PO4	PSO1

Programme Name: UG

Course Name: Strength of Materials **Course Code: ME224**

Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Students should be able to recognise various types loads applied on machine components of simple geometry	PO1, PO2	PSO1
CO2	Understand the nature of internal stresses that will develop within the components	PO1, PO2, PO3, PO4	PSO1
CO3	Able to evaluate the strains and deformation that will result due to the elastic stresses developed within the materials for simple types of loading.	PO1, PO2, PO4	PSO1

Programme Name: UG **Course Code:** **ME226**
Course Name: Materials Engineering **A.Y.: 2021-22**
Course Year/Semester: 2/4

CO. No.	CO's	PO's	PSO's
CO1	Identify crystal structures for various materials and understand the defects in such structures	PO1	PSO1
CO2	Understand how to tailor material properties of ferrous and non-ferrous alloys	PO1, PO12	PSO1
CO3	Quantify mechanical integrity and failure in materials	PO1, PO7, PO12	PSO1

Programme Name: UG **Course Code:** **ME228**
Course Name: Instrumentation and control **A.Y.: 2021-22**
Course Year/Semester: 2/4

CO. No.	CO's	PO's	PSO's
CO1	Understand the measurement of various quantities using instruments, Understand accuracy & range	PO1	PSO1
CO2	Techniques for controlling devices automatically	PO1, PO12	PSO1
CO3	Calibrate gauges and measuring instruments	PO1, PO7, PO12	PSO1

Programme Name: UG **Course Code:** **SSC007**
Course Name: Universal Human Values: Understanding harmony **A.Y.: 2021-22**
Course Year/Semester: 2/4

CO. No.	CO's	PO's	PSO's
CO1	To become more aware of themselves, and their surroundings (family, society, nature)	PO7, PO8	PSO3
CO2	More responsible in life, and in handling problems with sustainable solutions.	PO9, PO10, PO12	PSO3
CO3	keeping human relationships and human nature in mind.	PO12	PSO3

Programme Name: UG **Course Code:** **EVS002**
Course Name: Environmental Sciences **A.Y.: 2021-22**
Course Year/Semester: 2/4

CO. No.	CO's	PO's	PSO's
CO1	Measure environmental variables and interpret results.	PO2,PO7	PSO3
CO2	Evaluate local, regional, and global environmental topics related to resource use and management.	PO4, PO12	PSO2,PSO3
CO3	Propose solutions to environmental problems related to resource use and management	PO7, PO12	PSO2,PSO3

Programme Name: UG **Course Code:** **ME321**
Course Name: Heat Transfer **A.Y.: 2021-22**
Course Year/Semester: 3/5

CO. No.	CO's	PO's	PSO's
CO1	Formulate and analyze a heat transfer problem involving any of the three modes of heat transfer	PO1, PO2	PSO1
CO2	Obtain exact solutions for the temperature variation using analytical methods where possible or employ approximate methods or empirical correlations to evaluate the rate of heat transfer	PO1, PO2, PO3, PO4	PSO1
CO3	Design devices such as heat exchangers and also estimate the insulation needed to reduce heat losses where necessary.	PO1, PO2, PO4	PSO1

Programme Name: UG **Course Code:** **ME323**
Course Name: Solid Mechanics **A.Y.: 2021-22**
Course Year/Semester: 3/5

CO. No.	CO's	PO's	PSO's
CO1	Understand the deformation behaviour of solids under different	PO1, PO2	PSO1
CO2	Types of loading and obtain mathematical solutions for plane stress and strain in simple geometries	PO1, PO2, PO3, PO4	PSO1
CO3	Analyze problems related to thick and thin cylinders	PO1, PO2, PO4	PSO1

Programme Name: UG **Course Code:** **ME325**
Course Name: Maufacturing Processes **A.Y.: 2021-22**
Course Year/Semester: 3/5

CO. No.	CO's	PO's	PSO's
CO1	Understand the different conventional methods employed for making different products	PO1	PSO1
CO2	Unconventional manufacturing methods employed for making different products	PO1, PO12	PSO1,PSO2
CO3	Analyse different processes and their applications	PO6, PO7, PO12	PSO1

Programme Name: UG **Course Code:** **ME327**
Course Name: Kinematics and Theory of machines **A.Y.: 2021-22**
Course Year/Semester: 3/5

CO. No.	CO's	PO's	PSO's
CO1	Design various types of linkage mechanisms	PO1, PO2	PSO1
CO2	Obtaining specific motion	PO1, PO2, PO3, PO4	PSO1
CO3	Analyse them for optimal functioning	PO1, PO2, PO4	PSO1

Programme Name: UG **Course Code:** **SSC006**
Course Name: Human Values and professional ethics **A.Y.: 2021-22**
Course Year/Semester: 3/5

CO. No.	CO's	PO's	PSO's
CO1	Learn the moral issues and problems in engineering; find the solution to those problems.	PO7, PO8	PSO3
CO2	Learn the need for professional ethics, codes of ethics and roles, concept of safety,risk assessment.	PO9, PO10, PO12	PSO3
CO3	Gain exposure to Environment Ethics & computer ethics; know their responsibilities and rights	PO7, PO12	PSO3

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Programme Name: UG
Course Name: Constitution of India **Course Code:** **LAW005**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	To understand and explain concepts in constitutional law.	PO6	PSO3
CO2	Identify and discuss in depth the sources of constitution.	PO7, PO9, PO10	PSO3
CO3	To understand how the governance system is working in the country.	PO6, PO12	PSO3
CO4	To understand the relations between Centre and State including legislative, executive and financial	PO6, PO12	PSO3
CO5	Understand the distinction between various constitutional organs and their relations with each other and concept of separation of power	PO12	PSO3

Programme Name: UG
Course Name: Mechanical Engineering Laboratory -I (Thermal) **Course Code:** **ME329**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Measure various properties of fluids	PO1, PO2, PO12	PSO1,PSO2
CO2	Characterize the performance of fluid/thermal machinery	PO4, PO9	PSO1,PSO2
CO3	Measurement of Thermal conductivity of various elements	PO1,PO2	PSO1,PSO2

Programme Name: UG
Course Name: Project-I **Course Code:** **ME331**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Awareness of the tools, materials and testing for specific applications.	PO1, PO2	PSO1,PSO2
CO2	Analyse the problem and solve both experimentally	PO3, PO4, PO5	PSO1,PSO2
CO3	Effective utilization of computer aided software for precision work.	PO5, PO9, PO11, PO12	PSO1,PSO2

Programme Name: UG
Course Name: Manufacturing Technology **Course Code:** **ME320**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Tooling needed for manufacturing, the dimensional accuracy and tolerances of products,	PO1	PSO1
CO2	Assembly of different components	PO1, PO12	PSO1
CO3	Application of optimization methods in manufacturing	PO6, PO7, PO12	PSO1

Programme Name: UG
Course Name: Design of Machine Elements **Course Code:** **ME322**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Students will get an overview of the Design methodologies employed for the design of various machine components.	PO1, PO2	PSO1,PSO2
CO2	Providing Failure Analysis of Design components.	PO1, PO2, PO3, PO4	PSO1,PSO2
CO3	Analysis of transmission and fasteners	PO1, PO2, PO4	PSO1,PSO2

Programme Name: UG
Course Name: Gender, Culture, and Developement **Course Code:** ***SSC008***
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Mapping and analyzing perspectives, issues and debates in the field of development from gender perspectives,	PO6	PSO1,PSO2
CO2	Examining through a gender lens, the inter-linkages between cultural practices, social processes and development approaches,	PO8	PSO1,PSO2
CO3	Understanding feminisms in global and local contexts and mapping feminist interventions in knowledge,	PO8, PO12	PSO1,PSO2

Programme Name: UG
Course Name: Mechanical Engineering Laboratory II - Design **Course Code:** **ME324**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Understand the measurement of mechanical properties of materials	PO1, PO2, PO12	PSO1,PSO2
CO2	Characterize the dynamic behaviour of mechanical systems	PO4, PO9	PSO1,PSO2
CO3	Performing analysis of different components	PO1,PO2	PSO1,PSO2

Programme Name: UG
Course Name: Project-II **Course Code:** **ME326**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Fabricating a product with awareness of the tools, materials and testing for specific applications.	PO1, PO2	PSO1,PSO2
CO2	Analyse the problems and solve both analytically and experimentally	PO3, PO4, PO5	PSO1,PSO2
CO3	Effective utilization of computer aided software (both 2D and 3D) for precision work.	PO5, PO9, PO11, PO12	PSO1,PSO2

Programme Name: UG
Course Name: Automobile Engineering **Course Code: ME328**
Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Undertanding the function of each automobile component	PO1, PO12	PSO1
CO2	Ability to understand the overall vehicle performance.	PO1, PO12	PSO1,PSO2
CO3	Students will understand the application of various conventional and alternative energy sources	PO6, PO7, PO12	PSO1,PSO2

Programme Name: UG
Course Name: Composite Materials **Course Code: ME330**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Overview of the mechanical behaviour of composite materials	PO1, PO12	PSO1
CO2	Gaining knowledge about application of composite materials	PO1, PO12	PSO1
CO3	Understanding of Failure analysis of laminated plates	PO3, PO6, PO12	PSO1

Programme Name: UG
Course Name: Internal Combustion Engines **Course Code: ME332**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Understanding of basics of IC engines	PO1, PO12	PSO1
CO2	Understanding of different parameters influence the operational characteristics of IC Engines	PO1, PO12	PSO1
CO3	Understanding of Measurement and Testing procesures for IC Engine	PO2, PO6, PO12	PSO1

Programme Name: UG
Course Name: Energy Conservation and Management **Course Code: ME334**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Performing energy auditing for the energy consumption of industries.	PO2 ,PO7	PSO1,PSO2
CO2	Quantify the energy conservation opportunities in different thermal and electrical systems	PO2, PO7, PO12	PSO1,PSO2
CO3	Understand the need for energy audit and examine the economic evaluation of energy conservation solutions adopted	PO7, PO12	PSO1,PSO2,PSO3

Programme Name: UG
Course Name: Process Planning and Cost Estimation **Course Code: ME336**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Utilize the concepts of process planning and cost estimation for various products	PO1, PO11, PO2	PSO1,PSO3
CO2	Cost estimation of various products	PO2, PO11, PO12	PSO1,PSO2,PSO3
CO3	Calculation fo machining time	PO2,PO3, PO11, PO12	PSO1,PSO2,PSO3

Programme Name: UG
Course Name: Mechanical Vibrations **Course Code: ME338**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Understand the causes and effects of vibration in mechanical systems.	PO1, PO2	PSO1
CO2	Develop schematic models for physical systems and formulate governing equations of motion.	PO1, PO2, PO3, PO4	PSO1,PSO2
CO3	Understand the role of damping, stiffness and inertia in mechanical systems	PO1, PO2, PO4	PSO1,PSO2

Programme Name: UG
Course Name: Industrial Automation and Robotics **Course Code: ME421**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Enumerate principles, strategies and advantages of industrial automation	PO1, PO2	PSO1,PSO3
CO2	Differentiate types of robots and robot grippers.	PO1, PO3	PSO1,PSO3
CO3	Understand the basic components of robots.	PO1, PO12	PSO1,PSO3

Programme Name: UG
Course Name: Mechanical Engineering Laboratory III - Manufacturing **Course Code: ME423**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	perform some advanced manufacturing operations	PO1, PO2, PO12	PSO1,PSO2
CO2	Able to evaluate the accuracy & tolerance of components produced.	PO4, PO9	PSO1,PSO2
CO3	Understanding the surface measurements and bore diameter	PO1,PO2	PSO1

Programme Name: UG
Course Name: Project-III **Course Code: ME425**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Awareness of the tools, materials and testing for specific applications.	PO1, PO2	PSO1,PSO2,PSO3
CO2	Analyse the problem and solve both analytically and experimentally	PO3, PO4, PO5	PSO1,PSO2,PSO3
CO3	Implementing knowledge of CAD/CAM and analysis software.	PO5, PO9, PO11, PO12	PSO2
CO4	Organizing Time Management of time, Material Material and Manpower Management.	PO11, PO12	PSO2, PSO3

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Programme Name: UG
Course Name: Refrigeration and Air Conditioning **Course Code: ME427**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Understand the principles and applications of refrigeration systems.	PO1, PO2	PSO1
CO2	Understand vapour compression refrigeration system and identify methods for performance improvement.	PO1, PO2, PO3, PO4	PSO1
CO3	Analyze air-conditioning processes using the principles of psychometric.	PO1, PO2, PO4	PSO1,PSO2

Programme Name: UG
Course Name: Gas Dynamics and Jet Propulsion **Course Code: ME429**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Apply gas dynamics principles to jet	PO1, PO2, PO3, PO4	PSO1
CO2	Analyse the space propulsion systems	PO4, PO5	PSO1,PSO2
CO3	Apply governing equations to compressible flow through constant area duct with heat transfer.	PO1, PO2, PO3, PO5, PO12	PSO1

Programme Name: UG
Course Name: Computational Fluid dynamics **Course Code: ME431**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Develop mathematical models for flow phenomena.	PO1, PO2	PSO1
CO2	Analyze mathematical and computational methods for fluid flow and heat transfer simulations.	PO1, PO2, PO3, PO4	PSO1,PSO2
CO3	Solve computational problems related to fluid flows and heat transfer	PO1, PO2, PO4	PSO1,PSO2

Programme Name: UG
Course Name: Advanced Manufacturing Processes **Course Code: ME433**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Understand abrasive and electrical discharge machining processes	PO1, PO2	PSO1
CO2	Understand forming process for thin sections	PO1, PO2, PO3, PO4	PSO1,PSO2
CO3	Understand the principles and applications of friction stir welding processes	PO1, PO2, PO4	PSO1,PSO2

Programme Name: UG
Course Name: Computer Aided Design **Course Code: ME435**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Effectively use computer and CAD software for modelling mechanical components	PO1, PO2, PO5	PSO1,PSO2
CO2	Construct the drawings and give proper dimensioning	PO1, PO2, PO3, PO4, PO5	PSO2
CO3	Understand the CAD standards	PO1, PO2, PO4, PO5, PO12	PSO1,PSO2

Programme Name: UG
Course Name: Microprocessors in Automation **Course Code: ME437**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Use of microprocessors for automation.	PO1, PO2, PO5	PSO1,PSO2,PSO3
CO2	Understand the analog to Digital Coverter	PO1, PO2, PO3, PO5	PSO1
CO3	Basic understanding of signals	PO1, PO3, PO12	PSO1

Programme Name: UG
Course Name: Project IV **Course Code: ME432**
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Awareness of the tools, materials and testing for specific applications.	PO1, PO2, PO12	PSO1,PSO2,PSO3
CO2	Analyse the problem and solve both analytically and experimentally	PO1, PO2, PO9	PSO1,PSO2,PSO3
CO3	Implementing knowledge of CAD/CAM and analysis software.	PO1, PO2, PO5, PO12	PSO2
CO4	Organizing Time Management of time, Material and Manpower Management.	PO2, PO5, PO11, PO12	PSO2,PSO3

Programme Name: UG
Course Name: Non Destructive Evaluation and Testing **Course Code: ME420**
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	List and define different defects that occur in welding shown through Non-Destructive Examination/Destructive Testing	PO1, PO2, PO5	PSO1
CO2	Identify the types of equipment used for each Non-Destructive and Destructive Examination.	PO1, PO2, PO3, PO5	PSO1
CO3	Understanding specific Code, Standard, or Specification related to each testing method.	PO1, PO3, PO5, PO12	PSO1,PSO3

Programme Name: UG
Course Name: Condition Monitoring of Rotating Machines **Course Code: ME422**
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	PO's	PSO's
CO1	Dynamic masses and their application.	PO1, PO2	PSO1
CO2	Understand Different signal processing methods	PO1, PO2, PO3, PO4	PSO1
CO3	Monitoring condition of mechanical components	PO1, PO2, PO3, PO4	PSO1

Programme Name: UG
Course Name: Mechatronic Systems
Course Year/Semester: 4/8

Course Code: ME424
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Overview of mechatronics applications	PO1, PO2	PSO1
CO2	Use of micro-sensors and microprocessors.	PO1, PO2, PO3, PO5	PSO1
CO3	Capable to develop simple control systems and study the system response.	PO1, PO2, PO4	PSO1

Programme Name: UG
Course Name: Finite Element Analysis
Course Year/Semester: 4/8

Course Code: ME426
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	formulation of Finite element methods	PO1, PO2	PSO1
CO2	Application to simple structural and thermal problems	PO1, PO2, PO3, PO4	PSO1,PSO2
CO3	Understand global, local, and natural coordinates	PO1, PO2, PO4	PSO1

Programme Name: UG
Course Name: Power Plant Engineering
Course Year/Semester: 4/8

Course Code: ME428
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Understand the principles of operation for different power plants	PO1, PO2	PSO1
CO2	Understanding the Economics of thermal power plants	PO1, PO2, PO3, PO11	PSO1
CO3	Determine performance of power plants based on load variations.	PO1, PO2, PO4	PSO1,PSO2

Programme Name: UG
Course Name: Principles of Management
Course Year/Semester: 4/8

Course Code: ME430
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Understanding of management functions in an organization	PO4, PO10	PSO3
CO2	Understanding Organization structure and planning	PO09, PO10, PO11	PSO3
CO3	Problems related to budgets and management	PO10, PO11, PO12	PSO3

Programme Name: UG
Course Name: Total Quality Mangement
Course Year/Semester: 3/5

Course Code: ME371
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Able to use the tools and techniques of TQM in manufacturing and service sectors.	PO4, PO05, PO10	PSO2,PSO3
CO2	Identify the key aspects of the quality improvement cycle and to select and use appropriate tools and techniques for controlling, improving and measuring quality.	PO02, PO10, PO11	PSO2,PSO3
CO3	Critically analyse the strategic issues in quality management, including current issues and developments, and to devise and evaluate quality implementation plans	PO10, PO11, PO12	PSO3

Programme Name: UG
Course Name: Environmental Pollution and Abatement
Course Year/Semester: 3/6

Course Code: ME372
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Quantify and analyze the pollution load.	PO3, PO6, PO7	PSO2,PSO3
CO2	Analyze/design of suitable treatment for wastewater	PO7, PO9	PSO2,PSO3
CO3	Model the atmospheric dispersion of air pollutants	PO5, PO7, PO12	PSO2,PSO3

Programme Name: UG
Course Name: Industrial Engineering Management
Course Year/Semester: 3/5

Course Code: ME373
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Student shall be able to describe basic concepts and theories within the area of industrial management	PO1, PO2	PSO1,PSO3
CO2	Student shall be able to present organization analysis.	PO2, PO4, PO5	PSO3
CO3	Student shall also be able to use simple project planning technique	PO5, PO11, PO12	PSO2,PSO3

Programme Name: UG
Course Name: Management Information System
Course Year/Semester: 3/6

Course Code: ME374
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Relate the basic concepts and technologies used in the field of management information systems.	PO1, PO3	PSO2,PSO3
CO2	Compare the processes of developing and implementing information systems.	PO3	PSO2,PSO3
CO3	Outline the role of the ethical, social, and security issues of information systems.	PO7, PO8, PO10, PO12	PSO2,PSO3

Programme Name: UG
Course Name: Material Management
Course Year/Semester: 3/5

Course Code: ME375
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Develop an ability to perform the role of a materials manager in an organization.	PO2, PO1	PSO1,PSO3
CO2	Manage the activities of materials manager like purchasing, inventory analysis, storage etc.in a scientific manner.	PO5, PO11	PSO2,PSO3
CO3	Shall be able to improve due date performance through use of MRP techniques within capacity constraints	PO3, PO11, PO12	PSO2,PSO3

Programme Name: UG
Course Name: Maintenance and Reliability Engineering
Course Year/Semester: 3/6

Course Code: ME376
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Understand the maintenance function and its objectives and know how to prepare report about the maintenance function.	PO1, PO3	PSO3
CO2	Gain the necessary knowledge about the types of maintenance and know how to use them when design maintenance systems.	PO2, PO5	PSO3
CO3	Gain the necessary knowledge about failure distributions and apply failure analysis techniques	PO5, PO12	PSO3

Programme Name: UG
Course Name: Operations Management
Course Year/Semester: 4/7

Course Code: ME471
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Apply knowledge of fundamental concepts of operations management.	PO1, PO3	PSO3
CO2	Apply knowledge of approaches to operational performance improvement.	PO4, PO5	PSO3
CO3	Apply decision-support tools to business decision making.	PO5, PO12	PSO2,PSO3

Programme Name: UG
Course Name: Industrial Safety and Environment
Course Year/Semester: 4/8

Course Code: ME472
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Enumerate the importance of industrial safety.	PO2, PO7	PSO3
CO2	Indicate unsafe acts and conditions causing accidents.	PO7, PO8	PSO3
CO3	Outline accident investigation and analysis	PO5, PO4, PO12	PSO3

Programme Name: UG
Course Name: Production Planning and Control
Course Year/Semester: 4/7

Course Code: ME473
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Understand the role Production Planning and control activities in Manufacturing and Services.	PO2, PO4, PO7	PSO1,PSO3
CO2	Understand and perform various Inventory Management techniques and apply in real manufacturing scenario.	PO7, PO8, PO9	PSO2,PSO3
CO3	Demonstrate various Scheduling procedures	PO11, PO10, PO12	PSO2,PSO3

Programme Name: UG
Course Name: Group Technology and Flexible Manufacturing systems
Course Year/Semester: 4/8

Course Code: ME474
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Apply the concepts of PPC and GT to the development of FMS.	PO2, PO3	PSO2
CO2	Discuss the planning and scheduling methods used in manufacturing systems.	PO4, PO5	PSO2,PSO3
CO3	Identify various workstations, system support equipment.	PO5, PO9	PSO2,PSO3
CO4	Identify hardware and software components of FMS.	PO5, PO12	PSO3

Programme Name: UG
Course Name: Smart Materials and Devices
Course Year/Semester: 4/7

Course Code: ME475
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	Understand the behavior and applicability of various smart materials.	PO2, PO4	PSO1,PSO2
CO2	Design and conduct experiments, analyze and interpret data related to smart materials and devices.	PO4, PO11	PSO1,PSO2
CO3	Design a system, component, or process based on smart materials to meet desired needs.	PO3, PO11, PO12	PSO1,PSO2

Programme Name: UG
Course Name: Work Study and Ergonomics Engineering
Course Year/Semester: 4/8

Course Code: ME476
A.Y.: 2021-22

CO. No.	CO's	PO's	PSO's
CO1	develop a case for productivity improvement in any manufacturing or service industry scenario.	PO2, PO3, PO4	PSO2,PSO3
CO2	independently conduct a method study in any organization with the objective of improving a process, material movement system or design of a work place	PO5, PO11	PSO2,PSO3
CO3	develop time standards for operations, identify production bottlenecks and improvise operations	PO3, PO5, PO11, PO12	PSO2,PSO3

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Distt. Jalandhar

CO-PO Matrix

NAME: MECHANICAL ENGINEERING

Programme Name: UG

Course Name: Workshop/Manufacturing Practices **Course Code:** ME105

A.Y.: 2021-22

Course Year/Semester: 1/1

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understanding different manufacturing techniques and their relative advantages/ disadvantages with respect to different applications with selection of a suitable technique for meeting a specific fabrication need					3				1			2
CO2	Acquire a minimum practical skill with respect to the different manufacturing methods and develop the confidence to design & fabricate small components for their project work.					2				1			3
CO3	Introduction to different manufacturing methods in different fields of engineering	3											2
CO4	Practical exposure to different fabrication techniques and Creation of simple components using different materials.					1				3			2
	Average	3				2				1.67			2.25

Programme Name: UG

Course Name: Engineering Graphics & Design **Course Code:** ME101

A.Y.: 2021-22

Course Year/Semester: 1/2

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Introduction to engineering design and its place in society and engineering communication	3									3		
CO2	Exposure to the visual aspects and engineering graphics of engineering design standard	2				1					2		
CO3	Exposure to solid modelling	1				3				1			2
CO4	Exposure to computer-aided geometric design and creating working drawings					3							
	Average	2				2.33				1	2.5		2

Programme Name: UG

Course Name: Engineering Mechanics **Course Code:** ME221

A.Y.: 2021-22

Course Year/Semester: 2/3

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Determine resultants in plane force systems	2	3										
CO2	Identify and quantify all forces associated with a static framework	1	2		2								
CO3	Draw Shear Force Diagram and Bending Moment Diagram in various kinds of beams subjected to different kinds of loads	2	2		3								
	Average	1.67	2.33		2.5								

Programme Name: UG

Course Name: Thermodynamics **Course Code:** ME223

A.Y.: 2021-22

Course Year/Semester: 2/3

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Students can evaluate changes in thermodynamic properties of substances	1	2										
CO2	The students will be able to evaluate the performance of energy conversion devices	1	2	3	3								
CO3	The students will be able to differentiate between high grade and low-grade energies	3	2		3								
	Average	1.67	2	3	3								

Programme Name: UG

Course Name: Machine Drawing **Course Code:** ME225

A.Y.: 2021-22

Course Year/Semester: 2/3

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Draw the machine elements including keys, couplings, cotters, riveted, bolted, and welded joints	3									3		2
CO2	Understand the representation of materials used in machine drawing.	2									2		
CO3	Construct an assembly drawing using part drawings of machine components	2		3									
	Average	2.33		3							2.5		2

Programme Name: UG

Course Name: Applied Thermodynamics **Course Code:** ME220

A.Y.: 2021-22

Course Year/Semester: 2/4

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understanding of various practical power cycles and heat pump cycles.	2	3										
CO2	Analyze energy conversion in various thermal devices such as combustors, air coolers, nozzles, diffusers, steam turbines and reciprocating compressors	2	2	2	3								
CO3	Understand phenomena occurring in high speed compressible flows	3	2		2								
	Average	2.33	2.33	2	2.5								

Programme Name: UG

Course Name: Fluid Mechanics and Fluid machines **Course Code:** ME222

A.Y.: 2021-22

Course Year/Semester: 2/4

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Mathematically analyze simple flow situations	1	2		3								
CO2	Formulate and solve one dimensional compressible fluid flow problems	1	2	3	3								
CO3	Able to evaluate the performance of pumps and turbines	1	2		3								
	Average	1	2	3	3								

Programme Name: UG

Course Name: Strength of Materials **Course Code:** ME224

A.Y.: 2021-22

Course Year/Semester: 2/4

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	recognise various types loads applied on machine components of simple geometry	1	2										
CO2	Understand the nature of internal stresses that will develop within the components	1	2	2	3								
CO3	Able to evaluate the strains and deformation that will result due to the elastic stresses developed within the materials for simple types of loading	1	2		3								
	Average	1	2	2	3								

Programme Name: UG
Course Name: **Materials Engineering** **Course Code:** **ME226**
Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Identify crystal structures for various materials and understand the defects in such structures	3											
CO2	Understand how to tailor material properties of ferrous and non-ferrous alloys	2											2
CO3	Quantify mechanical integrity and failure in materials	2						3					2
	Average	2.33						3					2

Programme Name: UG
Course Name: **Instrumentation and control** **Course Code:** **ME228**
Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	3											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the measurement of various quantities using instruments, Understand accuracy & range	2											
CO2	Techniques for controlling devices automatically	2											2
CO3	Calibrate gauges and measuring instruments	2						3					2
	Average	2						3					2

Programme Name: UG
Course Name: **Universal Human Values: Understanding harmony** **Course Code:** **SSC007**
Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	To become more aware of themselves, and their surroundings (family, society, nature)							2	3				
CO2	CO2: More responsible in life, and in handling problems with sustainable solutions.									2	2		1
CO3	keeping human relationships and human nature in mind.												2
	Average							2	3	2	2		1.5

Programme Name: UG
Course Name: **Environmental Sciences** **Course Code:** **EVS002**
Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Measure environmental variables and interpret results.		2					3					
CO2	Evaluate local, regional, and global environmental topics related to resource use and management.				2								1
CO3	Propose solutions to environmental problems related to resource use and management							3					3
	Average		2		2			3					2

Programme Name: UG
Course Name: **Heat Transfer** **Course Code:** **ME321**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Formulate and analyze a heat transfer problem involving any of the three modes of heat transfer	2	3										
CO2	Obtain exact solutions for the temperature variation using analytical methods where possible or employ approximate methods or empirical correlations to evaluate the rate of heat transfer	1	3	2	3								
CO3	Design devices such as heat exchangers and also estimate the insulation needed to reduce heat losses where necessary.	2	2		3								
	Average	1.67	2.67	2	3								

Programme Name: UG
Course Name: **Solid Mechanics** **Course Code:** **ME323**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the deformation behaviour of solids under different conditions	2	2										
CO2	Types of loading and obtain mathematical solutions for plane stress and strain in simple geometries	1	3	2	2								
CO3	Analyze problems related to thick and thin cylinders	1	2		3								
	Average	1.33	2.33	2	2.5								

Programme Name: UG
Course Name: **Maufacturing Processes** **Course Code:** **ME325**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the different conventional methods employed for making different products	3											
CO2	Unconventional manufacturing methods employed for making different products	3											3
CO3	Analyse different processes and their applications						2	1					2
	Average	3					2	1					2.5

Programme Name: UG
Course Name: **Kinematics and Theory of machines** **Course Code:** **ME327**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Design various types of linkage mechanisms	1	2										
CO2	Obtaining specific motion	2	2	3	1								
CO3	Analyse them for optimal functioning	1	2		3								
	Average	1.33	2	3	2								

Programme Name: UG
Course Name: Human Values and professional ethics **Course Code: SSC006**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Learn the moral issues and problems in engineering; find the solution to those problems.							3	2				
CO2	Learn the need for professional ethics, codes of ethics and roles, concept of safety,risk assessment.									3	2		2
CO3	Gain exposure to Environment Ethics & computer ethics; know their responsibilities and rights							3					2
	Average							3	2	3	2		2

Programme Name: UG
Course Name: Constitution of India **Course Code: LAW005**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	To understand and explain concepts in constitutional law.						#####						
CO2	Identify and discuss in depth the sources of constitution.							3		2	2		1
CO3	To understand how the governance system is working in the country.						3						2
CO4	To understand the relations between Centre and State including legislative, executive and financial						3						2
CO5	Understand the distinction between various constitutional organs and their relations with each other and concept of separation of power												
	Average						3	3		2	2		1.67

Programme Name: UG
Course Name: Mechanical Engineering Laboratory -I (Thermal) **Course Code: ME329**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Measure various properties of fluids	2	3										2
CO2	Characterize the performance of fluid/thermal machinery				2					3			
CO3	Measurement of Thermal conductivity of various elements	1	2										
	Average	1.5	2.5		2					3			2

Programme Name: UG
Course Name: Project-I **Course Code: ME331**
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Awareness of the tools, materials and testing for specific applications.	1	2										
CO2	Analyse the problem and solve both experimentally			3	2	3				3		2	1
CO3	Effective utilization of computer aided software for precision work.					2							
	Average	1	2	3	2	2.5				3		2	1

Programme Name: UG
Course Name: Manufacturing Technology **Course Code: ME320**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Tooling needed for manufacturing, the dimensional accuracy and tolerances of products,	1											2
CO2	Assembly of different components	2											2
CO3	Application of optimization methods in manufacturing						1	2					
	Average	1.5					1	2					2

Programme Name: UG
Course Name: Design of Machine Elements **Course Code: ME322**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Students will get an overview of the Design methodologies employed for the design of various machine components.	1	2										
CO2	Providing Failure Analysis of Design components.	1	2	2	3								
CO3	Analysis of transmission and fasteners	1	2		3								
	Average	1	2	2	3								

Programme Name: UG
Course Name: Gender, Culture, and Developement **Course Code: SSC008**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Mapping and analyzing perspectives, issues and debates in the field of development from gender perspectives,						2						
CO2	Examining through a gender lens, the inter-linkages between cultural practices, social processes and development approaches,								3				
CO3	Understanding feminisms in global and local contexts and mapping feminist interventions in knowledge,								3				1
	Average						2		3				1

Programme Name: UG
Course Name: Mechanical Engineering Laboratory II - Design **Course Code: ME324**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the measurement of mechanical properties of materials	1	2										2
CO2	Characterize the dynamic behaviour of mechanical systems				2					3			
CO3	Performing analysis of different components	1	2										
	Average	1	2		2					3			2

Programme Name: UG
Course Name: Project-II **Course Code: ME326**
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Fabricating a product with awareness of the tools, materials and testing for specific applications.	2	1										
CO2	Analyse the problems and solve both analytically and experimentally			2	2	3							
CO3	Effective utilization of computer aided software (both 2D and 3D) for precision work.					2				3		2	3
	Average	2	1	2	2	2.5				3		2	3

Programme Name: UG **Course Code: ME328**
Course Name: Automobile Engineering **A.Y.: 2021-22**
Course Year/Semester: 3/6

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Undertanding the function of each automobile component	3											3
CO2	Ability to understand the overall vehicle performance.	3											3
CO3	Students will understand the application of various conventional and alternative energy sources						2	3					2
	Average	3					2	3					2.67

Programme Name: UG **Course Code: ME330**
Course Name: Composite Materials **A.Y.: 2021-22**
Course Year/Semester: 3/6

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Overview of the mechanical behaviour of composite materials	3											2
CO2	Gaining knowledge about application of composite materials	2											2
CO3	Understanding of Failure analysis of laminated plates			3			2						1
	Average	2.5		3			2						1.67

Programme Name: UG **Course Code: ME332**
Course Name: Internal Combustion Engines **A.Y.: 2021-22**
Course Year/Semester: 3/6

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understanding of basics of IC engines	3											2
CO2	Understanding of different parameters influence the operational characteristics of IC Engines	3											2
CO3	Understanding of Measurement and Testing procesures for IC Engine		3				2						1
	Average	3	3				2						1.67

Programme Name: UG **Course Code: ME334**
Course Name: Energy Conservation and Management **A.Y.: 2021-22**
Course Year/Semester: 3/6

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Performing energy auditing for the energy consumption of industries.		2					3					1
CO2	Quantify the energy conservation opportunities in different thermal and electrical systems		2					3					2
CO3	Understand the need for energy audit and examine the economic evaluation of energy conservation solutions adopted							3					2
	Average		2					3					1.5

Programme Name: UG **Course Code: ME336**
Course Name: Process Planning and Cost Estimation **A.Y.: 2021-22**
Course Year/Semester: 3/6

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Utilize the concepts of process planning and cost estimation for various products	1	2									3	
CO2	Cost estimation of various products		2									3	2
CO3	Calculation fo machining time		1	1								3	2
	Average	1	1.67	1								3	2

Programme Name: UG **Course Code: ME338**
Course Name: Mechanical Vibrations **A.Y.: 2021-22**
Course Year/Semester: 3/6

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the causes and effects of vibration in mechanical systems.	1	2										
CO2	Develop schematic models for physical systems and formulate governing equations of motion.	1	2	3	2								
CO3	Understand the role of damping, stiffness and inertia in mechanical systems	1	2		3								
	Average	1	2	3	2.5								

Programme Name: UG **Course Code: ME421**
Course Name: Industrial Automation and Robotics **A.Y.: 2021-22**
Course Year/Semester: 4/7

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Enumerate principles, strategies and advantages of industrial automation	3	2										
CO2	Differentiate types of robots and robot grippers.	3		2									2
CO3	Understand the basic components of robots.	3											2
	Average	3	2	2									2

Programme Name: UG **Course Code: ME423**
Course Name: Mechanical Engineering Laboratory III - Manufacturing **A.Y.: 2021-22**
Course Year/Semester: 4/7

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	perform some advanced manufacturing operations	2	2										3
CO2	Able to evaluate the accuracy & tolerance of components produced.				2					2			
CO3	Understanding the surface measurements and bore diameter	3	2										
	Average	2.5	2		2					2			3

Programme Name: UG **Course Code: ME425**
Course Name: Project-III **A.Y.: 2021-22**
Course Year/Semester: 4/7

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Awareness of the tools, materials and testing for specific applications.	3	2										
CO2	Analyse the problem and solve both analytically and experimentally.			2	2	3				2		2	3
CO3	Implementing knowledge of CAD/CAM and analysis software.					3						2	1
CO4	Organizing Time Management of time, Material Material and Manpower Management.												
	Average			2	2	3				2		2	2

Programme Name: UG
Course Name: Refrigeration and Air Conditioning **Course Code: ME427**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the principles and applications of refrigeration systems.	2	3										
CO2	Understand vapour compression refrigeration system and identify methods for performance imp		3	2	2	2							
CO3	Analyze air-conditioning processes using the principles of psychometric.		1	2		3							
	Average	2	2.33	2	2.5								

Programme Name: UG
Course Name: Gas Dynamics and Jet Propulsion **Course Code: ME429**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Apply gas dynamics principles to jet and	1	3	2	2								
CO2	Analyse the space propulsion systems				3	2							
CO3	Apply governing equations to compressible flow through constant area duct with heat transfer.	1	2	3		2							
	Average	1	2.5	2.5	2.5	2							

Programme Name: UG
Course Name: Computational Fluid dynamics **Course Code: ME431**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Develop mathematical models for flow phenomena.	1	2										
CO2	Analyze mathematical and computational methods for fluid flow and heat transfer simulations.		2	3	1	2							
CO3	Solve computational problems related to fluid flows and heat transfer		1	2		3							
	Average	1.33	2.33	1	2.5								

Programme Name: UG
Course Name: Advanced Manufacturing Processes **Course Code: ME433**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand abrasive and electrical discharge machining processes	3	2										
CO2	Understand forming process for thin sections	3	2	1	1								
CO3	Understand the principles and applications of friction stir welding processes	3	1		1								
	Average	3	1.67	1	1								

Programme Name: UG
Course Name: Computer Aided Design **Course Code: ME435**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Effectively use computer and CAD software for modelling mechanical components	2	1			3							
CO2	Construct the drawings and give proper dimensioning	2	1	2	1	3							
CO3	Understand the CAD standards	2	1		1	3							2
	Average	2	1	2	1	3							2

Programme Name: UG
Course Name: Microprocessors in Automation **Course Code: ME437**
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Use of microprocessors for automation.	1	2			2							
CO2	Understand the analog to Digital Coverter	3	2	1		1							
CO3	Basic understanding of signals	3		2									2
	Average	2.33	2	1.5		1.5							2

Programme Name: UG
Course Name: Project IV **Course Code: ME432**
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Awareness of the tools, materials and testing for specific applications.	3	2										1
CO2	Analyse the problem and solve both analytically and experimentally	3	2							2			
CO3	Implementing knowledge of CAD/CAM and analysis software.	2	1			3							2
CO4	Organizing Time Management of time, Material and Manpower Management.		2			1						3	2
	Average	2.5	1.67			2				2		3	2

Programme Name: UG
Course Name: Non Destructive Evaluation and Testing **Course Code: ME420**
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	List and define different defects that occur in welding shown through Non-Destructive Examination/Destructive Testing	3	2			1							
CO2	Identify the types of equipment used for each Non-Destructive and Destructive Examination.	3	2	1		1							
CO3	Understanding specific Code, Standard, or Specification related to each testing method.		3		1		2						2
	Average	3	2	1		1.33							2

Programme Name: UG
Course Name: Condition Monitoring of Rotating Machines **Course Code: ME422**
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Dynamic masses and their application.	3	2										
CO2	Understand Different signal processing methods	3	2	1	1								
CO3	Monitoring condition of mechanical components		1	2	2	3							
	Average	2.33	2	1.5	2								

Programme Name: UG
Course Name: **Mechatronic Systems**
Course Year/Semester: 4/8
Course Code: **ME424**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Overview of mechatronics applications	1	2										
CO2	Use of micro-sensors and microprocessors.	2	3	2		1							
CO3	Capable to develop simple control systems and study the system response.	2	3		1								
	Average	1.67	2.67	2	1	1							

Programme Name: UG
Course Name: **Finite Element Analysis**
Course Year/Semester: 4/8
Course Code: **ME426**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Formulation of Finite element methods	2	3										
CO2	Application to simple structural and thermal problems		1	2	3	3							
CO3	Understand global, local, and natural coordinates	3	2		1								
	Average	2	2.33	3	2								

Programme Name: UG
Course Name: **Power Plant Engineering**
Course Year/Semester: 4/8
Course Code: **ME428**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the principles of operation for different power plants	3	2									2	
CO2	Understanding the Economics of thermal power plants		3	2	2								
CO3	Determine performance of power plants based on load variations.	1	2		3							2	
	Average	2.33	2	2	3								

Programme Name: UG
Course Name: **Principles of Management**
Course Year/Semester: 4/8
Course Code: **ME430**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understanding of management functions in an organization				2						3		
CO2	Understanding Organization structure and planning									2	3	2	
CO3	Problems related to budgets and management										2	3	2
	Average				2					2	2.67	2.5	2

Programme Name: UG
Course Name: **Total Quality Mangement**
Course Year/Semester: 3/5
Course Code: **ME371**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Able to use the tools and techniques of TQM in manufacturing and service sectors.				1	2					3		
CO2	Identify the key aspects of the quality improvement cycle and to select and use appropriate tools and techniques for controlling, improving and measuring quality.		2								2	2	
CO3	Critically analyse the strategic issues in quality management, including current issues and developments, and to devise and evaluate quality implementation plans										1	2	2
	Average		2		1	2					2	2	2

Programme Name: UG
Course Name: **Environmental Pollution and Abatement**
Course Year/Semester: 3/6
Course Code: **ME372**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Quantify and analyze the pollution load.			2			2	3		1			
CO2	Analyze/design of suitable treatment for wastewater					2		3					2
CO3	Model the atmospheric dispersion of air pollutants			2		2	2	3		1			2
	Average												

Programme Name: UG
Course Name: **Industrial Engineering Management**
Course Year/Semester: 3/5
Course Code: **ME373**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Describe basic concepts and theories within the area of industrial management	1	2										
CO2	Student shall be able to present organization analysis.		2		3	2						2	1
CO3	Student shall also be able to use simple project planning technique					2						2	1
	Average	1	2		3	2							

Programme Name: UG
Course Name: **Management Information System**
Course Year/Semester: 3/6
Course Code: **ME374**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Relate the basic concepts and technologies used in the field of management information systems.	2		1									
CO2	Compare the processes of developing and implementing information systems.			2				2	3		2		2
CO3	Outline the role of the ethical, social, and security issues of information systems.												
	Average	2		1.5				2	3		2		2

Programme Name: UG
Course Name: **Material Management**
Course Year/Semester: 3/5
Course Code: **ME375**
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Develop an ability to perform the role of a materials manager in an organization.	3	2										
CO2	Manage the activities of materials manager like purchasing, inventory analysis, storage etc.in a scientific manner.					2						3	
CO3	Shall be able to improve due date performance through use of MRP techniques within capacity constraints			1								2	1
	Average	3	2	1		2						2.5	1

Programme Name: UG

Course Name: Maintenance and Reliability Engineering
Course Code: ME376
Course Year/Semester: 3/6
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the maintenance function and its objectives and know how to prepare report about the maintenance function.	1		2									
CO2	Gain the necessary knowledge about the types of maintenance and know how to use them when design maintenance systems.		1			2							
CO3	Gain the necessary knowledge about failure distributions and apply failure analysis techniques					2							1
	Average	1	1	2		2							1

Programme Name: UG
Course Name: Operations Management
Course Code: ME471
Course Year/Semester: 4/7
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Apply knowledge of fundamental concepts of operations management.	1		2									
CO2	Apply knowledge of approaches to operational performance improvement.				2	3							2
CO3	Apply decision-support tools to business decision making.					2							2
	Average	1		2	2	2.5							

Programme Name: UG
Course Name: Industrial Safety and Environment
Course Code: ME472
Course Year/Semester: 4/8
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Enumerate the importance of industrial safety.		2					3					
CO2	Indicate unsafe acts and conditions causing accidents.				2	2		2	2				1
CO3	Outline accident investigation and analysis		2		2	2		2.5	2				1
	Average												

Programme Name: UG
Course Name: Production Planning and Control
Course Code: ME473
Course Year/Semester: 4/7
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the role Production Planning and control activities in Manufacturing and Services.		3		2			1					
CO2	Understand and perform various Inventory Management techniques and apply in real manufacturing scenario.							2	1	2			
CO3	Demonstrate various Scheduling procedures										2	3	1
	Average		3		2			1.5	1	2	2	3	1

Programme Name: UG
Course Name: Group Technology and Flexible Manufacturing systems
Course Code: ME474
Course Year/Semester: 4/8
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Apply the concepts of PPC and GT to the development of FMS.		2	1									
CO2	Discuss the planning and scheduling methods used in manufacturing systems.				2	2							
CO3	Identify various workstations, system support equipment.					2				1			
CO4	Identify hardware and software components of FMS.					3							1
	Average				2	2.33				1			1

Programme Name: UG
Course Name: Smart Materials and Devices
Course Code: ME475
Course Year/Semester: 4/7
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Understand the behavior and applicability of various smart materials.		2		1								
CO2	Design and conduct experiments, analyze and interpret data related to smart materials and devices.				3							2	
CO3	Design a system, component, or process based on smart materials to meet desired needs.			3								2	1
	Average		2	3	2							2	1

Programme Name: UG
Course Name: Work Study and Ergonomics Engineering
Course Code: ME476
Course Year/Semester: 4/8
A.Y.: 2021-22

CO. No.	CO's	Programme Outcomes (PO's)											
		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	develop a case for productivity improvement in any manufacturing or service industry scenario.		2	3	1								
CO2	independently conduct a method study in any organization with the objective of improving a process, material movement system or design of a work place					2						1	
CO3	develop time standards for operations, identify production bottlenecks and improvise operations			3		1						1	1
	Average		2	3	1	1.5						1	1

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CO-PSO Matrix

NAME: MECHANICAL ENGINEERING

Programme Name: UG

Course Name: Workshop/Manufacturing Practices **Course Code: ME105**

Course Year/Semester: 1/1 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understanding different manufacturing techniques and their relative advantages/ disadvantages with respect to different applications with selection of a suitable technique for meeting a specific fabrication need	2		
CO2	Acquire a minimum practical skill with respect to the different manufacturing methods and develop the confidence to design & fabricate small components for their project work.	1	2	2
CO3	Introduction to different manufacturing methods in different fields of engineering	2	1	
CO4	Practical exposure to different fabrication techniques and Creation of simple components using different materials.	1	2	1
	Average	1.5	1.67	1.5

Course Name: Engineering Graphics & Design **Course Code: ME101**

Course Year/Semester: 1/2 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Introduction to engineering design and its place in society and engineering communication	2		
CO2	Exposure to the visual aspects and engineering graphics of engineering design standard	2	1	
CO3	Exposure to solid modelling	2	1	
CO4	Exposure to computer-aided geometric design and creating working drawings	2	2	
	Average	2	1.33	

Course Name: Engineering Mechanics **Course Code: ME221**

Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Determine resultants in plane force systems	3		
CO2	Identify and quantify all forces associated with a static framework	3		
CO3	Draw Shear Force Diagram and Bending Moment Diagram in various kinds of beams subjected to different kinds of loads	3		
	Average	3		

Course Name: Thermodynamics **Course Code: ME223**

Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Evaluate changes in thermodynamic properties of substances	3		
CO2	Evaluate the performance of energy conversion devices	3		
CO3	Differentiate between high grade and low-grade energies	2		
	Average	2.67		

Course Name: Machine Drawing **Course Code: ME225**

Course Year/Semester: 2/3 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Draw the machine elements including keys, couplings, cotters, riveted, bolted, and welded joints	2		
CO2	Understand the representation of materials used in machine drawing.	2		
CO3	Construct an assembly drawing using part drawings of machine components	3		
	Average	2.33		

Course Name: Applied Thermodynamics **Course Code: ME220**

Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understanding of various practical power cycles and heat pump cycles.	2		
CO2	Analyze energy conversion in various thermal devices such as combustors, air coolers, nozzles, diffusers, steam turbines and reciprocating compressors	3		
CO3	Understand phenomena occurring in high speed compressible flows	2		
	Average	2.33		

Course Name: Fluid Mechanics and Fluid machines **Course Code: ME222**

Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Mathematically analyze simple flow situations	3		
CO2	Formulate and solve one dimensional compressible fluid flow problems	3		
CO3	Able to evaluate the performance of pumps and turbines	3		
	Average	3		

Course Name: Strength of Materials **Course Code: ME224**

Course Year/Semester: 2/4 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Recognise various types loads applied on machine components of simple geometry	2		
CO2	Understand the nature of internal stresses that will develop within the components	3		
CO3	Evaluate the strains and deformation that will result due to the elastic stresses developed within the materials for simple types of loading.	3		
	Average	2.67		

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Course Name: Materials Engineering **Course Code:** ME226
Course Year/Semester: 2/4 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Identify crystal structures for various materials and understand the defects in such structures	2		
CO2	Understand how to tailor material properties of ferrous and non-ferrous alloys	2		
CO3	Quantify mechanical integrity and failure in materials	3		
	Average	2.33		

Course Name: Instrumentation and control **Course Code:** ME228
Course Year/Semester: 2/4 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understand the measurement of various quantities using instruments, Understand accuracy & range	2		
CO2	Techniques for controlling devices automatically	3		
CO3	Calibrate gauges and measuring instruments	2		
	Average	2.33		

Course Name: Universal Human Values: Understanding harmony **Course Code:** SSC007
Course Year/Semester: 2/4 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Creating awareness of themselves, and their surroundings (family, society, nature)			3
CO2	More responsible in life, and in handling problems with sustainable solutions.			2
CO3	keeping human relationships and human nature in mind.			2
	Average			2.33

Course Name: Environmental Sciences **Course Code:** EVS002
Course Year/Semester: 2/4 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Measure environmental variables and interpret results.			3
CO2	Evaluate local, regional, and global environmental topics related to resource use and management.		1	3
CO3	Propose solutions to environmental problems related to resource use and management		2	3
	Average		1.5	3

Course Name: Heat Transfer **Course Code:** ME321
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Formulate and analyze a heat transfer problem involving any of the three modes of heat transfer	3		
CO2	Obtain exact solutions for the temperature variation using analytical methods where possible or employ approximate methods or empirical correlations to evaluate the rate of heat transfer	3		
CO3	Design devices such as heat exchangers and also estimate the insulation needed to reduce heat losses where necessary.	3		
	Average	3		

Course Name: Solid Mechanics **Course Code:** ME323
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understand the deformation behaviour of solids under different	2		
CO2	Types of loading and obtain mathematical solutions for plane stress and strain in simple geometries	2		
CO3	Analyze problems related to thick and thin cylinders	3		
	Average	2.33		

Course Name: Maufacturing Processes **Course Code:** ME325
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understand the different conventional methods employed for making different products	2		
CO2	Unconventional manufacturing methods employed for making different products	3	1	
CO3	Analyse different processes and their applications	2		
	Average	2.33	1	

Course Name: Kinematics and Theory of machines **Course Code:** ME327
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Design various types of linkage mechanisms	3		
CO2	Obtaining specific motion	2		
CO3	Analyse them for optimal functioning	3		
	Average	2.67		

Course Name: Human Values and professional ethics **Course Code:** SSC006
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Learn the moral issues and problems in engineering; find the solution to those problems.			3
CO2	Learn the need for professional ethics, codes of ethics and roles, concept of safety,risk assessment.			3
CO3	Gain exposure to Environment Ethics & computer ethics; know their responsibilities and rights			3
	Average			3

Course Name: Constitution of India **Course Code:** LAW005
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	To understand and explain concepts in constitutional law.			3
CO2	Identify and discuss in depth the sources of constitution.			3
CO3	To understand how the governance system is working in the country.			3
CO4	To understand the relations between Centre and State including legislative, executive and financial			3
CO5	Understand the distinction between various constitutional organs and their relations with each other and concept of separation of power			3
	Average			3

Course Name: Mechanical Engineering Laboratory -I (Thermal) **Course Code:** ME329
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Measure various properties of fluids	2	3	
CO2	Characterize the performance of fluid/thermal machinery	2	3	
CO3	Measurement of Thermal conductivity of various elements	2	3	
	Average	2	3	

Course Name: Project-I **Course Code:** ME331
Course Year/Semester: 3/5 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Awareness of the tools, materials and testing for specific applications.	2	3	
CO2	Analyse the problem and solve both experimentally	2	3	
CO3	Effective utilization of computer aided software for precision work.	2	3	
	Average	2	3	

Course Name: Manufacturing Technology **Course Code:** ME320
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Tooling needed for manufacturing, the dimensional accuracy and tolerances of products,	2		
CO2	Assembly of different components	2		
CO3	Application of optimization methods in manufacturing	2		
	Average	2		

Course Name: Design of Machine Elements **Course Code:** ME322
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Design methodologies employed for the design of various machine components.	3	1	
CO2	Providing Failure Analysis of Design components.	3	2	
CO3	Analysis of transmission and fasteners	3	1	
	Average	3	1.33	

Course Name: Gender, Culture, and Developement **Course Code:** SSC008
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Mapping and analyzing perspectives, issues and debates in the field of development from gender perspectives,	3	1	
CO2	Examining through a gender lens, the inter-linkages between cultural practices, social processes and development approaches,	2	1	
CO3	Understanding feminisms in global and local contexts and mapping feminist interventions in knowledge,	3	1	
	Average	2.67	1	

Course Name: Mechanical Engineering Laboratory II - Design **Course Code:** ME324
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understand the measurement of mechanical properties of materials	2	3	
CO2	Characterize the dynamic behaviour of mechanical systems	2	3	
CO3	Performing analysis of different components	2	3	
	Average	2	3	

Course Name: Project-II **Course Code:** ME326
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Fabricating a product with awareness of the tools, materials and testing for specific applications.	2	3	
CO2	Analyse the problems and solve both analytically and experimentally	2	3	
CO3	Effective utilization of computer aided software (both 2D and 3D) for precision work.	2	3	
	Average	2	3	

Course Name: Automobile Engineering **Course Code:** ME328
Course Year/Semester: 3/6 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Undertanding the function of each automobile component	1		
CO2	Ability to understand the overall vehicle performance.	2	1	
CO3	Understand the application of various conventional and alternative energy sources	3	1	
	Average	2	1	

Course Name: Composite Materials **Course Code:** ME330
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Overview of the mechanical behaviour of composite materials	1		
CO2	Gaining knowledge about application of composite materials	2		
CO3	Understanding of Failure analysis of laminated plates	2		
	Average	1.67		

Course Name: Internal Combustion Engines **Course Code:** ME332
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understanding of basics of IC engines	2		
CO2	Understanding of different parameters influence the operational characteristics of IC Engines	2		
CO3	Understanding of Measurement and Testing procesures for IC Engine	2		
	Average	2		

Course Name: Energy Conservation and Management **Course Code:** ME334
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Performing energy auditing for the energy consumption of industries.	2	1	
CO2	Quantify the energy conservation opportunities in different thermal and electrical systems	2	1	
CO3	Understand the need for energy audit and examine the economic evaluation of energy conservation solutions adopted	2	1	1
	Average	2	1	1

Course Name: Process Planning and Cost Estimation **Course Code:** ME336
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Utilize the concepts of process planning and cost estimation for various products	2		2
CO2	Cost estimation of various products	2	2	2
CO3	Calculation fo machining time	1	2	2
	Average	1.67	2	2

Course Name: Mechanical Vibrations **Course Code:** ME338
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understand the causes and effects of vibration in mechanical systems.	2		
CO2	Develop schematic models for physical systems and formulate governing equations of motion.	3	1	
CO3	Understand the role of damping, stiffness and inertia in mechanical systems	3	2	
	Average	2.67	1.5	

Course Name: Industrial Automation and Robotics **Course Code:** ME421
Course Year/Semester: 4/7 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Enumerate principles, strategies and advantages of industrial automation	3		1
CO2	Differentiate types of robots and robot grippers.	3		1
CO3	Understand the basic components of robots.	3		1
	Average	3		1

Course Name: Mechanical Engineering Laboratory III - Manufacturing **Course Code:** ME423
Course Year/Semester: 4/7 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Perform advanced manufacturing operations	2	1	
CO2	Able to evaluate the accuracy & tolerance of components produced.	2	1	
CO3	Understanding the surface measurements and bore diameter	3		
	Average	2.33	1	

Course Name: Project-III **Course Code:** ME425
Course Year/Semester: 4/7 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Awareness of the tools, materials and testing for specific applications.	1	1	1
CO2	Analyse the problem and solve both analytically and experimentally	2	3	1
CO3	Implementing knowledge of CAD/CAM and analysis software.		3	
CO4	Organizing Time Management of time, Material Material and Manpower Management.		3	3
	Average	1.5	2.5	1.67

Course Name: Refrigeration and Air Conditioning **Course Code:** ME427
Course Year/Semester: 4/7 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understand the principles and applications of refrigeration systems.	2		
CO2	Understand vapour compression refrigeration system and identify methods for performance improvement.	2		
CO3	Analyze air-conditioning processes using the principles of psychometric.	3	1	
	Average	2.33	1	

Course Name: Gas Dynamics and Jet Propulsion **Course Code:** ME429
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Apply gas dynamics principles to jet and	2		
CO2	Analyse the space propulsion systems	3	1	
CO3	Apply governing equations to compressible flow through constant area duct with heat transfer.	2		
	Average	2.33	1	

Course Name: Computational Fluid dynamics **Course Code:** ME431
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Develop mathematical models for flow phenomena.	2		
CO2	Analyze mathematical and computational methods for fluid flow and heat transfer simulations.	3	2	
CO3	Solve computational problems related to fluid flows and heat transfer	3	2	
	Average	2.67	2	

Course Name: Advanced Manufacturing Processes **Course Code:** ME433
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Understand abrasive and electrical discharge machining processes	2		
CO2	Understand forming process for thin sections	2		
CO3	Understand the principles and applications of friction stir welding processes	2		
	Average	2		

Course Name: Computer Aided Design **Course Code:** ME435
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Effectively use computer and CAD software for modelling mechanical components	1	3	
CO2	Construct the drawings and give proper dimensioning		3	
CO3	Understand the CAD standards	2	3	
	Average	1.5	3	

Course Name: Microprocessors in Automation **Course Code:** ME437
Course Year/Semester: 4/7 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Use of microprocessors for automation.	2	1	1
CO2	Understand the analog to Digital Coverter	2		
CO3	Basic understanding of signals	2		
	Average	2	1	1

Course Name: Project IV **Course Code:** ME432
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Awareness of the tools, materials and testing for specific applications.	1	1	1
CO2	Analyse the problem and solve both analytically and experimentally	2	3	1
CO3	Implementing knowledge of CAD/CAM and analysis software.		3	
CO4	Organizing Time Management of time, Material and Manpower Management.		3	3
	Average	1.5	2.5	1.67

Course Name: Non Destructive Evaluation and Testing **Course Code:** ME420
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	List and define different defects that occur in welding shown through Non-Destructive Examination/Destructive Testing	2		
CO2	Identify the types of equipment used for each Non-Destructive and Destructive Examination.	2		
CO3	Go to specific Code, Standard, or Specification related to each testing method.	2		2
Average		2		2

Course Name: Condition Monitoring of Rotating Machines **Course Code:** ME422
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Dynamic masses and their application.	2		
CO2	Understand Different signal processing methods	2		
CO3	Monitoring condition of mechanical components	2		
	Average	2		

Course Name: Mechatronic Systems **Course Code:** ME424
Course Year/Semester: 4/8 **A.Y.: 2021-22**

CO. No.	CO's	Programme Specific Outcomes (PSO's) PSO1	PSO2	PSO3
CO1	Overview of mechatronics applications	2		
CO1	Overview of mechatronics applications	2		
CO2	Use of micro-sensors and microprocessors.	3		
CO3	Capable to develop simple control systems and study the system response.	2.33		
	Average			

Course Name: Finite Element Analysis **Course Code:** ME426
Course Year/Semester: 4/8 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Formulation of Finite element methods	3		
CO2	Application to simple structural and thermal problems	3	2	
CO3	Understand global, local, and natural coordinates	2		
	Average	2.67	2	

Course Name: Power Plant Engineering **Course Code:** ME428
Course Year/Semester: 4/8 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Understand the principles of operation for different power plants	2		
CO2	Understanding the Economics of thermal power plants	2		
CO3	Determine performance of power plants based on load variations.	3	1	
	Average	2.33	1	

Course Name: Principles of Management **Course Code:** ME430
Course Year/Semester: 4/8 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Understanding of management functions in an organization			3
CO2	Understanding Organization structure and planning			3
CO3	Problems related to budgets and management			3
	Average			3

Course Name: Total Quality Mangement **Course Code:** ME371
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Able to use the tools and techniques of TQM in manufacturing and service sectors.		2	3
CO2	Identify the key aspects of the quality improvement cycle and to select and use appropriate tools and techniques for controlling, improving and measuring quality.		2	3
CO3	Critically analyse the strategic issues in quality management, including current issues and developments, and to devise and evaluate quality implementation plans			3
	Average		2	3

Course Name: Environmental Pollution and Abatement **Course Code:** ME372
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Quantify and analyze the pollution load.		1	3
CO2	Analyze/design of suitable treatment for wastewater		2	3
CO3	Model the atmospheric dispersion of air pollutants		2	3
	Average		1.67	3

Course Name: Industrial Engineering Management **Course Code:** ME373
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Describing basic concepts and theories within the area of industrial management	1		3
CO2	Able to present organization analysis.			3
CO3	Able to use simple project planning technique		1	3
	Average	1	1	3

Course Name: Management Information System **Course Code:** ME374
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Relate the basic concepts and technologies used in the field of management information systems.		2	3
CO2	Compare the processes of developing and implementing information systems.		2	2
CO3	Outline the role of the ethical, social, and security issues of information systems.		1	3
	Average		1.67	2.67

Course Name: Material Management **Course Code:** ME375
Course Year/Semester: 3/5 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Develop an ability to perform the role of a materials manager in an organization.	1		3
CO2	Manage the activities of materials manager like purchasing, inventory analysis, storage etc.in a scientific manner.		1	3
CO3	Shall be able to improve due date performance through use of MRP techniques within capacity constraints		1	3
	Average	1	1	3

Course Name: Maintenance and Reliability Engineering **Course Code:** ME376
Course Year/Semester: 3/6 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Understand the maintenance function and its objectives and know how to prepare report about the maintenance function.			3
CO2	Gain the necessary knowledge about the types of maintenance and know how to use them when design maintenance systems.			2
CO3	Gain the necessary knowledge about failure distributions and apply failure analysis techniques			2
	Average			2.33

Course Name: Operations Management **Course Code:** ME471
Course Year/Semester: 4/7 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Apply knowledge of fundamental concepts of operations management.			3
CO2	Apply knowledge of approaches to operational performance improvement.			3
CO3	Apply decision-support tools to business decision making.		3	3
	Average		3	3

Course Name: Industrial Safety and Environment **Course Code:** ME472
Course Year/Semester: 4/8 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Enumerate the importance of industrial safety.			3
CO2	Indicate unsafe acts and conditions causing accidents.			3
CO3	Outline accident investigation and analysis			3
	Average			3

Course Name: Production Planning and Control **Course Code:** ME473
Course Year/Semester: 4/7 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Understand the role Production Planning and control activities in Manufacturing and Services.	1		2
CO2	Understand and perform various Inventory Management techniques and apply in real manufacturing scenario.		2	3
CO3	Demonstrate various Scheduling procedures		2	2
	Average	1	2	2.33

Course Name: Group Technology and Flexible Manufacturing systems **Course Code:** ME474
Course Year/Semester: 4/8 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Apply the concepts of PPC and GT to the development of FMS.		3	
CO2	Discuss the planning and scheduling methods used in manufacturing systems.		2	2
CO3	Identify various workstations, system support equipment.		2	2
CO4	Identify hardware and software components of FMS.			2
	Average		2.33	2

Course Name: Smart Materials and Devices **Course Code:** ME475
Course Year/Semester: 4/7 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Understand the behavior and applicability of various smart materials.	2	2	
CO2	Design and conduct experiments, analyze and interpret data related to smart materials and devices.	1	2	
CO3	Design a system, component, or process based on smart materials to meet desired needs.	1	2	
	Average	1.33	2	

Course Name: Work Study and Ergonomics Engineering **Course Code:** ME476
Course Year/Semester: 4/8 **A.Y.:** 2021-22

CO. No.	CO's	Programme Specific Outcomes (PSO's)		
		PSO1	PSO2	PSO3
CO1	Develop a case for productivity improvement in any manufacturing or service industry scenario.		2	3
CO2	Independently conduct a method study in any organization with the objective of improving a process, material movement system or design of a work place		3	2
CO3	Develop time standards for operations, identify production bottlenecks and improvise operations		2	3
	Average		2.33	2.67

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SANT BABA BHAG SINGH UNIVERSITY

Programme Level Course - PO Matrix of All Courses

DEPARTMENT NAME: MECHANICAL ENGINEERING

Programme Name: UNDERGRADUATE

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
I Year												
Workshop/Manufacturing Practices/ME105	3				2				1.67			2.25
Engineering Graphics & Design/ME101	2				2.33				1	2.5		2
II Year												
Engineering Mechanics/ME221	1.67	2.33		2.5								
Thermodynamics/ME223	1.67	2	3	3								
Machine Drawing /ME225	2.33		3							2.5		2
Applied Thermodynamics/ME220	2.33	2.33	2	2.5								
Fluid Mechanics and Fluid machines/ME222	1	2	3	3								
Strength of Materials/ME224	1	2	2	3								
Materials Engineering/ME226	2.33						3					2
Instrumentation and control /ME228	2						3					2
Universal Human Values: Understanding harmony/SSC007							2	3	2	2		1.5
Environmental Sciences/EVS002		2		2			3					2
III Year												
Heat Transfer/ME321	1.67	2.67	2	3								
Solid Mechanics/ME323	1.33	2.33	2	2.5								
Maufacturing Processes/ME325	3					2	1					2.5
Kinematics and Theory of machines/ME327	1.33	2	3	2								
Human Values and professional ethics/SSC006							3	2	3	2		2
Constitution of India/LAW005						3	3		2	2		1.67
Mechanical Engineering Laboratory -I (Thermal)/ME329	1.5	2.5		2					3			2
Project-I/ME331	1	2	3	2	2.5				3		2	1
Manufacturing Technology/ME320	1.5					1	2					2
Design of Machine Elements/ME322	1	2	2	3								
Gender, Culture, and Developement/SSC008						2		3				1
Mechanical Engineering Laboratory II - Design/ME324	1	2		2					3			2
Project-II/ME326	2	1	2	2	2.5				3		2	3
Automobile Engineering/ME328	3					2	3					2.67
Composite Materials/ME330	2.5		3			2						1.67
Internal Combustion Engines/ME332	3	3				2						1.67
Energy Conservation and Management/ME334		2					3					1.5
Process Planning and Cost Estimation/ME336	1	1.67	1								3	2
Mechanical Vibrations/ME338	1	2	3	2.5								
Total Quality Mangement/ME371		2		1	2					2	2	2
Environmental Pollution and Abatement/ME372			2		2	2	3		1			2
Industrial Engineering Management/ME373	1	2		3	2						2	1
Management Information System/ME374	2		1.5				2	3		2		2
Material Management/ME375	3	2	1		2						2.5	1
Maintenance and Reliability Engineering/ME376	1	1	2		2							1
IV Year												
Industrial Automation and Robotics/ME421	3	2	2									2
Mechanical Engineering Laboratory III - Manufacturing/ME423	2.5	2		2					2			3
Project-III/ME425			2	2	3				2		2	2
Refrigeration and Air Conditioning/ME427	2	2.33	2	2.5								
Gas Dynamics and Jet Propulsion/ME429	1	2.5	2.5	2.5	2							
Computational Fluid dynamics/ME431	1.33	2.33	1	2.5								
Advanced Manufacturing Processes/ME433	3	1.67	1	1								
Computer Aided Design/ME435	2	1	2	1	3							2
Microprocessors in Automation/ME437	2.33	2	1.5		1.5							2
Project IV/ME432	2.5	1.67			2				2		3	2
Non Destructive Evaluation and Testing/ME420	3	2	1		1.33							2
Condition Monitoring of Rotating Machines/ME422	2.33	2	1.5	2								
Mechatronic Systems/ME424	1.67	2.67	2	1	1							
Finite Element Analysis/ME426	2	2.33	3	2								
Power Plant Engineering/ME428	2.33	2	2	3							2	
Principles of Management/ME430				2					2	2.67	2.5	2
Operations Management/ME471	1		2	2	2.5							2
Industrial Safety and Environment/ME472		2		2	2		2.5	2				1
Production Planning and Control/ME473		3		2			1.5	1	2	2	3	1
Group Technology and Flexible Manufacturing systems/ME474				2	2.33				1			1
Smart Materials and Devices /ME475		2	3	2							2	1
Work Study and Ergonomics Engineering/ME476		2	3	1	1.5						1	1

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25

26

Mechanical engineering Department

Pass percentage of students

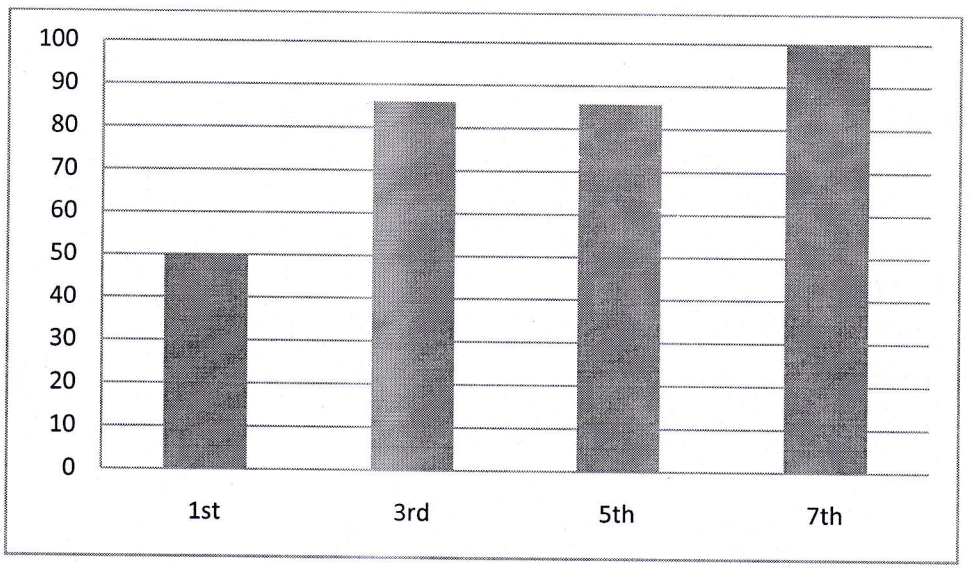
Program: UG

Course: B Tech

Session: 2020-21

(Semester 1st, 3rd, 5th, 7th)

Serial No.	Semester	No. Of students registered	No. Of students appeared	Pass percentage (%)
1	1st	04	04	50
3	3rd	22	22	86
5	5th	21	21	85.71
7	7th	25	25	100



Pass percentage of students of odd semester

Manpreet Singh
Class Incharge of 1st semester

Class Incharge of 3rd semester

Manpreet Singh
Class Incharge of 5th semester

Class Incharge of 7th semester

COD(ME)

Sant Baba Bhag Singh University
Village Khiala
P.O. Padhiana
Distt. Jalandhar

Pass percentage of students

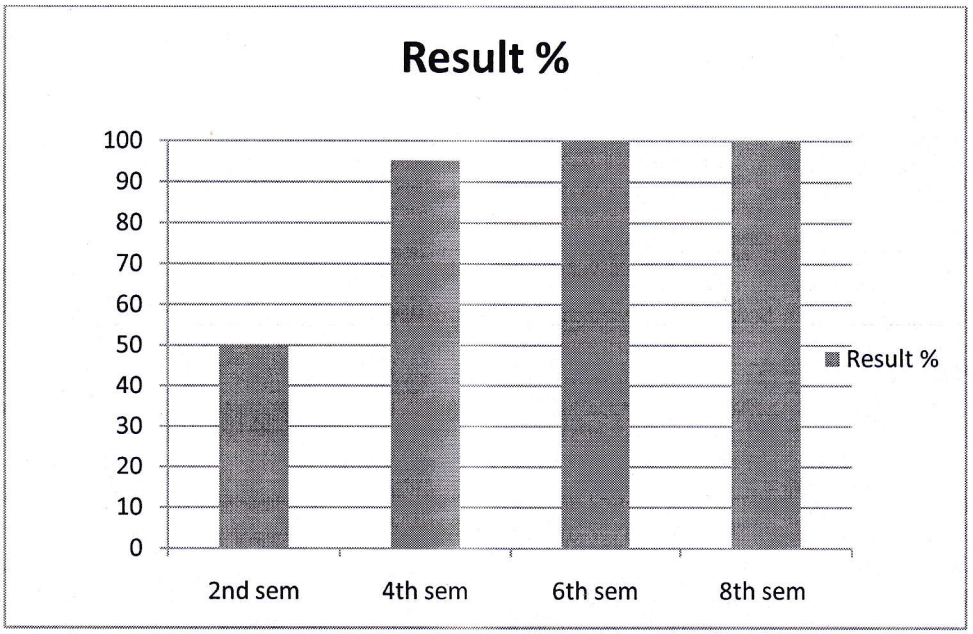
Program: UG

Course: B Tech

Session: 2020-21

(Semester 2nd, 4th, 6th, 8th)

Serial No.	Semester	No. Of students registered	No. Of students appeared	Pass percentage (%)
1	2nd	04	04	50
2	4th	21	21	95.23
3	6th	20	20	100
4	8th	25	25	100



Pass percentage of students of odd semester

Manpreet Singh
Class Incharge of 2nd semester

Class Incharge of 4th semester

Manpreet Singh
Class Incharge of 6th semester

Class Incharge of 8th semester

COD(ME)

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