

DEPARTMENT OF MECHANICAL ENGINEERING

Course Code	Course Title
CHCE0027	Engineering Chemistry
MACL0012	Mathematics I - Calculus and Linear Algebra
EEBE0038	Basic Electrical Engineering
CHCE6007	Engineering Chemistry Lab
EEBL6027	Basic Electrical Engineering Laboratory
MNWM6023	Workshop/Manufacturing Practice
BTIP7	Student Induction Program- Universal Human Values I

Course Code	Course Title
PSET0040	Engineering Physics: Electromagnetic Theory
MAIN0013	Mathematics II-Multiple Integrals, Numerical Methods and Differential Equations
CSPS0079	Programming for Problem Solving
LSEH0017	English
PSEG6017	Physics Lab for Engineers
CVED6024	Engineering Graphics and Design
LSOC6004	Oral Communication Practice Lab
CSPL6069	Programming for Problem Solving Lab
EDCI0100	Constitution of India
BTIP9	Student Induction Program- Universal Human Values II

3rd & 4th Semester

Course Code	Course Title
PSW00052	Engineering Physics: Waves and Optics
MACP0029	Engineering Mathematics III-Complex Variables, PDE and Probability and statistics
BOBE0002	Biology for Engineering
ECEE0052	Basic Electronics Engineering
MNEM0034	Engineering Mechanics
MNBT0035	Basic Thermodynamics
MNMD6024	Machine Drawing Lab
BTIA8	Internship Activity
BTIP10	Student Induction Program- Universal Human Values III

Course Code	Course Title
MNAP0036	Applied Thermodynamics
MNFM0037	Fluid Mechanics
MNSM0038	Strength of Materials
MNSE0039	Materials Science and Engineering
MNIC0040	Instrumentation and Control
CHES0029	Environmental Science
MNMF6025	Mechanical Engineering Lab1: Materials and Manufacturing Lab
BTIP11	Student Induction Program- Universal Human Values IV

5th and 6th semester

Course Code	Course Title
MNHT0041	Heat Transfer
MNDM0042	Design of Machine Elements
MNMP0043	Manufacturing Processes
MNKT0044	KINEMATICS & THEORY OF MACHINE
MTEC0074	Economics For Engineers
MNFT6026	Mechanical Engineering Lab2: Fluid and Thermal
MNMI6027	Mini Project
BTIP8	Summer Internship
EDCI0100	Constitution of India (SERVICE LEARNING AUTUMN 2020)

MNMT0045	Manufacturing Technology
MNDD0046	Machine Design and Dynamics
MNHM0047 MNMP0048	a) Hydraulic Machines b) Advance Manufacturing Processes
MNCM0049 MNIC0050	a) Composite Materials b) Internal Combustion Engines
MTFP0070	Production and Operation Management
MNDS6028	Mechanical Engineering Lab3: Design

7th and 8th semester

Course Code	Course Title
	Automation in Manufacturing
	a) Refrigeration and Air Conditioning b) Non-conventional Sources of energy c) Solid Mechanics
	a) Energy Conservation and Waste Heat Recovery b) Automobile Engineering
	a) Power Plant Engineering b) Total Quality Management
	Major Project Phase I
	Industrial Training

Course Code	Course Title
	a) CAD/CAM b) Surface Engineering
	a) Welding Technology b) Gas Turbines and Jet Propulsion
	Numerical Methods and Optimization
	Robotics and Automation
	Major Project Phase II
	Essence of Indian Traditional Knowledge

Program Outcomes – UG Programmes

- PO1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
- PO2. **Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- PO3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.
- PO4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods 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 diverse teams, and in multidisciplinary settings.
- PO10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and 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.

Program Specific Outcomes – B. Tech Mechanical Engineering

- PSO 1. **Knowledge of Mechanical Systems:** To develop the ability to apply the concept of Mechanical engineering for design, development, analysis and maintenance of mechanical systems and processes.

PSO 2. **Project Development and Execution Skills:** To apply the principles of manufacturing science, thermal engineering, design, project management and economics for providing solutions to theoretical and/or practical problems.

PSO 3. **Development of Managerial and Technical Skills:** To understand and demonstrate the key concepts related to entrepreneurship, professionalism, effective communication, shop floor management and adapting to the fundamentals of new and emerging technologies and development.

PSO 4. **Research, Innovation and Advancements:** To serve industry, society with best advancements in technology and to build the attitude of developing new concepts on emerging fields and pursuing advanced education in Mechanical engineering.

Mapping of PO, PSO's Vs Courses

Course	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3	PSO4
CHCE0027	M	L		L		M	M		M	M		L	H	M		M
MACL0012	L	H	M		M	M		M	H	M	M	M		M		M
EEBE0038	M	M	L						M				M	L		
MNWM6023					H				M			H	L		M	H
PSPT0040	H	M	L										M	L		
MAIN0013	L	H	M		M	M		M	H	M	M	M		M		M
LSEH0017								L		H		L			M	
CSPS0079	M	H	M							M	L	L	M	L		
CSPL6069	M	M	M		M				L	M	L	M	M	L		
PSEG6017	H	M	M									L	M	L		L
CVED6024	M		L	L	L				L	H	L		M			L
LSOC6004								L		M		L			L	
PSW00052	H	M	L							L			M	M		
MACP0029	L	H	M		M	M		M	H	M	M	M		M		M
BOBE0002	L		M	M	L	M	H	L	M		H	M		M		M
ECCE0052	H	M	M		L							H	M	M	L	
MNEM0034	H	M										L	H	M		
MNBT0035	M	M	L									M	M	L		
MNMD6024	M					M				M		M		M		M

BTIA8		L	L			M	L	L	M					H	L		
MNAP0036	H	M	M				M					L	H		M	L	
MNFM0037	M	L	L										H		L		
MNSM0038	M	L	L									L	H				
MNSE0039	H	M	L			L						M	L	H		L	
MNIC0040	H	M	M			L	L					L	H	M		M	
CHES0029		M	H	L		M	H	L	L		H			M		M	
MNMF6025	H	M	L						M					M	L	L	
MNHT0041	H	M	L									M	M	L			
MNDM0042	H	M	H	H						M		H		H	H	L	
MNMP0043	M	M	M		M	L								M	H		M
MNKT0044	H	M	M									M	M	M		M	
MTEC0074			L	H			L					M			H	M	
MNFT6026	H	M					M							M		L	
MNMI6027	H	H	M	M	M	L	L	H	H	H	M	L	H	H	M	M	
MNMT0045	H	H	H	M	M									M	M	M	M
MNDD0046	H	H	H				M			M			L	H	M	M	L
MNHM0047	M	M	M		M	L	L							M	H	M	M
MNMP0048	M						M						H	M	M	L	M
MNCM0049	M		M			M	L							M	M		
MNIC0050	M		L			L	M							M	M		
MTFP0070			L	H			L					M			H	M	
MNDS6028	H	L	L				M		L					M		L	
Automation in Manufacturing	M	M	H		H		L							M	M	L	M
a) Refrigeration and Air Conditioning	M	L	L				L							M		L	
b) Non-conventional Sources of energy	M	L				M	M							M			
c) Solid Mechanics	H	M	L	L										H			M
a) Energy Conservation and Waste Heat Recovery	H	L	M				M							M			
b) Automobile Engineering	H	M	M		M	L	M							M	M		M

a) Power Plant Engineering	H	L	M				L						M			
b) Total Quality Management	L	L	L	M							L		M		H	
a) CAD/CAM	H				M							H	M		L	H
b) Surface Engineering	H	M	L									M	M	M		
a) Welding Technology	M	L	L										M			L
b) Gas Turbines and Jet Propulsion	L	L	M			M							M		L	L
Numerical Methods and Optimization	H	H	H	M		L									L	M
Robotics and Automation	M	M	M				L						M	L		
Major Project Phase I & II	H	H	M	H	M	L	M	H	H	H	M	M	H	H	M	H