DEPARTMENT OF MECHANICAL ENGINEERING

Program Outcomes (POs) (UG)

Mechanical engineering graduates will be able to:

Sr. No.	PO	Domain	Description
1.	**PO1**	**Engineering knowledge**	Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
2.	**PO2**	**Problem analysis**	Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
3.	**PO3**	**Design / Development of Solutions**	Design creative solutions for complex engineering problems and design / develop systems / components / processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
4.	**PO4**	**Conduct Investigations of Complex Problems**	Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).
5.	**PO5**	**Engineering Tool Usage**	Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
6.	**PO6**	**The Engineer and The World**	Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
7.	**PO7**	**Ethics**	Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
8.	**PO8**	**Individual and Team Work**	Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

9.	**PO9**	**Communication Skills**	Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
10.	**PO10**	**Project Management and Finance**	Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
11.	**PO11**	**Life-long Learning**	Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Program Educational Objectives (PEOs) (UG)

The objectives of the Mechanical engineering undergraduate program are:

1. The graduate will have a successful career in mechanical engineering with strong technical, research & professional skills.
2. The graduate will possess an ability to work in diversified fields along with team work and leadership qualities.
3. The graduate will continue to learn and to adapt in a society of constantly evolving technological environment

Program Specific Outcomes (PSOs) (UG)

At the end of this program, graduate will be able to:

1. **SPECIFY, DESIGN** and **EVALUATE** mechanical components and systems using modelling and analysis tools.
2. **APPLY** knowledge of machines, tools, automation, properties of advanced materials and modern management methods for manufacturing of mechanical components and systems.
3. **APPLY** core aspects of thermal and fluid engineering to determine the performance of mechanical systems including power absorbing and power generating systems.

Program Outcomes (POs) (PG)

Mechanical-Design engineering post graduates will be able to:

1. An ability to independently carry out research /investigation and development work to solve practical problems.
2. An ability to write and present a substantial technical Report/document.
3. Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program

Program Educational Objectives (PEOs) (PG)

The objectives of the Mechanical- Design engineering postgraduate program are:

1. To develop students' ability to formulate, analyze and solve complex engineering problems.
2. To inculcate the skills and knowledge for addressing real-world engineering challenges through design practices, to contribute effectively to multidisciplinary teams and to adapt to technological advancements.
3. To prepare for advanced studies or research in related fields, fostering a commitment to lifelong learning and professional development

Program Specific Outcomes (PSO) (PG)

PSO 1:
Apply advanced design and analysis techniques to solve complex mechanical engineering problems.

PSO 2:
Use modern research methodologies, numerical tools, and optimization techniques for engineering solutions.

PSO 3:
Demonstrate professional competence in innovation, technical documentation, and multidisciplinary collaboration.