

## **PROGRAM EDUCATIONAL OBJECTIVES FOR UNDER GRADUATE PROGRAMME IN MECHANICAL ENGINEERING**

### **PEO 1:**

To provide a quality undergraduate education for students entering the mechanical engineering profession or seeking careers in related fields.

### **PEO 2:**

Advance professionally to roles of greater mechanical engineering responsibilities and/or by transitioning into leadership positions in industry, business, government, and/or education.

### **PEO 3:**

To develop awareness of the ethical, professional and environmental implications of work in a global and societal context.

### **PEO 4:**

To demonstrate a commitment to community by applying technical skills and knowledge to support various service activities.

## **PROGRAM OUTCOMES FOR UNDER GRADUATE PROGRAMME IN MECHANICAL ENGINEERING**

### **PO 1: Engineering Knowledge:**

Apply the engineering knowledge of mathematics, science, engineering fundamentals with engineering specialization to the solution of complex engineering problems.

### **PO 2: Problem Analysis:**

To apply in-depth knowledge of their chosen field in mechanical engineering using interdisciplinary approach for problem solving.

### **PO 3: Design and Development of Solutions:**

Design and develop a system and conduct experiments to find suitable solution in the field of mechanical engineering.

### **PO 4: Conduct Investigations of Complex Problems:**

Design and conduct experiments, as well as to analyse and interpret data for the investigation of any complex problem.

### **PO 5: Modern Tool Usage:**

Use the techniques, skills, and engineering tools necessary for engineering practice.

### **PO 6: The Engineer and Society:**

Apply their fundamental field skills towards the understanding of the impact of engineering solutions on the society in a global and social context.

**PO 7: Environment and Sustainability**

Ability to use engineering knowledge to come out with any environmental problem and to demonstrate the knowledge and need for sustainable development.

**PO 8: Ethics**

Apply ethical principles and responsibilities during professional practice.

**PO 9: Individual and Teamwork:**

Function on multi-disciplinary teams as a team member/leader and create user friendly environment.

**PO 10: Communication:**

Communicate effectively in oral, written, visual and graphic modes within interpersonal, team, and group environments.

**PO11: Project Management and Finance:**

Ability to manage projects and related finance in multidisciplinary environments of mechanical engineering.

**PO12: Life-Long Learning:**

Recognition of the need for self-improvement through continuing education and the ability to engage in lifelong learning.

## **PROGRAM EDUCATIONAL OBJECTIVES FOR POST GRADUATE PROGRAMME IN MECHANICAL ENGINEERING**

### **PEO 1:**

To prepare students with depth knowledge in the field of mechanical engineering which provide a strong foundation to pursue career in education and industry for innovation, research and development.

### **PEO 2:**

To enable to acquire knowledge of relevant technologies and multidisciplinary fields including broad social, ethical and environmental issues within which the engineering is practiced.

### **PEO 3:**

To produce students who are effective in multidisciplinary research and environment by showing their active participation for betterment of society.

**PEO 4:** To publish and present their research work with multidisciplinary research and environment.

## **PROGRAM OUTCOMES FOR POST GRADUATE PROGRAMME IN MECHANICAL ENGINEERING**

**PO 1:** Be competent in applying basic knowledge of science and engineering for the purpose of obtaining solution to a multi-disciplinary problem.

**PO 2:** Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

**PO 3:** 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.

**PO 4:** Design and conduct of experiments, analysis and interpretation of data, and synthesis of the mechanisms to provide valid conclusions to find solution for a problem.

**PO 5:** Utilization of techniques, skills, and modern engineering tools necessary for engineering practice with appropriate considerations for societal, and environmental constraints.

**PO 6:** Understand the impact of engineering solutions in a global, economic, environmental, and societal context.

**PO 7:** Exhibit understanding of societal and environmental issues (health, legal, safety, cultural, etc.) and consequent responsibilities relevant to professional engineering practice.

**PO 8:** Be committed to professional ethics, and economic, environmental, societal, and political norms.

**PO 9:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

**PO 10:** Ability to communicate effectively in oral, written, visual and graphical modes.

**PO11:** 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:** To improve their skills and knowledge continuously for pursuing lifelong learning in the broader context of innovation and technological developments.

## **PROGRAM EDUCATIONAL OBJECTIVES FOR PHD PROGRAMME IN MECHANICAL ENGINEERING**

### **PEO 1:**

To acquire full dept of knowledge and research ability in the specialised field of mechanical engineering which provide a strong foundation to contribute towards scientific/engineering knowledge and generate new opportunities for the advancement of society and industry by innovation, research and development.

### **PEO 2:**

To build the leadership qualities, to lead and work in a team in professional environment, demonstrate professional integrity and feel responsibility towards country at an appropriate level in order to address the issues in a responsive, ethical and innovative manner.

### **PEO 3:**

To excel in career involving higher order and challenging tasks and try to become a part of success and growth and work in collaboration with all organisation.

**PEO 4:** To disseminate technical information through scholarly publication, conferences and continuing education.

## **PROGRAM OUTCOMES FOR PHD PROGRAMME IN MECHANICAL ENGINEERING**

### **PO 1: Research Oriented Engineering Scientific Knowledge:**

Apply the research based scientific/engineering knowledge of mathematics, science, engineering fundamentals with respective specialization for the advancement of society and industry by innovation, research and development.

### **PO 2: Evaluation of Research Objectives:**

Identify, formulate, review and evaluate research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

### **PO 3: Design and Development of Outcomes:**

Be capable of undertaking suitable experiments/research methods while solving an engineering problem and would arrive at valid conclusions based on appropriate interpretations of data and experimental results.

### **PO 4: Investigations of opted Methodology and Research Problems:**

Use research-based knowledge and research methodology including design of experiments, analysis and interpretation of data, and synthesis of the mechanisms to provide valid conclusions.

**PO 5: Recent Techniques Usage:**

Create, select, and apply appropriate techniques, resources, and modern engineering and tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

**PO 6: 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.

**PO 7: Environment and Sustainability**

Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.

**PO 8: Responsibility of Ethical Principles**

Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

**PO 9: Discrete and Coordination:**

An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives.

**PO 10: Presentation of Research Work:**

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: Cost, Time and Management:**

Be conscious of financial aspects of all research and professional activities and shall be able to undertake projects with appropriate management control and control on cost and time.

**PO12: Life-Long Learning:**

Participate in life-long learning through the successful completion of advanced degree, professional development, and/or engineering certification(s)/licensure.