

# MECHANICAL ENGINEERING

**OUTCOME-BASED EDUCATION (OBE)**  
 Bachelor of Engineering (Hons.) Mechanical - EM220  
 Bachelor of Mechanical Engineering  
 (Manufacturing)(Hons.) - EM221/EM241

Key Performance Indicator (KPI) for the PO attainment is 75% out of total students should achieve a minimum of 50% mark for each PO at the end of the programme.

## PROGRAMME OUTCOMES (PO)

Statements that describe what students are expected to know and be able to perform or attain upon graduation. These relate to the skills, knowledge and behaviour that students acquire through the programme.

- P01. Able to apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to the solution of **complex engineering problems**.
- P02. Able to identify, formulate, conduct research literature and analyse **complex engineering problems** reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (WK1 to WK4);
- P03. Able to design solutions for **complex engineering problems** and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (WK5);
- P04. Able to conduct investigation of **complex engineering problems** using research-based knowledge (WK8) and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions;
- P05. Able to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to **complex engineering problems**, with an understanding of the limitations (WK6);
- P06. Able to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to **complex engineering problems** (WK7);
- P07. Able to understand and evaluate the sustainability and impact of professional engineering work in the solution of **complex engineering problems** in societal and environmental contexts (WK7);
- P08. Able to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice (WK7);
- P09. Able to 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;
- P010. Able to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
- P011. Able to 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.
- P012. Able to demonstrate 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, to manage projects and in multidisciplinary environments.