



Key Performance Indicators (KPI) of the Student Outcomes Mechanical Engineering

Student Outcome 1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

The Key Performance Indicators of the Student Outcome 1 are:

- 1.1 Identify the components of a complex problem and relevant mechanisms.
- 1.2 Formulate and express complex problems within the field of mechanical engineering using mathematical or computational tools.
- 1.3 Solve or identify solutions for complex problems applying tools of engineering.

Student Outcome 2

An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

The Key Performance Indicators of the Student Outcome 2 are:

- 2.1 Conceive, design, implement and/or operate systems, products or processes relevant to mechanical engineering and similar disciplines, to create solutions by combining the tools of science and technology.
- 2.2 Evaluate investment and operation costs in projects associated within the industry.
- 2.3 Evaluate operational risks associated within the industry.
- 2.4 Apply criteria for safe design and operation, considering aspects of safety, health and the environment.

Student Outcome 3

An ability to communicate effectively with a range of audiences.

The Key Performance Indicators of the Student Outcome 3 are:

- 3.1 Communicate effectively through writing abilities.
- 3.2 Communicate effectively through speaking abilities.
- 3.3 Communicate effectively through graphic or drawing abilities.
- 3.4 Communicate effectively to a wide range of audiences.

Student Outcome 4

An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

The Key Performance Indicators of the Student Outcome 4 are:

4.1 Understand the economic impacts of decisions associated with mechanical engineering practice.

4.2 Understand the environmental impacts of mechanical engineering practice.

4.3 Understand ethical implications and social responsibility of mechanical engineering practice.

Student Outcome 5

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.

The Key Performance Indicators of the Student Outcome 5 are:

5.1 Demonstrate capacity for teamwork and leadership.

5.2 Function in a team characterized by a collaborative and inclusive environment.

5.3 Formulate and execute a work plan with objectives and goals.

Student Outcome 6

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

The Key Performance Indicators of the Student Outcome 6 are:

6.1 Conduct research on the state of the art of the disciplines associated with mechanical engineering.

6.2 Formulate work goals.

6.3 Design and conduct experiments.

6.4 Analyze and interpret results.

Student Outcome 7

An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The Key Performance Indicators of the Student Outcome 7 are:

- 7.1 Select scientific and technological information.
- 7.2 Identify emerging topics relevant to mechanical engineering.
- 7.3 Apply critical thinking, creative ability, and scientific and technological curiosity.
- 7.4 Update and improve engineering skills.

Student Outcome 8

An ability to manage human, material, and financial resources.

The Key Performance Indicators of the Student Outcome 8 are:

- 8.1 Manage financial resources.
- 8.2 Manage human resources.
- 8.3 Manage material resources.