



Key Performance Indicators of the Student Outcomes

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 physical and chemical mechanisms.
- 1.2 Formulate and express complex problems within the field of chemical 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, install and/or operate industrial processes relevant to chemical engineering and similar disciplines, to create products and solutions by combining the tools of science and technology
- 2.2 Evaluate investment and operation costs in projects associated with the chemical process industry
- 2.3 Evaluate operational risks associated with the chemical process 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 chemical engineering practice.
- 4.2 Understand the environmental impacts of chemical engineering practice
- 4.3 Understand the ethical implications and social responsibility of chemical 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 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 Carry out research about the state of the art of disciplines associated with chemical engineering.
- 6.2 Formulate working objectives.
- 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 issues relevant to chemical engineering
- 7.3 Apply critical thinking, creative capacity and scientific 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.