

SYSTEMS ENGINEERING

UNIT 1

This unit focuses on engineering fundamentals as the basis of understanding concepts, principles and components that operate in mechanical systems. The term 'mechanical systems' includes systems that utilise all forms of mechanical components and their linkages. While this unit contains the fundamental physics and theoretical understanding of mechanical systems and how they work, the focus is on the creation of a system. The creation process draws heavily upon design and innovation processes.

AREAS OF STUDY

- Mechanical system design
- Producing and evaluating mechanical systems

OUTCOMES

Outcome 1: Students should be able to describe and apply basic engineering concepts and principles, and use components to design and plan a mechanical system using the systems engineering process.

Outcome 2: Students should be able to produce, test, diagnose and evaluate a mechanical system using the systems engineering process.

UNIT 2

In this unit students study fundamental electrotechnological engineering principles. The term 'electrotechnological' encompasses systems that include electrical/electronic circuitry including microelectronic circuitry. Through the application of the systems engineering process, students create operational electrotechnological systems, which may also include mechanical components or electro-mechanical subsystems.

AREAS OF STUDY

- Electrotechnological systems design
- Producing and evaluating electrotechnological systems

OUTCOMES

Outcome 1: Students should be able to investigate, represent, describe and use basic electrotechnological and basic control engineering concepts, principles and components, and design and plan an electrotechnological system using the systems engineering process

Outcome 2: Students should be able to produce, test and evaluate an electrotechnological system, using the systems engineering process.