Summer Institute 2025
Data and Systems Engineering in Response to Global Challenges (DASE1010)

Objectives

Future engineers and innovation leaders are expected to possess solid engineering skills and in-depth knowledge needed to tackle many of the global challenges that humankind faces. This is a 5-day introductory course for S4-S6 secondary school students who want an overview of data and systems engineering at the university level. Through lectures and hands-on opportunities, such as problem-solving and various activities, students will learn about the latest developments in data and systems engineering.

Key Topics
This course covers 5 rapidly developing engineering research areas:
 1. industry 4.0
 2. robotics
 3. extended reality
 4. healthcare systems engineering
 5. 3D printing.

Learning Outcomes
Upon completion of this course, students should be able to:
 1. appreciate the latest developments in data and systems engineering;
 2. understand the contemporary knowledge related to Industry 4.0;
 3. gain an understanding of the key issues for robotics;
 4. understand the technology, methods and components of extended reality;
 5. understand the current applications and impact of extended reality technology on society;
 6. gain a general understanding of healthcare systems engineering;
 7. understand several key analytic techniques for solving healthcare systems engineering problems;
 8. gain working knowledge on the applications of 3D printing technology.