

## **Summer Institute 2022**

### **Engineering Science in Response to Global Challenges (ENGSC1010)**

#### **Objectives**

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

#### **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 development in the engineering science field;
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 to 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.