

## What is STEM?

STEM is an acronym used to identify fields of study in science, technology, engineering and mathematics. There have been many recent discussions in Canada and the United States concerning the current shortfall of skilled workers in these fields of study. FedDev Ontario is a federal youth initiative that is currently encouraging students in Southern Ontario to pursue a career in an area of STEM studies. ([www.FedDevOntario.gc.ca](http://www.FedDevOntario.gc.ca)).

At Cardinal Ambrozic we are pleased to encourage students to study STEM courses. Students will have an opportunity to study courses geared towards Engineering, Computer Science and Robotics (Computer Engineering Technology).

## Why Engineering and Computers?

Do you want to create the next generation of interactive games, robotics, smart phones or even high-tech clothing? How does Software Engineering or Game Design sound to you?

Do you have an inquiring mind and enjoy learning about how the world works utilizing scientific concepts found in **physics**, **chemistry** or even **biology**? How does Mechanical Engineering or Chemical Engineering sound to you? Do you have an interest in medicine or biology? How does Biomedical Engineering sound to you? Or maybe you have an interested in robotics?

These are just some of the diverse engineering disciplines offered in Canadian Universities and Colleges.

## Advantages of STEM

Students who choose courses in Computer Studies and Computer Engineering Technology will be exposed to:

- Game development
- Integrate physics and mathematics concepts in game development
- Develop inquiry, design and problem-solving skills while constructing robotic systems
- Develop mathematical concepts to program robots and electric circuits
- Integration of technology tools within the classroom
- Computer, robotics, mathematics, and physics competitions
- Collaborative initiatives with colleges and universities.

## Which Courses should I take?

### Computer Studies Courses

ICS20 – Grade 10 (open)  
ICS3U – Grade 11 (no pre-requisite)  
ICS4U – Grade 12 (ICS3U required)

Students will learn to program in languages such as C# or Java with a focus on game development strategies.

### Computer Engineering Technology

TEJ3M – Grade 11  
TEJ4M – Grade 12

Students will learn details of computer hardware systems, networking, digital and analog circuits, and robotic devices. A core component of this course will be designing and programming robots.

## Computer Science Pathway

The following courses should be taken by students who wish to study Computer Science at a post-secondary institution:

### University

ICS20 ICS3U TEJ3M TEJ4M ICS4U  
MCR3U MHF4U MCV4U SPH3U/4U

### College

ICS20 ICS3U TEJ3M TEJ4M  
MCT4C SPH4C

## Engineering Pathway

The following courses should be taken by students who wish to study Engineering at a post-secondary institution:

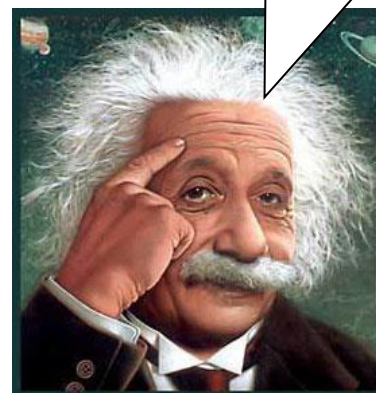
### University

ICS20 ICS3U TEJ3M ICS4U  
MCR3U MHF4U MCV4U SPH3U/4U  
SCH3U/4U and SBI3U/4U for biomedical

### College

ICS20 ICS3U TEJ3M TEJ4M  
MCT4C SPH4C

We cannot solve our problems with the same thinking we used when we created them.



# Cardinal Ambrozic STEM Engineering AND Computers

