PRE-ENGINEERING

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PRE-ENGINEERING ADVANTAGE

The Cameco Centre of Excellence in Science and Mathematics was made possible with a generous gift by Cameco. Pre-Engineering 10 began in the fall of 2014.

Throughout the program, students use unique, hands-on learning stations to develop the technical and communication skills needed to solve problems. Students will use these skills to design and document a solution to an authentic engineering challenge at the end of term.

An emphasis is placed upon knowledge, skills and attributes that are essential in the field of engineering. These include: co-operative work skills, goal setting, time management, ethics and critical thinking.

DIVERSE COMMUNITY

Successful Pre-Engineering students are independent and self-motivated. They enjoy problem solving in a science and mathematics environment.

EQUIPMENT

Some of the training stations for the Pre-Engineering Program include:

- **Design Processes (Computer Assisted Design):** Students learn a working knowledge of computer-assisted drawing (CAD) software, in both design and interpretation;
- **Manufacturing Processes I (CNC):** Students learn how to program and operate a computer numeric control (CNC) mill for design applications;
- **Manufacturing Processes II (3-D Printing):** Students learn to design and create objects using a state-of-the-art 3-D printer;
- **Fluids (Pneumatics):** Students use simulated and real fluid control components for the purpose of design and analysis;
- **Electrical Systems:** Students learn the design and analysis of electrical circuits using a hands-on approach;
- **Robotics:** Students learn how to program, edit and run robot control tasks for the purpose of solving problems;
- **Electrical/Computer Control:** Students learn the design and application of Program Logic Control (PLC) components.

HIGHLIGHTS

- Team environment
- Hands-on learning
- Learn about careers in engineering and science-related careers
- Develop technical, communication and problem-solving skills

CREDITS

- Pre-Engineering 10 and 20 meet the curricular requirements of the Design 10 and Design 20 Practical Applied Arts (PAA) credits.
- PAA30 credit available for Guitar and Amp Construction 30
- The four major content areas of the program are:
  - design fundamentals
  - problem solving
  - skill development
  - communications