

# ENGINEERING SAMPLER



Central Okanagan  
Public Schools  
Together We Learn



The Engineering Sampler program introduces students to the multifaceted world of engineering. Students will explore four key engineering fields and learn fundamental principles and gain an understanding of the design process. This program combines theoretical learning with hands on activities, providing students with insight into the profession and the educational pathways available to them. Students will also analyze problem solving strategies and be introduced to key systems and applications within the engineering sector. Whether you're passionate about building structures, creating machines, managing water resources, or exploring electronics, this course offers a dynamic and engaging entry point into the engineering field.

## Enrollment requirements

Students in Grade's 10 to 12

## Credits earned

Students will earn 4 elective credits at the Gr. 12 level.

## Tuition

SD23 Pays: Tuition: Course tuition only

Student Pays: \$100 non-refundable deposit

\*All program costs are approximate and subject to change without notice.

## Course Dates

February to June (Semester 2)

## Program Delivery

In-person sessions, Tues & Thursday evenings, some Saturdays, and field studies - Okanagan College, 1000 KLO Rd, Kelowna



## Student for a Day

No Student for a Day is required

## Electronic Engineering

This hands-on course explores the fundamentals of Electronic Engineering Technology and is tailored for innovative high school students like you. Students will learn how to apply the fundamentals of electronic circuits in real-world applications. As the course develops, students will design and construct their own circuits such as a weird sound generator, a light-activated alarm, or an environmental monitor, all while enhancing their microcontroller programming skills. Blending theoretical learning with extensive practical play, this course will equip learners with valuable electronics design and troubleshooting skills that are applicable across many fields.

Upon successful completion of this course, learners will be able to:

- Identify and describe the key principles of electronic circuits so that they can demonstrate their application in real-world scenarios
- Construct and troubleshoot electronic circuits using breadboards and basic components so that they gain practical experience and confidence working with electronic devices, circuits, and systems
- Create a personalized electronics project, such as a custom alarm system, environmental monitor, or simple autonomous wheeled robot, so that they can express their creativity and innovate with electronics

## Civil Engineering

Civil Engineering Technology is the broadest discipline of Engineering and can be found all around us. It deals with the design, construction, and maintenance of both the physical and naturally built environment, from buildings and roads to cars and construction. In this course, we will explore the grass roots of Civil Engineering and learn about its impact on society and urbanization in Canada. Topics explored will include surveying, hydraulics, computers, and soils.

Upon successful completion of this course, learners will be able to:

- Understand the fundamentals of Civil Engineering and the basics of surveying using a level circuit.
- Work with the flow of water for some hydraulic designs.
- Complete the fundamental soil test – a sieve.
- Use a 3D printer to design and make a simple product.

## Mechanical Engineering

This interactive course examines the foundational principles of Mechanical Engineering Technology. Through hands on lab activities, students will investigate the Properties of Materials, Fluid Power, Robotics, CAD and Automation. This program will use multimodal delivery methods which may include site visits, digital media, and/or outdoor exploration to allow participants to demonstrate their learning in multi-faceted ways.

Upon successful completion of this course, learners will be able to:

- Understand and summarize the fundamentals of Mechanical Engineering and explain the process of testing the physical limitations of a material
- Analyze the forces acting on mechanisms and compare the properties of materials relating to strength.
- Design and build a simple machine that performs a specific task and create a CAD model for 3D printing
- Synthesize principles from Mechanical Engineering to evaluate simple mechanical systems, demonstrating an understanding of foundational concepts and problem-solving skills to real world applications.

## Water Technology Engineering

This course explores the fundamentals of Water Engineering Technology. Students will learn about the water cycle, water treatment processes, and water and wastewater systems. Key topics include hydrology, water quality analysis, sustainable water management and water systems operations and maintenance. Through hands-on field and laboratory work, students will gain practical skills in environmental monitoring and water resource management.

Upon successful completion of this course, learners will be able to:

- Understand water systems and describe the selected components and functions of natural and engineered water systems including the water cycle, water treatment processes, and distribution and collection networks
- Analyze water quality by identifying common water quality indicators, understand contaminant sources, and evaluate the effectiveness of various water treatment methods.
- Apply sustainable solutions to basic water management that address issues such as water scarcity, pollution, and sustainable usage, incorporating principles of environmental stewardship and engineering ethics

## Sponsorship Requirements for SD23 Students

- Complete the School District application package and hand it into your Career Programs Coordinator
- Be on track to graduate with a Dogwood diploma
- Meet with high school Career Coordinator to review program
- Okanagan College course requirements / admission requirements met for program
- Application approved and accepted by School District
- An interview may be required for potential applicants

**Applications are available at your school Career Centre  
or go to [www.dualcredit23.sd23.bc.ca](http://www.dualcredit23.sd23.bc.ca)**



## CONTACTS

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