CAMOSUN COLLEGE

ENGINEERING BRIDGE PROGRAMS TO UNIVERSITY OF VICTORIA

INFORMATION BOOKLET

Further information at camosun.ca:

- Electrical & Computer Engineering Bridge to University of Victoria
- Mechanical Engineering Bridge to University of Victoria
- Civil Engineering Bridge to University of Victoria
Publication Information

Readers should be aware of the following:

1. This booklet is not intended to be a complete statement of all procedures, policies, rules and regulations pertaining to the Engineering Bridge programs at Camosun College.

2. The College reserves the right to cancel or change any course or program at any time.

3. This booklet was written based on the information available at the time of its creation. We are not responsible for changes or omissions.
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1 GENERAL INFORMATION

1.1 Introduction

Camosun College offers the Engineering Bridge programs in partnership with the University of Victoria (UVic). The Bridge programs are intended to provide direct access to the third year of Engineering at UVic in Electrical, Computer, Civil or Mechanical Engineering. Graduates of the Engineering Bridge program will receive an advanced diploma in the appropriate discipline. Please refer to our website at camosun.ca for more information.

<table>
<thead>
<tr>
<th>DIPLOMA PROGRAM</th>
<th>JANUARY TO DECEMBER BRIDGE</th>
<th>JANUARY THIRD YEAR ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical (or related) Engineering Technology</td>
<td>Mechanical Engineering Bridge to UVic</td>
<td>Mechanical Engineering at UVic</td>
</tr>
<tr>
<td>Electronics (or related) Engineering Technology</td>
<td>Electrical &amp; Computer Engineering Bridge to UVic</td>
<td>Electrical Engineering or Computer Engineering at UVic</td>
</tr>
<tr>
<td>Computer (or related) Engineering Technology</td>
<td>Electrical &amp; Computer Engineering Bridge to UVic</td>
<td>Electrical Engineering or Computer Engineering at UVic</td>
</tr>
<tr>
<td>Civil (or related) Engineering Technology</td>
<td>Civil Engineering Bridge to UVic</td>
<td>Civil Engineering at UVic</td>
</tr>
</tbody>
</table>

Note that during third and fourth year, UVic requires an additional two courses, depending on the technology diploma leading into the Bridge. In some cases this may result in an extra semester being required.
1.2 Engineering at UVic

Faculty of Engineering: [www.uvic.ca/engineering/](http://www.uvic.ca/engineering/)

Engineering Coop: [UVIC Co-op Education](http://www.uvic.ca/engineering/)

The third year of the Engineering programs at UVic in Electrical, Computer, Civil and Mechanical Engineering commence in January.

Students entering UVic should prepare for demanding third- and fourth-year studies. Reduced course loads are available to students who have concerns about managing full course loads.

The Engineering programs at UVic are offered in a Co-operative Education format only. Computer, Electrical, Civil and Mechanical Engineering students entering from the Bridge program will combine four terms of academic studies with 16 months of work experience through the Co-operative Education program. Students can expect increasing responsibility on work assignments as they progress. This experience will be a valuable contribution to the student’s professional development. Up to eight months of Co-op or discipline-related work experience may be eligible for credit. Contact the UVic Co-op department immediately upon entry.

The Bachelor of Engineering programs at UVic in Computer, Electrical, Civil and Mechanical Engineering are accredited with the Canadian Engineering Accreditation Board (CEAB).

1.3 Location of the Bridge programs

All of the Engineering Bridge programs are offered at the Interurban campus of Camosun College, 8 km northwest of Victoria’s city center and 9 km northwest of UVic. (Refer to BC Transit bus routes and detailed maps of the Greater Victoria region [https://bctransit.com/victoria/schedules-and-maps](https://bctransit.com/victoria/schedules-and-maps). A map of the Interurban campus is available at: [http://camosun.ca/about/campus-maps.html](http://camosun.ca/about/campus-maps.html).

1.4 Duration and path of the Bridge programs

All Bridge programs consist of two semesters with an optional Internship work term between them. This optional work term is transferable to UVic as one of their required Co-op work terms. A semester is 15 weeks in duration – 14 weeks of classes followed by a one-week exam period.

<table>
<thead>
<tr>
<th>ACADEMIC TERM 1</th>
<th>OPTIONAL WORK TERM</th>
<th>ACADEMIC TERM 2</th>
<th>UVIC - TERM 3A</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY - APRIL</td>
<td>MAY - AUGUST</td>
<td>SEPTEMBER - DECEMBER</td>
<td>JANUARY</td>
</tr>
</tbody>
</table>

The Electrical and Computer Engineering Bridge, Civil and Mechanical Engineering Bridge programs start at the beginning of January and finish in December. Successful students from these programs transfer into the first academic term of third year engineering at UVic in January.

*Updated April, 2022*
1.5 Fees
The average cost of these programs from start to finish is approximately $5,585 Domestic $17,140 per term International, including an optional internship. All fees are subject to change. For accurate fee information, please refer to the Camosun College website: https://camosun.ca/registration-records/tuition-fees

1.6 Financial aid and awards
Students enrolled in Engineering Bridge programs qualify for student loans. For further information please contact the Financial Aid office at Camosun College.

Camosun College Financial Aid Services
Interurban Campus, Camosun College
4461 Interurban Rd, Victoria, BC V9E 2C1
Phone: 250-370-4862
Website: Financial Aid and Awards - Camosun College
E-mail: financialaid@camosun.ca

Graduates of the Engineering Bridge programs may contact the financial aid department at UVic.

UVic Student Awards & Financial Aid
University Centre 2nd Floor, UVic
Box 3025 STN CSC, Victoria, BC V8W 3P2
Phone: 250-721-8423
Website: www.uvic.ca/safa
E-mail: finaid@uvic.ca

Consult Camosun’s website for details on available awards.

For information about UVic entrance scholarships and external awards, check the University’s website at http://registrar.uvic.ca/safa/

1.7 Course exemptions and prior learning assessment (PLA)

1.7.1 Course Exemptions
Course exemptions are authorized by Camosun College in consultation with the University of Victoria. A course exemption is awarded if UVic agrees that the coursework can be used for admission to their Engineering program. Up to two course exemptions may be granted towards Bridge courses.

Course exemptions are not evaluated until after a Bridge applicant has received the formal offer of a Bridge seat. Students should note that coursework utilized in their Technology Diploma program is not eligible for exemption. Determination of course exemptions can take up to four months, so late applicants may not be entitled. Fees for course exemption applications: (See Miscellaneous Fees and Charges) https://camosun.ca/registration-records/tuition-fees
Bridge courses taken ahead of time at Camosun College can be utilized in the Bridge, but you must receive the offer of a Bridge seat within one year of completion of such courses. If your offer of a Bridge seat occurs more than one year after the completion of a course the student intends on utilizing in the Bridge, the course may need to be re-taken at the discretion of the admitting University. Taking Bridge courses in advance is only possible if space permits at the discretion of the Bridge Coordinator.

1.7.2 Prior Learning Assessment (PLA) upon entry
PLAs cannot be started until the Bridge program has commenced. Students should consult with the Program Chair if their intention is to seek a PLA.

Credits may be granted for co-op work experience gained in the diploma program. Application for co-op work term transfer credit is made to UVic Engineering Co-op, once admission to the university has been confirmed. For more information on UVic’s work term transfer/challenge credits, please consult the Engineering & Computer Science Co-op website at: UVIC Co-op Education

1.8 English requirements
University of Victoria
Admission requirement (English Proficiency)
As English is the primary language of instruction at the University of Victoria, all applicants, regardless of country of origin or citizenship status, will be required to demonstrate competence in English language prior to admission. Details regarding how undergraduate applicants may demonstrate English proficiency can be found on the following website: https://www.uvic.ca/undergraduate/admissions/language-requirements/index.php

Admission to the Engineering Bridge program at Camosun College does not imply that an applicant has met the UVic English Proficiency requirements. Documentation of proof of English proficiency is required before a conditional offer of admission will be made by UVic.

1.9 Co-operative Education while at Camosun
Co-operative education is a work-integrated learning program that enables students to complement their course work with work terms. Work terms combine paid employment with reflective learning curriculum that is supported by Technology program faculty. Through our existing industry relationships, are connected with a variety of organizations that offer co-op opportunities, and are supported in pursuing their own arrangements as well. Once deciding on a co-op make a note of any existing co-ops you may have had as this could be used for UVIC Credits.

The pre-requisite to completing co-op terms is CDEV-WPS (CDEV). Bridge students who are interested in doing a work term in the summer term between course terms, must take CDEV in their first term (Term 1).

For more information about cooperative education at Camosun College, please see: https://camosun.ca/services/co-operative-education-and-career-services or contact the Co-op & Internship Coordinator, Helen Kobrč – kobr@camosun.ca
Further information
If you have any questions or concerns regarding the Engineering Bridge programs at Camosun College, e-mail engbridge@camosun.bc.ca.

Questions concerning the UVic Faculty of Engineering should be directed to engr@uvic.ca.
2 ADMISSION REQUIREMENTS

2.1 Engineering Bridge programs at Camosun College

The Engineering Bridge programs at Camosun College are recognized across Canada as an excellent transition from a Technology diploma to an Engineering degree. Graduate technologists with a diploma from a Canadian institution in Computer, Electronics, Civil or Mechanical Engineering Technology are welcome to apply.

Diploma programs must be accredited by Technology Accreditation Canada (TAC) to be eligible for admission. Other Canadian technology programs not accredited by TAC may be considered but will require the submission of detailed course descriptions (syllabi) for all courses.

Students coming from sending institutions whose programs are deficient in coverage of prerequisite content will be advised about upgrading requirements as necessary. Diploma programs must have been completed within 5 years of the application to the Bridge program. Unfortunately, due to Canadian Engineering Accreditation Board restrictions, international diplomas do not qualify for Engineering Bridge programs.

Technology students who are in progress and expect to graduate by the beginning of the Bridge program may also apply. Applications will be evaluated based on the marks at the time of the application deadline. Up-to-date transcripts are required for in-progress applications. Seat offers will be conditional, based on successful completion of the diploma program. Final transcript with the diploma awarded must be received at Camosun College prior to the start of the Bridge program.

Ranking of applications to the Bridge program is based on the cumulative Grade Point Average (GPA) of the Technology diploma. The minimum cumulative GPA to qualify for consideration is 5.0 on Camosun’s 9 point scale (73% or equivalent) with a minimum grade of 60% in all courses. GPAs will be calculated based on all courses taken within the diploma program. In cases where a course has been repeated, grades from both instances of the course contribute to the calculation of the GPA. Unfortunately, work experience in no way influences the GPA requirement.

UVic policy stipulates that no upgrading of diploma courses for the purpose of upgrading GPA is possible after the diploma has been awarded. Diploma averages determined to be less than 5.0 may still be considered. These students will be considered on an exceptional basis, after all other qualified applicants are considered, in GPA order as space allows. Completion criteria of the Engineering Bridge courses may vary. See Completion Criteria below.

Electrical and Computer Engineering applicants interested in pursuing the Biomedical Option at UVic must have successfully completed Biology 11.

2.2 Student ranking

This program is not governed by Camosun College’s policies on admission and academic progress and promotion. All students will be ranked according to their cumulative GPA at the time of the application deadline. Camosun College, in conjunction with the Faculty of Engineering at UVic, determines which students and also the number of students admitted into the Bridge programs. Where the number of applications exceeds the number of seats available, the highest ranked students will be offered the seats.

Updated April, 2022
Late qualified applicants will be accepted on a first come, first served basis where space allows.

2.3 Completion criteria

To be accepted into the third year of Computer, Electrical, Civil or Mechanical Engineering at UVic, the student must have completed the Engineering Bridge program with a grade of C or better in all courses. In addition, a student with a D or F in a course in a previous attempt must obtain a C+ or better when the course is re-taken, before proceeding to UVic. Applicants who have diploma averages less than 5.0 must complete the Engineering Bridge program with C+ grades in all courses.

UVic’s Computer, Electrical, Civil and Mechanical Engineering graduation requirements include completion of two additional courses during the third and fourth year.

Permission to repeat the Bridge programs, in whole or in part, is at the discretion of the Bridge program coordinator; however all courses must be completed within two consecutive offerings of the Bridge program.

The Camosun College elective course “Intercultural Engineering” is acceptable as a BEng complementary studies elective.
3 ACADEMIC PROGRESS

3.1 Part-time students
Students who wish to take the Engineering Bridge as part-time students may do so either from the beginning or after commencement of classes. However, when withdrawing from courses that are underway, it is important to do so prior to the withdraw deadline to avoid academic penalty. Once you have withdrawn from a course, you become a part-time student and can only be accommodated when course space is available, as full-time students take priority. Because UVic requires that you meet their admission requirements within two consecutive Bridge intakes, withdrawing from a course can have significant consequences. Please meet with the Engineering Bridge Coordinator if you are considering withdrawing from an Engineering Bridge course.

3.2 Minimum grade requirements
Unless otherwise stated in a conditional admission offer, you are deemed to be successful in a course if you receive a C grade. If you receive a D or an F grade in a course, you will have to repeat the course. UVic requires that you obtain a C+ or higher if you are repeating a course.

3.3 Prior Learning Assessment (PLA)
PLA may be available to Bridge students who have been unsuccessful in a Bridge course. PLA is a process that tests knowledge and may require the completion of assignments as well as examinations. A student must normally have obtained at least a D grade in a course in order to be eligible for a PLA within the Engineering Bridge, but PLAs may be offered in exceptional circumstances at the discretion of the instructor and/or chair.

The cost for the PLA is half of the usual course cost. Only one PLA per course is permitted, and a PLA cannot be administered until three months after an unsuccessful academic attempt. A student who wishes to pursue a PLA must have the approval of the chair of the department administering the PLA and the Engineering Bridge Coordinator.
4 APPLICATION PROCESS
The application process for all Engineering Bridge applicants has three stages. All documentation for stages 1 and 2 goes to Camosun College. All documentation for stage 3 goes to UVic.

4.1 Stage 1
All supporting documentation in stage 1 must be forwarded to:

Camosun College
Admissions
Interurban Campus
4461 Interurban Rd.
Victoria, BC V9E 2C1

By the stage 1 deadline, the following steps must be completed:

1. Submit the Camosun College application form with the appropriate application fee:
   - application fee:  $44.38 Canadian citizens and Permanent Residents
   - application fee:  $100.00 International applicants camosun.ca/international

   Application fees can only be paid by credit card through the EducationPlannerBC.ca web portal.

   **Applications are made through the EducationPlannerBC.ca website https://www.educationplannerbc.ca/. We DO NOT accept E-transfers, credit cards for paying domestic tuition, or cash payments for all credit and non-credit tuition and student fees.

2. Arrange for submission of one official High School transcript and one official transcript from every post-secondary institution you have attended. Transcripts should be issued directly to Camosun College Admissions at the address above. Documents must be received directly from the issuing institution to be considered official. Ensure that transcripts indicate the credential awarded.

   Camosun College graduates do not need to submit their Camosun College transcripts and only one official High School transcript is required. One official transcript from all other post-secondary institutions are required.

   **One official transcript showing final grades will be required immediately after graduation from the technology diploma program, and must show that the diploma has been granted

   Transcripts (final or in-progress) must be received by the stage 1 deadline in order for your application to be processed.

   Applications that do not include all transcripts will not be considered for admission.
**Notification of application status**
We will inform you by letter if you have been:
- accepted into the program
- waitlisted
- not accepted

You will be notified of your status in August for the UVic Bridge programs. Unsuccessful applicants who wish to re-apply must follow all original application procedures. Waitlists are not carried over to future intakes.

### 4.2 Stage 2
All supporting documentation in stage 2 must be sent to:

Camosun College  
Admissions  
Interurban Campus  
4461 Interurban Rd.  
Victoria, BC V9E 2C1

By the stage 2 deadline, the following must be completed:

Once you have received a seat offer for Camosun’s Engineering Bridge program, you will need to pay the $175 non-refundable tuition deposit ($5,000 with a copy of valid study permit for international students) by the deadline specified on your offer letter. You will pay your deposit with credit card through your MyCamosun student portal.

You will begin attending classes between the stages 2 and stage 3 deadlines.

**Important:** It is each student's responsibility to attend the first class meeting of each course. If a student does not attend and does not contact the instructor within two working days following the first class with a satisfactory explanation, admittance to the course may be denied. If a student does not attend classes and does not officially withdraw (via the Registration Department) prior to fee deadlines, he or she will be required to pay all outstanding fees, will receive no further service until the fees are paid, and may receive an "F" grade.
4.3 Stage 3
All supporting documentation in stage 3 must be forwarded to UVic.

By the stage 3 deadline, the following must be completed:

To UVic:

You must apply to UVic online: [https://www.uvic.ca/undergraduate/admissions/how-to-apply/](https://www.uvic.ca/undergraduate/admissions/how-to-apply/)

With the appropriate application fee by the stage 3 deadline:

- application fee: $81.00 if all transcripts come from institutions within Canada
- application fee: $142.00 if any transcripts originate from outside of Canada
- late fee: $40.25 late fee is charged in addition to the appropriate Application fee when application is received after the deadline

**Note**: No transcripts are needed at this stage, but one final Camosun College transcript showing the credential awarded for your Bridge program will be required by the university. Details about this will be made available during your final term.
5 PROGRAM INFORMATION AND COURSE LISTS

Many of the courses offered in the Engineering Bridge programs in Electrical and Computer, Civil and Mechanical Engineering are common. These courses have been developed in consultation and cooperation with UVic to augment the courses offered in the relevant technology programs.

5.1 Electrical and Computer Engineering Bridge

Academic Term 1 (Winter – January through April)

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Hrs./wk.</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 150</td>
<td>Engineering Chemistry</td>
<td>6.5</td>
<td>3.0</td>
</tr>
<tr>
<td>COMP 166</td>
<td>Programming 1 for Engineers</td>
<td>4.5</td>
<td>3.0</td>
</tr>
<tr>
<td>ENGL 151</td>
<td>Academic Writing Strategies</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 250A</td>
<td>Intermediate Calculus 1</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 251</td>
<td>Matrix Algebra for Engineers</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>STAT 254</td>
<td>Probability and Statistics for Engineers</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>CDEV WPS</td>
<td>Workplace Preparation Skills (Optional)</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Internship (Optional)

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Hrs./wk.</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR 104</td>
<td>Work Term</td>
<td></td>
<td>6.0</td>
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</tbody>
</table>

Academic Term 2 (Fall)

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Hrs./wk.</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 139E</td>
<td>Data Structures &amp; Applications</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>ECET 214</td>
<td>Electrical Properties of Materials</td>
<td>3 for 7wks</td>
<td>1.5</td>
</tr>
<tr>
<td>ECET 216</td>
<td>Signal and Systems Analysis</td>
<td>2.5 for 7wks</td>
<td>1.5</td>
</tr>
<tr>
<td>ECET 236</td>
<td>Discrete Structures in Eng.</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 250B</td>
<td>Intermediate Calculus 2</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 252</td>
<td>Applied Differential Equations</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>MECH 210</td>
<td>Statics and Dynamics</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Electricity and Magnetism</td>
<td>6</td>
<td>3.0</td>
</tr>
</tbody>
</table>
5.2 Mechanical Engineering Bridge to the University of Victoria
Mechanical Engineering Bridge students transfer to UVic from this intake.

**Academic Term 1 (Winter)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Hrs./wk.</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 150</td>
<td>Engineering Chemistry</td>
<td>6.5</td>
<td>3.0</td>
</tr>
<tr>
<td>COMP 166</td>
<td>Programming 1 for Engineers</td>
<td>4.5</td>
<td>3.0</td>
</tr>
<tr>
<td>ENGL 151</td>
<td>Academic Writing Strategies</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 250A</td>
<td>Intermediate Calculus 1</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 251</td>
<td>Matrix Algebra for Engineers</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>STAT 254</td>
<td>Probability and Statistics for Engineers</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>CDEV WPS</td>
<td>Workplace Preparation Skills</td>
<td>4 for 6wks</td>
<td>0.0</td>
</tr>
</tbody>
</table>

**Internship (Optional)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Hrs./wk.</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ENGR 104</td>
<td>Work Term</td>
<td></td>
<td>6.0</td>
</tr>
</tbody>
</table>

**Academic Term 2 (Fall)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Name</th>
<th>Hrs./wk.</th>
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<tr>
<td>COMP 139E</td>
<td>Data Structures &amp; Applications</td>
<td>5</td>
<td>3.0</td>
</tr>
<tr>
<td>ECET 250E</td>
<td>Linear Circuits 1</td>
<td>6.5</td>
<td>3.0</td>
</tr>
<tr>
<td>ENGR 290</td>
<td>Materials and Thermodynamics</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 250B</td>
<td>Intermediate Calculus 2</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>MATH 252</td>
<td>Applied Differential Equations</td>
<td>4</td>
<td>3.0</td>
</tr>
<tr>
<td>PHYS 210</td>
<td>Electricity and Magnetism</td>
<td>6</td>
<td>4.0</td>
</tr>
</tbody>
</table>
5.3 **Civil Engineering Bridge to the University of Victoria**

Civil Engineering bridge students transfer to UVic from this intake

**Academic Term 1 (Winter)**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>COMP 166</td>
<td>Programming 1 for Engineers</td>
<td>4.5</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 151</td>
<td>Academic Writing Strategies</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>MATH250 A</td>
<td>Intermediate Calculus 1</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>MATH 251</td>
<td>Matrix Algebra for Engineers</td>
<td>5</td>
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<td>STAT 254</td>
<td>Probability and Statistics for Engineers</td>
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<td>3</td>
</tr>
<tr>
<td>ENGR 166</td>
<td>Geology for Engineers</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

**Optional Co-op –** Must complete **CDEV-WPS** in the academic term prior to the work term May – August

<table>
<thead>
<tr>
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<tr>
<td>ENGR 104</td>
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**Academic Term Two (Fall)**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>CIVE 210</td>
<td>Sustainability in Civil Engineering</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>CIVE 242</td>
<td>Dynamics for Engineers</td>
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