

Engineering: Certificate

| | |
|--|---------------------------|
| Faculty of Science and Horticulture | kwantlen.ca/science |
| Implementation Date | 01-Sep-2011 |
| Start Date(s) | September |
| Admission Type | Open admission |
| Enrolment Type | Open enrolment |
| Program Type | Undergraduate |
| Credential Granted | Certificate |
| Offered At | Richmond Surrey |
| Format | Full-time Part-time |
| How to Apply | www.kwantlen.ca/admission |

DESCRIPTION

The Certificate program in Engineering is a one year pre-engineering program designed to prepare students for admission to the engineering programs at UBC and SFU. Kwantlen offers the full first year of the Engineering core program for students wishing to transfer to UBC or UVic in the following areas of engineering:

- Chemical and Biological Engineering (UBC)
- Civil Engineering (UBC)
- Computer Engineering (UBC, UVic)
- Computer Science (UVic)
- Electrical Engineering (UBC, UVic)
- Engineering Physics (UBC)
- Geological Engineering (UBC)
- Integrated Engineering (UBC)
- Mechanical Engineering (UBC, UVic)
- Materials Engineering (UBC)
- Mining Engineering (UBC)
- Software Engineering (UVic)

Kwantlen's first year program is based on UBC's. With one second-semester course substitution students can also complete UVic's first year program. Most, but not all, of Kwantlen's courses transfer to SFU's Engineering Science program. Please contact SFU for details. Students who wish to transfer to UNBC/UBC's joint Environmental Engineering program can meet most first year plus one second year requirement with one or two course substitutions. Students must still apply formally for admission to the destination university as transfer from Kwantlen is not automatic. They must then compete with all other second year students for seats in the Engineering program of their choice.

Transfer to an Engineering Degree

1. Further information about English and elective courses that qualify, or about threshold requirements for admission to an engineering program at the various universities, are available through Educational Advising offices on all campuses.
2. Students intending to transfer to engineering at a university other than UBC or UVic should ensure that course selections conform to requirements at that university.
3. For specific course transfer information, go to the **BCCAT** website at www.bccat.bc.ca Some of our courses do not

show direct transfer, but are accepted in lieu of the specified university courses.

4. For more information about the Engineering profession and about transfer between the Universities and Colleges, visit the Association of Professional Engineers and Geoscientists' web site www.apeg.bc.ca/students.

PROGRAM ADMISSION REQUIREMENTS

General university admission requirements apply to this program including the undergraduate-level English Proficiency Requirement.

Students wishing to complete the program without having to undertake any upgrading courses must have:

- C or higher in Principles of Physics 12; and
- C+ or higher in Chemistry 12; and
- B or higher in Principles of Mathematics 12, or Pre-calculus 12 and
- B or higher in English 12.

Note: Students with a C or C+ in Principles of Mathematics 12 or Pre-calculus 12 are eligible to write the Mathematics Placement Test to determine suitability for direct entry into first year calculus (MATH 1120).

PROGRAM REQUIREMENTS

Many of the courses are offered in both fall and spring semesters.

All of these courses transfer individually with credit for the equivalent course at the destination universities, with two exceptions for UBC: A student must complete both of Kwantlen's APSC 1151 and APSC 1299 to receive credit in lieu of UBC's APSC 150; and must complete both Kwantlen's PHYS 1120 and PHYS 1220 to receive credit in lieu of UBC's PHYS 153.

All of the following:

Semester 1 - Fall

| | | |
|-----------|--|-----------|
| APSC 1124 | Introduction to Engineering | 1 credits |
| APSC 1151 | Introduction to Engineering Graphics | 3 credits |
| CHEM 1154 | Chemistry for Engineering | 4 credits |
| CPSC 1103 | Introduction to Computer Programming I | 3 credits |
| ENGL 1100 | Introduction to University Writing (or another 1100 level ENGL course) | 3 credits |
| MATH 1120 | Differential Calculus | 3 credits |
| PHYS 1120 | Physics for Physical and Applied Sciences I | 4 credits |

Semester 2 - Spring

| | | |
|-----------|--|-----------|
| APSC 1299 | Introduction to Microcontrollers | 3 credits |
| MATH 1152 | Matrix Algebra for Engineers | 3 credits |
| MATH 1220 | Integral Calculus | 3 credits |
| PHYS 1170 | Mechanics I | 3 credits |
| PHYS 1220 | Physics for Physical and Applied Sciences II | 4 credits |

One Complementary Studies elective (see below).

Note: MATH 1220, PHYS 1220 and APSC 1151 are normally also offered on an accelerated basis in May/June.

Kwantlen also offers a number of second-year mathematics and science courses that transfer individually, as well as a wide range of suitable electives to round out a two-year part-time schedule.

Complementary Studies Electives

Most social science and humanities courses will meet the requirements of this 3-credit elective for UBC; UVic and SFU have somewhat restrictive lists of suitable courses. This includes the disciplines of Anthropology, Human Geography, History, Humanities, Philosophy, Political Science, Psychology and Sociology. The elective course must deal with some of the central issues, methodologies and thought processes of the discipline, and must not be mathematics or science based. Basic language courses (particularly mother tongue), physical geography and geology, statistics, computer science or studio/performance courses in the fine arts or music are not normally judged as satisfying the complementary elective requirement.

A second English course at the 1100 level would also meet the complementary elective requirement. In fact, for students who have not completed a minimum of five years of study in an English school in Canada or the equivalent in another country where English is the principal language, 6 credits (2 courses) of English 1100 level courses at Kwantlen that transfer to UBC would satisfy both the complementary elective requirement and the English language requirement for admission to UBC. To confirm the transferability of the complementary elective requirement (or the language requirement), it is always advisable to contact the university in question.

Students planning to transfer to UVic should take CMNS 1110 as their complementary studies elective.

CREDENTIAL AWARDED

Upon successful completion of this program, students are eligible to receive a **Certificate in Engineering**.