Why Prepare for Engineering at TWU?

We have all the necessary **first-year science & math** courses, and even some of the second-year courses, with professors who are **experts**, mostly with PhDs. And unlike at UBC or SFU or UVic or elsewhere, these courses are taught:

- in **small classes**
- from a **Christian perspective**.

You can take other **TWU core courses** to provide a solid foundation in the Christian liberal arts: Philosophy, History, Religious Studies, Psychology, Business, Communication, and others.

Students will find that many aspects of TWU allow them to uniquely meet many of the "non-scientific" components which are important in the training and life of an engineer.

- Our emphasis on the **liberal arts** includes excellent opportunities for developing students' **communication skills** which are very important in engineering.
- As a Christian university, we have a calling to be **sensitive to cultural, economic, and social impacts** of our work.
- We explore and develop an **interdependent and multi-faceted creation**.
- We have strong biology and environmental studies programs which are in an excellent position to help faculty and students advance the concepts of **sustainable development and environmental stewardship**.
- Our Christian **morals and ethics** contribute to a solid understanding of the role and **responsibilities** of the engineer.

Engineering is **part of our mandate** to develop and advance culture through wise and stewardly use of the resources entrusted to us by their and our Creator.

The world needs **insightful, servant leadership** by engineers whose motivations and ideals have been formulated through a critical analysis of the positive and negative cultural effects of technology.

Engineers must seek to develop technological artifacts in ways which acknowledge the fact that the users and beneficiaries are **image-bearers** of the Creator.

This brochure is online at www.twu.ca/academics/faculty-natural-applied-sciences/pre-engineering .

Coordinators of Pre-Engineering

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Student Testimonial

Kaitlyn Kooy

I enjoyed my time at Trinity so much; it was a very valuable time for me to grow in my faith and develop close friendships. The small class sizes allowed me to know my professors and benefit from their knowledge during office hours. I explored other interests by studying history, psychology, and sociology, not typically part of an engineering degree. After two years at TWU, I transferred into the second year of civil engineering at UBC in Vancouver. Upon graduation, I began serving with Engineering Ministries International in Uganda.

Updated September 2017.

TRINITY WESTERN UNIVERSITY
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www.twu.ca

TRINITY WESTERN UNIVERSITY

Get in Gear

Spend One or Two Years at TWU Preparing for Engineering

en-gi-neer-ing (n.) The branch of science and technology concerned with the design, building, and use of engines, machines, and structures.
Oxford Dictionary of English

tech-nol-o-gy (n.) A distinct cultural activity in which human beings exercise freedom and responsibility in response to God by forming and transforming the natural creation, with the aid of tools and procedures, for practical ends or purposes.
Stephen Monsma, *Responsible Technology: A Christian Perspective* (1986)

Areas of Engineering

When applying to UBC, SFU, UVic, or elsewhere, you will typically be able to indicate your preferred specialization. No one university offers all types, but TWU courses will be valuable background for each one.

Aerospace ● Architectural ● Bioengineering ● Biomechanical
Biomedical ● Chemical ● Civil ● Computer ● Construction
Electrical ● Electronics ● Engineering Physics
Environmental ● Geological ● Geotechnical ● Industrial
Management ● Materials ● Mechanical ● Mechatronics
Mining ● Robotics ● Software ● Structural ● Systems

To learn about engineering professions see
apeg.bc.ca & **engineerscanada.ca**

Suggested Course Sequences

for students interested in studying
for an engineering degree

Depending on the desired engineering discipline, choices can be made in consultation with an pre-engineering coordinator and the university where the degree will be completed.

All courses are 3 semester hours (sem. hr.) unless others indicated.

Option A: Stay at TWU for two years	
This option provides the best preparation, maximizing TWU math and science courses, as well as incorporating opportunities for liberal arts and other electives	
YEAR ONE of TWO	
Semester 1: Fall (Sep – Dec)	**Semester 2: Spring (Jan – Apr)**
MATH 123 Calculus I	MATH 124 Calculus II
*PHYS 111 Fundamentals of Physics I	*PHYS 112 Fundamentals of Physics II
*CHEM 111 Principles of Chemistry	*CHEM 112 Principles of Chemistry
*CMPT 140 Introduction to Computing Science and Programming I	*CMPT 166 Introduction to Computing Science and Programming II
ENGL 101, 102, 103, or 104	Another from ENGL 101, 102, 103, 104
FNDN 101: The Liberal Arts Journey (1 sem. hr.)	
Total: 16 sem. hr.	**Total: 15 sem. hr.**
****Note:** *Courses in CHEM, PHYS, and/or CMPT can be replaced with Electives (see list below) and taken in year two instead of year one. A few course sequences will be affected by this shift.*	

YEAR TWO of TWO	
Semester 3: Fall (Sep – Dec)	**Semester 4: Spring (Jan – Apr)**
MATH 223 Calculus III	MATH 250 Linear Algebra
ECON 201 Principles of Microeconomics	*PHYS 220 Mechanics
*CMPT 480 Ethical and Social Issues in High Technology, or *Elective*	*PHYS/CHEM 240 Physical Chemistry, or *Elective*
*MATH 321 Differential Equations (4 sem. hrs.), or *MATH/CMPT 330 Numerical Analysis (4 sem. hrs.), or *Elective*	*MATH 310 Probability and Statistics, or *Elective*
*CMPT 385 Software Engineering, or *Elective*	*CMPT 386 Software Engineering Project, or *Elective*
Total: 15 or 16 sem. hr.	**Total: 15 sem. hr.**

***Note:** Some courses are not offered every year; for example:

- PHYS/CHEM 240: every two years (Spring 2018, 2020)
- PHYS 220: every two years (Spring 2018, 2020)
- MATH 310: every two years (2018-19, 2020-21)
- CMPT 480: every two years (Fall 2017, 2019)
- CMPT 385/386: every two years (2018-19, 2020-21)
- MATH 321: every *three* years (2019-20, 2022-23)
- MATH/CMPT 330: every *three* years (2017-18, 2020-21)

In certain circumstances, professors may be able to offer these by directed study when not regularly offered.

Take *either*

- ENGR 151 Computer-Aided Engineering Graphics (4 credits) at University of Fraser Valley (two evenings per week during any semester after PHYS 111) *or*
- APSC 1151 Introduction to Engineering Graphics (3 credits) at Kwantlen Polytechnic University (available as a six-week course in May/June), after year one (preferably) or year two.

See Recommended Electives on next page.

Recommended Electives

- Philosophy, e.g. PHIL 105, 106 Introduction to Philosophy, PHIL 210 Contemporary Ethical Issues
- Communication
- Economics, e.g. ECON 102 Principles of Macroeconomics
- Religious Studies, e.g. RELS 100 Introduction to Christianity, RELS 101 Introduction to Old Testament Studies, RELS 102 Introduction to New Testament Studies
- Chemistry, e.g. CHEM 221/222 Organic Chemistry, CHEM 230 Inorganic Chemistry

Option B: Stay at TWU for only one year	
YEAR ONE of ONE	
Semester 1: Fall (Sep – Dec)	**Semester 2: Spring (Jan – Apr)**
MATH 123 Calculus I	MATH 124 Calculus II
PHYS 111 Fundamentals of Physics I	PHYS 112 Fundamentals of Physics II
CHEM 111 Principles of Chemistry	CHEM 112 Principles of Chemistry
CMPT 140 Introduction to Computing Science and Programming I	CMPT 166 Introduction to Computing Science and Programming II, or MATH 250 Linear Algebra
ENGL 101, 102, 103, or 104	Another from ENGL 101, 102, 103, 104
FNDN 101: The Liberal Arts Journey (1 sem. hr.)	
Total: 16 sem. hr.	**Total: 15 sem. hr.**

Take *either*

- ENGR 151 Computer-Aided Engineering Graphics (4 credits) at University of Fraser Valley (two evenings per week during the Spring semester) *or*
- APSC 1151 Introduction to Engineering Graphics (3 credits) at Kwantlen Polytechnic University (available as a six-week course in May/June).