

# PRE-ENGINEERING

## SUGGESTED COURSE SEQUENCES



TRINITY  
WESTERN  
UNIVERSITY

FACULTY OF NATURAL  
& APPLIED SCIENCES







## **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 a pre-engineering coordinator and the university where the degree will be completed.

PRE-  
ENGINE-  
ERING

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.

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

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
*CHEM 198 Lab for Chemistry 103 and 111 (1 sem. hr.)	*CHEM 199 Lab for Chemistry 104 and 112 (1 sem. hr.)
*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: 17 sem. hr.	Total: 16 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. Some courses may be offered in different semesters; this is for illustration only.

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.



## YEAR TWO OF TWO

### SEMESTER 3: FALL (SEP – DEC)

MATH 223 Calculus III

ECON 201 Principles of Microeconomics

\*NATS 483 Christian Perspectives in the Sciences: Computing Science, NATS 484 Christian Perspectives in the Sciences: Mathematics, or Elective

\*MATH 321 Differential Equations (4 sem. hrs.), or \*MATH/CMPT 330 Numerical Analysis (4 sem. hrs.), or Elective

\*CMPT 385 Intro to Software Engineering, or Elective

**Total: 15 or 16 sem. hr.**

### SEMESTER 4: SPRING (JAN – APR)

MATH 250 Linear Algebra

\*PHYS 220 Mechanics

\*PHYS/CHEM 240 Physical Chemistry, or Elective

\*MATH 310 Probability and Statistics, or Elective

\*CMPT 386 Software Engineering II, or Elective

**Total: 15 sem. hr.**

**Note:** Some courses may be offered in different semesters; this is for illustration only.

### 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
CHEM 198 Lab for Chemistry 103 and 111 (1 sem. hr.)	CHEM 199 Lab for Chemistry 104 and 112 (1 sem. hr.)
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 or 17 sem. hr.	Total: 16 sem. hr.

**Note:** Some courses may be offered in different semesters; this is for illustration only.

## 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).

**Note:** TWU has a transfer agreement with University of Victoria (UVic). This agreement provides for direct transfer to second year of UVic engineering program and it allows TWU students to compete on an equal footing with UVic students for placement in their chosen engineering programs.





## COORDINATOR OF PRE-ENGINEERING

**Herbert Tsang, Ph.D., P.Eng.**

*Professor of Computing Science & Mathematics*

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### Areas of Engineering

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| <ul style="list-style-type: none"><li>• Aerospace</li><li>• Architectural</li><li>• Bioengineering</li><li>• Biomechanical</li><li>• Biomedical</li><li>• Chemical</li><li>• Civil</li><li>• Computer</li><li>• Construction</li></ul> | <ul style="list-style-type: none"><li>• Electrical</li><li>• Electronics</li><li>• Engineering Physics</li><li>• Environmental</li><li>• Geological</li><li>• Geotechnical</li><li>• Industrial</li><li>• Management</li><li>• Materials</li></ul> | <ul style="list-style-type: none"><li>• Mechanical</li><li>• Mechatronics</li><li>• Mining</li><li>• Robotics</li><li>• Software</li><li>• Structural</li><li>• Systems</li></ul> |
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To learn about engineering professions visit  
[egbc.ca](http://egbc.ca) and [engineerscanada.ca](http://engineerscanada.ca)



