

MECHANICAL ENGINEERING TECHNICIAN CERTIFICATE

Purpose

Graduates of this program will have developed the drafting and 3D Building Information Modeling (BIM) skills that will enable them to work as team members in consulting mechanical engineering firms, fabrication facilities, municipal, provincial or federal offices, as well as in private industry. Graduates will be prepared to work on a wide variety of mechanical applications in the mining industry, chemical process plants, energy infrastructure, oil and gas, as well as mechanical systems for buildings and development work.

Duration

Duration: Ten (10) months comprised of three terms.

Maximum Time for Completion: Three (3) years.

Learning Outcomes

Upon successful completion of this program, graduates will be able to:

1. Use drawing techniques to complete projects in orthographic projection, sectioning, dimensioning, auxiliary view, and machine detailing.
2. Apply concepts in orthographic projection, sectioning, dimensioning, auxiliary view, and machine detailing.
3. Employ Computer Aided Drafting (CAD) and three-dimensional (3D) modelling systems skills to produce drawings from data, designs, and/or specifications.
4. Demonstrate an understanding of drafting and 3D modeling skills and conventions.
5. Develop drafting, 3D Building Information Modeling (BIM) and related trade skills and knowledge.
6. Apply critical thinking, team building, and interpersonal communication skills.
7. Apply concepts of building construction and technology to plan and detail commercial and industrial facilities in accordance with local by-laws and the BC Building Code.
8. Utilize concepts of mechanical and process technology and planning to produce drawings and 3D models of industrial facilities.
9. Employ mechanical engineering theories and BIM practices to prepare engineering drawings from 3D model that incorporate mechanical, electrical, and plumbing (MEP) systems in building structures.
10. Prepare a comprehensive professional portfolio.
11. Perform job search skills such as preparing a résumé and cover letter.

Admission Requirements

- Grade 12 graduation or equivalent
- English Language Proficiency (<https://www.vcc.ca/applying/registration-services/english-language-proficiency-requirements/>) at

a grade 12 level or CLB/CLBPT Listening 8, Speaking 7, Reading 8, and Writing 7

- Knowledge of mathematics demonstrated by one of the following:
 - Workplace Mathematics 11 or equivalent, or
 - VCC Math Assessment with 80% Basic Arithmetic and 60% Basic Algebra

Notes:

- Applicants who do not meet the English language requirement may be admitted at the discretion of the department after an in-person interview.
- Applicants who have met all the above requirements and have completed high school Drafting 11 and 12 may, with Departmental approval, apply for direct entry into Level 2 of the program.
- VCC CAD Technician Short Certificate graduates (granted within the last 4 years) may insert into level 2 of the program.

Program Requirements

Course	Title	Credits
Term One		
DRFT 1010	CAD Drafting Fundamentals	4
DRFT 1011	CAD Drafting Applied	3
DRFT 1012	Office & Construct Site Safety	1
DRFT 1013	Construction Mathematics	1
Credits		9
Term Two		
DRFT 1256	Plumbing Systems for Buildings	1
DRFT 1257	Electrical Systems for Bldgs	1
DRFT 1258	Utility Data	1
DRFT 1259	HVAC Systems for Buildings	3
DRFT 1260	Fire Suppression Systems	1
DRFT 1261	Process Flow Diagrams	2
DRFT 1262	Pipe Components	1
DRFT 1263	Piping and Instrumentation	1
DRFT 1264	Plant and Equipment Layout	2
DRFT 1265	Process and Utility Piping	1
DRFT 1266	Piping Fabrication Isometrics	1
Credits		15
Term Three		
DRFT 1370	Technical Communications	1
DRFT 1332	Professional Preparation	1
DRFT 1362	BIM Basic for Mechanical	2
DRFT 1363	BIM Project for MEP	2
DRFT 1364	MEP for Pipe Fabrication	3
DRFT 1365	Piping BIM Proj & Spec Setup	1
DRFT 1366	3D BIM Pipe Struc Equip Model	1
DRFT 1367	3D BIM Ortho Iso and BOM	1
DRFT 1394	Industrial Building Modeling	2
DRFT 1395	Mech Equip Modeling & Layout	1
DRFT 1396	Piping Sys Modeling & Layout	1
Credits		16
Total Credits		40

Evaluation of Student Learning

Students are evaluated by practical projects, exams, drawings and presentations.

Student Program Progression

In order to be granted a Certificate credential upon completion of the program, a student must:

1. Maintain an overall minimum 2.00 GPA (C average); and
2. Successfully complete all courses to qualify for the credential.

Note: A student will not receive a credential if they fail to maintain a C average, or if they receive an F grade in any course.

Prior Learning Assessment and Recognition (PLAR)

Students may request formal recognition of prior learning attained through informal education, work, or other life experience, including Indigenous ways of knowing. Credits may be granted to students who are able to sufficiently demonstrate the learning outcomes of specific courses.

PLAR is available for the following courses:

- DRFT 1010 CAD Drafting Fundamentals
- DRFT 1011 CAD Drafting Applied
- DRFT 1013 Construction Mathematic

Students may complete up to 20% of program credits through PLAR. Tuition and fees may still apply to PLAR candidates.

Methods of PLAR vary by course, and may include exams, portfolios, interviews, and other evaluations.

To request PLAR, please contact the department directly. See the Prior Learning Assessment and Recognition Policy and Procedures for more information.

Transcript of Achievement

The evaluation of learning outcomes for each student is prepared by the instructor and reported to the Student Records Department at the completion of semesters.

The transcript typically shows a letter grade for each course. The grade point equivalent for a course is obtained from letter grades as follows:

Grading Standard

Grade	Percentage	Description	Grade Point Equivalency
A+	96-100		4.33
A	91-95		4.00
A-	86-90		3.67
B+	81-85		3.33
B	76-80		3.00
B-	71-75		2.67
C+	66-70		2.33
C	61-65		2.00
C-	56-60	Minimum Pass	1.67

D	50-55		1.00
F	0-49	Failing Grade	0.00
S		Satisfactory – student has met and mastered a clearly defined body of skills and performances to required standards	N/A
U		Unsatisfactory – student has not met and mastered a clearly defined body of skills and performances to required standards	N/A
I		Incomplete	N/A
IP		Course in Progress	N/A
W		Withdrawal	N/A
Course Standings			
R		Audit. No Credit	N/A
EX		Exempt. Credit Granted	N/A
TC		Transfer Credit	N/A

Grade Point Average (GPA)

1. The course grade points shall be calculated as the product of the course credit value and the grade value.
2. The GPA shall be calculated by dividing the total number of achieved course grade points by the total number of assigned course credit values. This cumulative GPA shall be determined and stated on the Transcript at the end of each Program level or semester.
3. Grades shall be assigned to repeated courses in the same manner as courses taken only once. For the purpose of GPA calculation of grades for repeated courses, they will be included in the calculation of the cumulative GPA.