



**CAMOSUN COLLEGE**  
**Trades & Technology**  
**Mechanical Engineering**

**MENG -152 Engineering Graphics & Modelling**  
**Winter - 2020**

**COURSE OUTLINE**

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The calendar description is available on the web @

<http://camosun.ca/learn/calendar/current/web/meng.html#MENG152>

This course introduces concepts of engineering drawing to students using 3D parametric solid modeling software to create parts, assemblies, working drawings and realistic renderings. Exercises include modeling power transmission components. An introduction to surface modeling is provided.

**Credits:** 3

**Format:** 1 lecture hours and 4 lab hours (2X 2-Hour Sessions) per week

*Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

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**1. Instructor Information**

<b>(a) Instructor</b>	Len K. Mar, P.Eng	<b>(d) Phone</b>	250-884-4236
<b>(b) Office hours</b>	Schedule on office door	<b>(e) E-mail</b>	<a href="mailto:mark@camosun.ca">mark@camosun.ca</a>
<b>(c) Location</b>	TEC 133A	<b>(f) Website</b>	N/A

**2. Intended Learning Outcomes**

Upon successful completion of this course a student will be able to:

- Use computer software to create fully constrained 3D models of parts and assemblies.
- Create surface models with appropriate continuity between surface elements.
- Apply lights and materials to render realistic images of models.
- Produce dimensioned part and assembly drawings that conform to acceptable drawing standards including:
  - detail, section, primary & secondary, and exploded views
  - balloons and parts lists
  - pictorial representations of parts and assemblies
  - layout and dimensioning
  - tolerances
- Identify and draw mechanical components such as: fasteners, gears, sprockets, pulleys, splines, ball nuts and screws in 3D assemblies and working drawings.

### 3. Required Materials

- (a) Texts – N/A
- (b) Other – Electronic Subscription – SolidProfessor On-line Training Resource (See Cashier @ campus bookstore). Ask for MENG 152 Electronic Course Material Access Code.

### 4. Course Content and Schedule

Anticipated Lecture Topics (Spread over 14 week term):

- **Introduction and Basic Skills:** Purpose of drawings & standards, drawing types, paper size, basic sketching techniques, lettering. Introduction to CAD.
- **Orthographic Projection 1:** Elements of projections. Multi-view drawings. Number of required views. 1st and 3rd angle projection. Line work.
- **Orthographic Projection 2:** Continuation of 1
- **Dimensioning:** Purpose of dimensioning. Elements of dimensioning. Symbols used. Avoiding redundancy.
- **Limits, Fits & Tolerances:** Introduction to Limits, Fits & Tolerances
- **Auxiliary Views:** Creating and Aligning Auxiliary Views
- **Sections & Conventions:** Cutting planes and lines, Ribs, lugs, holes in section, Revolved sections, Breaks, Sectioned Assemblies
- **Assembly Drawings:** Assembly Drawings, Parts list, Bill of Materials, Title block.
- **Pictorial Drawings:** Pictorial views, Oblique drawings, Development of drawings

Anticipated Lab Topics (Spread over 14 week term):

Students will obtain hands-on experience working on creating model parts, assemblies, and drawings. In addition, lab subjects will include the creation of Engineering Bill of Materials, Master Drawings, and Drawing Package. Introductory sheet metal, weldments, & surfacing will be demonstrated. Students will submit an industry-ready drawing package as a final project. Introduction to PDM (Product Data Management) and application during project portion (latter half of course).

Note – Instructor reserves the right to modify course content as required to maximize benefit of student learning outcomes.

## 5. Basis of Student Assessment (Weighting)

Assignments/Quizzes	35%
Lab Projects	50%
Mid-Term	15%
Other	N/A
Total	100%

90-100%	A+	70-72%	B-
85-89%	A	65-69%	C+
80-84%	A-	60-64%	C
77-79%	B+	50-59%	D
73-76%	B	0-49%	F

## 6. Recommended Materials to Assist Students to Succeed Throughout the Course

See D2L course content for applicable reference material.

## 7. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @

<http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.