



CAMOSUN COLLEGE
School of Trades and Technology
Department of Civil Engineering Technology

ENGR 264
Engineering Mechanics
Winter - 2020

COURSE OUTLINE

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.

1 Instructor Information

Instructor	Ross Gibbs
Office hours	Please see schedule posted outside office.
Office	TEC 265
Phone	Please use email Alternative: _____
E-mail	Gibbs@camosun.bc.ca
Website	See course Google Group.

2 Prerequisites and Co-requisites

- ENGR 262

3 Short Description

Students will study the principles of solid mechanics focusing on calculus-based applications. They will cover: internal loads, stresses and strains due to axial, shear, bending and torsion loads, statically indeterminate structures, elasto-plastic behavior, deflection of beams, Mohr's circle for stress and strain, and design of pressure vessels and column buckling.

4 Intended Learning Outcomes

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

- Determine the stresses, strains and displacements in structures and their components due to axial, shear, torsion and bending loads, both individually and in combinations;
- Determine the deflections of determinate and indeterminate beams and frames under load;
- Determine maximum in-plane and tri-axial stresses and maximum in-plane strains;
- Design spherical and cylindrical pressure vessels;
- Predict the failure mechanism for an element of a structure under load; and
- Establish the safe load for a column under various loading and support conditions.

5 Required Materials

- a) Mechanics of Materials, 8E; James M Gere, Barry J Goodno; Cengage.
ISBN 9781111577735

6 Course Content and Schedule

See last page of this outline.

7 Student Assessment and Grade Weighting

Your course grade will be determined 100% by your performances on the best 10 scores of 11 term quizzes, see course schedule on the last page of this course outline.

There is no makeup for a missed quiz, except for documented medical reasons.

According to the requirements of the Engineering Bridge Programs, you need to get 60% (letter grade C) for your first attempt, and 65% (letter grade C+) if you are repeating the course. (See Camosun Grading Policy E-1.5). If your performance on term quizzes is not satisfactory, you may opt in to write the optional comprehensive final examination (by notifying the instructor via email during the last week of classes **and** receiving confirmation from the instructor before 11:30 a.m. on the last day of classes). The final examination will take place during the semester's scheduled examination period. Your course grade will then be determined using the alternate weighting shown on the course schedule. **Note:** Once you opt to write the final examination, you cannot go back to use 100% term work for your course grade. You may earn a better grade or a worse course grade depending on whether your performance on the final examination is better or worse than that in the "Term Grading System".

Standard Grading System (GPA) and see last page.

Competency Based Grading System

See last page of this outline.

Also see [Camosun Grading Policy E-1.5](#)

8 College Supports, Services and Policies

- If you must, or opt to, write the final examination you must pass the final exam to pass the course.
- Out of class course communication will be via a Google Group, engr264_winter_2020@googlegroups.com .



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.

Week	Date	Lect.	Tut.	Eval.	Chapter	Sections	Pages			totals
							from	to	count	
1	7-Jan	1.5			1 - Tension, Compression, and Shear	3 - 6	27	56	30	53
	8-Jan	1.5				7 - 9	57	79	23	
	8-Jan		2							
2	14-Jan	1.5		1	2 - Axially Loaded Members	1 - 5	120	163	44	78
	15-Jan	1.5				6 - 7	164	186	23	
	15-Jan		2			11 - 12	205	215	11	
3	21-Jan	1.5		2	3 - Torsion	1 - 6	256	290	35	57
	22-Jan	1.5				8 - 9	293	306	14	
	22-Jan		2			11	316	323	8	
4	28-Jan	1.5		3	5 - Stresses in Beams (Basic Topics)	1 - 6	404	434	31	60
	29-Jan	1.5				8 - 12	439	467	29	
	29-Jan		2							
5	4-Feb	1.5		4	6 - Stresses in Beams (Advanced Topics)	1 - 3	508	525	18	43
	5-Feb	1.5				4 - 6	526	542	17	
	5-Feb					10	558	565	8	
6	11-Feb	1.5		5	7 - Analysis of Stress and Strain	1 - 5	590	628	39	58
	12-Feb	1.5				6 - 7	629	647	19	
	12-Feb		2							
7	18-Feb				Reading-Break					349
	19-Feb									
	19-Feb									
8	25-Feb	1.5		6	8 - Applications of Plane Stress (Pressure Vessels, Beams, and Combined Loadings)	1 - 3	672	684	13	40
	26-Feb	1.5				4 - 5	685	711	27	
	26-Feb		2							
9	3-Mar	1.5		7	9 - Deflection of Beams	1 - 4	730	751	22	39
	4-Mar	1.5				4 - 5	752	759	8	
	4-Mar		2			6*	760	768	9	
10	10-Mar	1.5		8	10 - Statically Indeterminate Beams	1 - 3	822	831	10	23
	11-Mar	1.5				4	832	844	13	
	11-Mar		2							
11	17-Mar	1.5		9	- Analysis by the Differential Equations of the Deflection Curve	1 - 4	870	898	29	64
	18-Mar	1.5				5 - 7	899	910	12	
	18-Mar		2			8 - 9	911	933	23	
12	24-Mar	1.5		10	- Moment-Area Method	handouts				0
	25-Mar	1.5								
	25-Mar		2							
13	31-Mar	1.5		11	11 - Columns TBA					0
	1-Apr	1.5								
	1-Apr		2							
14	7-Apr	1.5			TBA					
	8-Apr	1.5								
	8-Apr		2							
Totals		39	24	10	Total page count				166	
63 h										

Term Grading System			
Evaluation	Mark		
Quizzes	10 @	10	100
			100

Term+Final Exam Grading System			
Evaluation	Mark		
Quizzes	10 @	6	60
Final			40
			100