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**CIVE 220 – Solid Mechanics I****Term – Summer2020 (202005)**

We acknowledge with respect the Lekwungen peoples on whose traditional territory the university stands and the Songhees, Esquimalt and WSÁNEĆ peoples whose historical relationships with the land continue to this day.

**Instructor name:** Dr. Min Sun

Phone: 250-472-4468

E-mail: [msun@uvic.ca](mailto:msun@uvic.ca)

Office: ECS 312

**Office Hours**

Days: TBA

Time:

Location:

**List all prerequisites and co-requisites: ENGR 141****Course Objectives**

The course explores the fundamentals of solid mechanics. Topics include stress-strain relationship under axial loading, torsion, analysis and design of beams, shear stress in beams, stresses under combined loads, transformation of stress, thin-walled pressure vessels and columns.

**Learning Outcomes**

At the end of this course, students will be able to:

- (1) Develop physical intuition necessary to idealize a complicated practical problem, and analyze it in a simple and logical manner;
- (2) Apply theory, concepts, principles and governing equations of solid mechanics;
- (3) Apply analytical, experimental and computational tools needed to solve solid mechanics problems;
- (4) Provide independent judgment required to interpret analytical results;
- (5) Use analytical results to perform failure analysis as well as design of structural and machine components;
- (6) Develop interpersonal understanding, teamwork and communication skills via working on group assignments;
- (7) Learn independently new solutions, principles and methods by reading professional articles on the subject; and
- (8) Handle effectively both SI metric units and U.S. customary units.

**Tentative Schedule**

Module	Topics	Week
1	Introduction and Review of Statics	1
2	Concept of Stress	2
3	Stress and Strain – Axial Loading	3
	Quiz 1	4
4	Torsion	4
5	Shear Force and Bending Moment Diagrams	5
6	Design of Beams for Bending	6
7	Shear Stress in Beams	7
8	Stresses under Combined Loads	8
	Quiz 2	9
9	Transformation of Stress	10
10	Thin-Walled Pressure Vessels	11
11	Columns	13
12	Review	13
	Final	

A-Section(s): A01/CRN 30116

**Lecture:**

Days: Monday and Thursday

Time: 1:00 pm - 2:20 pm

Location: Blackboard Collaborate (link will be sent via email)

**Tutorial:**

Days: Tuesday

Time: 10:30 am - 11:20 am

Location: Blackboard Collaborate (link will be sent via email)

TA:

Kamran Tayyebi

kamran.task@gmail.com

Kimberly Jones

k.jones7297@gmail.com

Ali Ziaei Nejad

aliziaee89@gmail.com

**Required Text**

Title: Mechanics of Materials, 7th Edition

Author: Beer, F. P., Johnston, E. R., DeWolf, J. T., and Mazurek D. F.

Publisher/Year: McGraw-Hill

**Optional Text**

**Assessment**

Assignments	20%	Due Dates: TBA
Labs:	10%	
Quizzes	20%	Date: TBA
Final Exam	50%	

**Assignments: (Include Assignment Schedule) (Description & Method of Delivery)**

Assignment #	Modules	Start	Due (5pm PDT)
1.	Weekly assignments must be done neatly in pencil, and preferably on the "engineering calculation paper". A straight edge and eraser are required for drawings.		
2.	The assignments must be submitted to CourseSpaces before the due time.		
3.	Each weekly assignment will contain several problems, and all must be attempted. Of all problems only one question (selected randomly) will be marked. However, if all assigned problems are not attempted a zero mark will be assigned to that particular problem set.		

**Laboratories: (Description & Method of Delivery)**

Lab #	Modules	Start	Due (5pm PDT)
TBA			

**NOTE: (sample notes for all instructors)**

Failure to complete all laboratory requirements will result in a grade of N being awarded for the course  
 Failure to pass the final exam will result in a failing grade for the course.

**Course Withdrawal Deadlines:**

- May 16: Withdrawal with 100% reduction of tuition fees
- June 6: Withdrawal with 50% reduction of tuition fees
- July 1: Last day for withdrawal (no fees returned)

The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar.

**There will be no supplemental examination for this course.**

**Grading:** Please see the Grading information in the current calendar at: <https://www.uvic.ca/calendar2020-05/undergrad/index.php/home#/policies>

**Course policies and guidelines**

**Late Assignments:** No late assignments will be accepted unless prior arrangements have been made with the instructor **at least 48 hours before** the assignment due date.

**Coursework Mark Appeals:** All marks must be appealed **within 7 days** of the mark being posted.

**Attendance:** We expect students attend all lectures and labs. It is entirely the students' responsibility to recover any information or announcements presented in lectures from which they were absent.

**Electronic devices in labs and lectures:** No unauthorized *audio* or *video* recording of lectures is permitted.

**Electronic devices in midterms and exams:** Calculators are only permitted for examinations and tests if explicitly authorized and the type of calculator permitted may be restricted. No other electronic devices (e.g. cell phones, pagers, PDA, etc.) may be used during examinations or tests *unless explicitly authorized*.

**Plagiarism:** Submitted work may be checked using plagiarism detection software. Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the link given below for the UVic policy on academic integrity. Note that the university policy includes the statement that "*A largely or fully plagiarized assignment should result in a grade of F for the course.*"

**Academic Integrity:** You must make yourself aware of the University of Victoria guidelines and policy concerning fraud and academic integrity at this link, <https://www.uvic.ca/current-students/home/academics/academic-integrity/index.php>

**Policy on Academic Integrity:** <https://www.uvic.ca/calendar2020-05/undergrad/index.php#/policies>

**Standards of Professional Behaviour:** You are advised to read the Faculty of Engineering Document Standards for Professional Behaviour in current Undergraduate Calendar, which contains important information regarding conduct in courses, labs, and in the general use of facilities. Please find the document at this link: <https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf>

**Notes to Students:**

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

**University of Victoria Privacy Policy:** If any student has concerns about their private information being stored or accessed outside of Canada, they are required to inform the course instructor about their concerns before the end of second week of classes.

**Accommodation of Religious Observance:** See entry in current Undergraduate Calendar.

**Equality:** This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Centre for Accessible Learning located in the Campus Services Building, <https://www.uvic.ca/services/cal/>.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.

**Sexualized Violence Prevention and Response at UVic:** UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting [www.uvic.ca/svp](http://www.uvic.ca/svp). If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

**Where:** Sexualized violence resource office in EQHR; Sedgewick C119

Phone: 250.721.8021  
Email: [svpcoordinator@uvic.ca](mailto:svpcoordinator@uvic.ca)  
Web: [www.uvic.ca/svp](http://www.uvic.ca/svp)

**Policy on Inclusivity and Diversity:** See the entry in the current Undergraduate Calendar.

### Course Lecture Notes

Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.

### Syllabus statement

A note to remind you to take care of yourself. Do your best to maintain a healthy lifestyle this semester by eating well, exercising, getting enough sleep and taking some time to relax. This will help you achieve your goals and cope with stress. All of us benefit from support during times of struggle. You are not alone.

**Counselling Services** - *Counselling Services can help you make the most of your university experience. They offer free professional, confidential, inclusive support to currently registered UVic students.*

<https://www.uvic.ca/services/counselling/>

**Health Services** - *University Health Services (UHS) provides a full service primary health clinic for students, and coordinates healthy student and campus initiatives.* <http://www.uvic.ca/services/health/>

**Centre for Accessible Learning** - *The CAL staff are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations* <https://www.uvic.ca/services/cal/>. *The sooner you let us know your needs the quicker we can assist you in achieving your learning goals in this course.*

**Elders' Voices** - *The Office of Indigenous Academic and Community Engagement (IACE) has the privilege of assembling a group of Elders from local communities to guide students, staff, faculty and administration in Indigenous ways of knowing and being.*

<https://www.uvic.ca/services/indigenous/students/programming/elders/index.php>

The **Office of the Ombudsperson** is an independent and impartial resource to assist with the fair resolution of student issues. A confidential consultation can help you understand your rights and responsibilities. The Ombudsperson can also clarify information, help navigate procedures, assist with problem-solving, facilitate communication, provide feedback on an appeal, investigate and make recommendations.

Phone: 250-721-8357; Email: [ombuddy@uvic.ca](mailto:ombuddy@uvic.ca); Web: [uvicombudsperson.ca](http://uvicombudsperson.ca).