SUSTAINABLE DESIGN OF STEEL AND TIMBER STRUCTURES- 10596 – CIVE 351 - A01

Term – FALL 2017 (201709)

Instructor
Dr. Phalguni Mukhopadhyaya
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Office Hours
Days: Wednesday & Friday
Time: By Appointment Only
Location: ECS 318

Course Objectives
In this course we will learn about the design principles and methodologies applicable to steel and timber structures. Relevant properties of steel and wood influencing the design and performance of the components and structures will be explained.

Learning Outcomes
On completion of this course students will be able to: (1) Explain the analysis and design principles of steel structures, (2) Describe the physical properties of structural steel, (3) Design steel tension members, compression members, beams, composites and connections, (4) Describe the structural and mechanical properties of wood, (5) Explain the factors influencing strength and durability of wood, (6) Design wood structural elements and connection, (7) Apply the principles of life cycle analysis to structures.

Prerequisites
All of CIVE 210, CIVE 350, MECH 220.

Syllabus
Design of metal structures, behaviour of members and their connections, shear lag, block shear, local plate buckling, lateral torsional buckling, inelastic strength and stability. Design of tension members and cables, beams, columns, simple bolted and welded connections. Mechanical properties of wood; effects of moisture content and loading on strength and durability; engineered woods; design of connections, beams, and columns; design of buildings, bridges other wood structures. Life cycle analysis of structures.

A-Section(s): A01 / CRN 10596
Days: Monday (M) and Thursday (Th)
Time: 10:00 AM - 11:20 AM (MTh)
Location: MacLaurin Building D110 (MTh)

Tutorials: T01 / CRN 10597
Day: Monday (M) and Thursday (Th)
Time: 11:30 AM - 12:50 PM (MTh)
Location: Elliott Building 060 (MTh)

Teaching Assistant (TA): Pejman Azarsa
(pazarsa@uvic.ca)
Recommended Texts and References
Title: Limit States Design in Structural Steel
Author: G. L. Kulak and G. Y. Grondin
Publisher: Canadian Institute of Steel Construction
Year: 2014, Ninth Edition

Title: Introduction to Wood Design
Author: Prepared by Canadian Wood Council
Publisher: Canadian Wood Council
Year: 2011 Edition

Title: Handbook of Steel Construction
Author: Prepared by Canadian Institute of Steel Construction
Publisher: Canadian Institute of Steel Construction
Year: 2014, Tenth Edition

Title: Wood Design Manual 2010
Author: Prepared by Canadian Wood Council
Publisher: Canadian Wood Council
Year: 2010 Edition

Assessment:
Assignments: 20% (at regular intervals)
Midterm: 40% (After 7th week)
Final: 40% (TBD, End of Term)

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.

Assignment of E grade and supplemental examination for this course will be at the discretion of the Course Instructor. The rules for supplemental examinations can be found in the current Undergraduate Calendar.

Note 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.

Accommodation of Religious Observance
See entry in current Undergraduate Calendar

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

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult entry in current Undergraduate Calendar for the UVic policy on academic integrity.

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.