



CIVL5262 Structural Steel Connections: Semester 1, 2009

Unit of Study Information Sheet

General Information

Course Coordinator & Lecturer:	Prof Kim Rasmussen, K.Rasmussen@civil.usyd.edu.au
Lectures:	Mondays 4 pm – 6 pm (Civil Engineering Lecture Theatre 1)
Course web site:	http://www.civil.usyd.edu.au/courses/civl5258

Course Context

This course aims to facilitate advanced knowledge in the behaviour of steel structures: hot-rolled open steel sections, hollow sections, and thin cold-formed steel. It is expected that participants are already familiar with basic behaviour of steel members under tension, compression, bending and shear, through the completion of an undergraduate course in structural steel behaviour or similar.

Objective and Outcomes

The primary objective is to develop an advanced understanding of the behaviour and design of hot-rolled and cold-formed structures to Australian and international standards.

At the end of this course, participants should:

- understand the principles for the design of hot-rolled steel and cold-formed steel structures.
- appreciate the difference between hot-rolled steel design and cold-formed steel design according to Australian, British and USA standards and specifications.

Assumed Knowledge

It is assumed that participants will have some knowledge of the philosophy of limit states design, and the format of design standards such as AS 4100. Participants are assumed to have completed typical university undergraduate course in structural analysis and structural steel design.

Syllabus

International design standards, International material standards, Limit states design philosophy and approaches, Loading standards, Methods of analysis, Flexural members section and member capacity, Flexural members international comparisons, Compression members section and member capacity, Compression members international comparisons, Beam-column members capacity, beam-column members international comparisons, bolted connections and welded connections.

Course Assessment

- Assignment submissions, as indicated at the commencement of the course, 50%
- Final 2 hour exam in Week 14, 50%.

Text Books

Course Notes

- *Advanced Structural Steel Design*, compiled by Greg Hancock (2009)
- GJ Hancock, MJ Clarke and TJ Wilkinson, CIVL3206 Steel Structures 1 - Lecture Notes, School of Civil Engineering, University of Sydney, Semester 2, 2008.

The notes *Advanced Structural Steel Design* will be provided to the students during the course.

Reference Books

- AS/NZS 4600: 2005, Cold-formed Steel Structures, Standards Australia, Sydney, 2005.
- AS 4100: 1998, Steel Structures, Standards Australia, Sydney, 1998.
- GJ Hancock, Design of Cold-Formed Steel Structures to AS/NZS 4600, AISC, 1998.
- GJ Hancock, TM Murray and DS Ellifritt, Cold-Formed steel structures to the AISI Specification, Marcel Dekker, New York, 2001.
- NS Trahair, MA Bradford and DA Nethercot, The Behaviour and Design of Steel Structures to BS 5950 Part 1, 3rd Edition, Chapman and Hall, London, 1998.
- American Institute of Steel Construction, Load and Resistance Factor Design Specification for Steel Structural Members, December, 2005.
- British Standards, Structural Use of Steel in Buildings, Part 1, Code of Practice for Design of Rolled and Welded Sections, 2000.

Library Classifications

Some relevant books may be found in the library in the following areas – 624.17, 624.18, 691.7.

Internet Resources

The web page for this course, <http://www.civil.usyd.edu.au/courses/civl5258>, will also contain links to other relevant sites that may assist students in Structural Steel Connections.

Participant Feedback

Participants are highly encouraged to give positive and/or negative feedback related to this course or the department to the lecturer or tutors at any time. Without feedback, potential problems or difficulties cannot be identified and rectified.

I hope that you enjoy this course and you find it interesting, challenging and informative, and that this year is successful both academically and in any other endeavours that you undertake.

Kim Rasmussen

Kim Rasmussen
Professor in Civil Engineering
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