

CIVL 3005 CONSTRUCTION TECHNOLOGY 4 (STEEL CONSTRUCTION)

Credit Points 10

Legacy Code 200470

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Description This unit deals with the construction of structural steelwork. Students will gain a better understanding of mechanical properties of steel. It covers various components in structural steelwork, and their behaviour under loads. Students will also be introduced to various frame systems in multi-story and high-rise construction and relevant Australian Standards for steel construction. Emphasis will be given to safe erection and assembly of structural steelwork. Due consideration will be given to the requirements of Workcover in relation to site safety and material handling. An introduction will also be given for Steel-concrete composite construction.

School Eng, Design & Built Env

Discipline Structural Engineering

Student Contribution Band HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 3 subject

Assumed Knowledge

Students undertaking this subject should have prior knowledge of construction techniques associated with residential and non-residential building and a basic understanding of structural systems.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe various structural systems in the context of steel framework
2. Explain what the structural properties of steel are and how they affect steel construction
3. Analyse and explain the different effects and actions caused by loads on various structural steelwork
4. Recount the sequence of construction in a typical portal frame building and the issues related to site safety and site management;
5. Summarise the various methods of connection in steel structures
6. Analyse construction sequences of typical steel-concrete composite construction
7. Converse, with confidence, with other building professionals including structural engineers at a professional level in the role of a construction manager
8. Apply Australian Standards related to structures and construction, in particular, loading code and steel construction

Subject Content

Introduction to steel structures, failures and the consequences
Steel as a structural material
Fire issues in steel construction

Loads and their effect on steel structures
Structural analysis and design,
AS4100 Steel Structures
Steel sections and Tension members
Beams
Beam-Columns Column Buckling
Self-arranged site visit
Connection type and details
Frames and their analysis
Frame: Case study
Detailing and fabrication
Safe erection of steel frame
Composite and innovation and Overview

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Project Assignment - Steel Construction	5,000 words approximately	30	N	Group
Online quizzes (3 x 10%)	30 minutes (per Quiz)	30	N	Individual
Final online exam-non-proctored	2 hours online exam via vUWS	40	N	Individual

Prescribed Texts

- Full set of lecture notes provided during lecture

Teaching Periods