

# CIVL 3021 BRIDGE ENGINEERING DESIGN

**Credit Points** 10

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**Description** This subject focuses on one key aspect of bridge engineering design, namely, the bridge superstructure design. It aims to provide students with specialised knowledge in bridge loading, the types of possible loads, calculation of ultimate load combinations and investigate the different sizes for the beams (girders) of simple bridge design and structural design. These aspects will be discussed in relation to Australian design codes to prepare students for roles such as design engineer or analyst. Furthermore, this subject will involve industry guest speakers, with state of the art engineering design, who will be able to review and contribute to the assessment tasks.

**School** Eng, Design & Built Env

**Discipline** Construction Engineering

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 3 subject

**Pre-requisite(s)** CIVL 3002 Concrete Structures (UG)  
CIVL 3012 Steel Structures

**Assumed Knowledge**

Structural Analysis, Concrete and Steel Design

## Learning Outcomes

1. Apply structural mechanics principles in bridge design
2. Use engineering software in structural analysis and design
3. Integrate relevant Australian Standards in the design of bridge structures
4. Recommend cost effective and suitably designed bridge structures aligned with sustainability principles and stakeholder requirements
5. Communicate concepts, bridge designs and rationales to diverse audiences and in multiple formats following ethical guidelines
6. Collaborate with team members and others in a respectful and responsible manner being accountable for contributions

## Subject Content

- Introduction of types of bridges
- Bridge substructures and superstructures
- Bridge loading and design loads
- Method of loading analyses
- Design of superstructures (Deck and Girder)

## 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.

Type	Length	Percent	Threshold	Individual/ Group Task
Numerical Problem Solving	2 hours (per practical)	30	Y	Individual
Numerical Problem Solving	1 hour (per Quiz)	30	N	Individual
Numerical Problem Solving	Report, 15-20 pages (including calculations and diagrams) Presentation, 2 minutes (per student)	40	N	Group