

CIVL 3021 BRIDGE ENGINEERING DESIGN

Credit Points 10

Coordinator Olivia Mirza ([https://directory.westernsydney.edu.au/search/name/Olivia Mirza/](https://directory.westernsydney.edu.au/search/name/Olivia%20Mirza/))

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

Teaching Periods

Autumn (2025)

Penrith (Kingswood)

Hybrid

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View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=CIVL3021_25-AUT_KW_3#subjects)

Parramatta City - Macquarie St

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