



Unit Outline (Higher Education)

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|----------------------------|---|
| Institute / School: | Institute of Innovation, Science & Sustainability |
| Unit Title: | CONCRETE TECHNOLOGY AND CIVIL CONSTRUCTION |
| Unit ID: | ENGIN2202 |
| Credit Points: | 15.00 |
| Prerequisite(s): | (ENCOR1110 or ENGIN1003) |
| Co-requisite(s): | Nil |
| Exclusion(s): | (ENCIV2020) |
| ASCED: | 039999 |

Description of the Unit:

This unit introduces students to the fundamentals of concrete as a material and its use in various construction scenarios. Other forms of construction processes such as building and bridge types and construction details and various aspects of residential subdivision construction will also be covered.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

| Level of Unit in Course | AQF Level of Course | | | | | |
|-------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|
| | 5 | 6 | 7 | 8 | 9 | 10 |
| Introductory | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Intermediate | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Advanced | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Learning Outcomes:

On successful completion of the unit the students are expected to be able to:

Knowledge:

- K1.** Describe the various constituents of concrete, their function and effect on the concrete properties.
- K2.** Describe the plastic- and hardened-state properties of concrete, their importance and how they are tested.
- K3.** Describe the practices and principles associated with construction.
- K4.** Describe the typical structural form and a selection of typical details found in contemporary buildings and bridges.
- K5.** Explain how structures are built to achieve strength and stability.

Skills:

- S1.** Undertake laboratory based testing to determine concrete properties.
- S2.** Use appropriate theory in civil engineering concrete technology.
- S3.** Sequence construction activities associated with a residential sub-division.

Application of knowledge and skills:

- A1.** Specify appropriate concrete properties to suit particular applications.
- A2.** Explain the causes of some of the more common defects encountered in concrete construction.
- A3.** Select the most appropriate methods and practices to achieve quality concrete construction in particular applications.
- A4.** Investigate and report on the technical aspects of a specified construction material or technique.

Unit Content:

Topics may include:

- Introduction to Concrete Construction
- Constituents and properties of concrete e.g. plastic-state, hardened state; hydration process; durability etc
- Handling of concrete e.g. specification and ordering, transporting, placing, curing crack control
- Reinforcing and pre-stressing of concrete
- Aspects in building and bridge construction e.g. domestic structures, steel framed industrial building, pre-cast concrete construction, bridges
- Road and sub-division construction

Learning Task and Assessment:

| Learning Outcomes Assessed | Assessment Tasks | Assessment Type | Weighting |
|----------------------------|---|------------------------------|-----------|
| K1 - K3, A1, A2 | Participate in all learning activities including attendance and participation in classes, exercises, recommended and supplementary readings or other activities | Class test/Quiz | 5% - 10% |
| S1, S2 | Practical exercise in concrete technology | Report on practical exercise | 10% - 20% |
| S3, A4 | Case study related to a building, bridge, road or sub-division construction | Oral or poster presentation | 15% - 25% |
| K1 - K5, S1 - S3, A1 - A4 | An examination on any or all of the material covered in the unit. | Examination | 50% - 70% |

Adopted Reference Style:

Other (Refer to the library website for more information: IEEE)

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)