

# UNSW Engineering Education Specification

## 1. Program Overview

Program Title: Bachelor of Engineering (Honours)

Award Title: Bachelor of Engineering (Honours) (Civil Engineering)

Engineering Discipline: Civil Engineering

The Civil Engineering program meets the Engineers Australia Stage 1 Competency Standard by developing graduates with comprehensive technical knowledge, engineering application capabilities, and professional attributes. The curriculum integrates engineering fundamentals with specialist civil engineering applications, including structural, geotechnical, transportation, and water engineering, ensuring students develop the depth of expertise required by the Stage 1 Standard. In addition, through design projects, laboratory work, team-based projects, and industry engagement, students build competencies in advanced problem-solving, sustainable practice, and project management, preparing them to contribute meaningfully to the engineering profession and society.

## 2. Career Alignment

The specialisation prepares graduates for clearly defined professional roles across the breadth of civil engineering by aligning its learning outcomes and industry engagement with contemporary engineering practice. It provides a pathway to a Professional Engineer through Engineers Australia, with curriculum design informed by industry standards, ongoing engagement with professional bodies and active participation of academic staff in professional and advisory committees. A substantial proportion of graduates progress into roles that lead to chartered status, while others enter specialised or interdisciplinary careers across infrastructure, water, transportation, geotechnical engineering, environmental systems and emerging sustainability sectors.

The specialisation equips graduates for both technical and leadership roles in consulting firms, construction contractors, government authorities, infrastructure owners, research organisations and sustainability-focused enterprises. It develops strong analytical, design and project-delivery capabilities through design-based learning, laboratory practice and industry-linked projects that replicate real engineering workflows—from problem definition and modelling through to design, evaluation, implementation and communication.

Professional preparation is embedded through the minimum 60 days of Industrial Training, which connects students with workplace expectations and engineering culture. Research literacy and innovation capability are strengthened through the final-year thesis, which is supervised and assessed with reference to professional and academic standards.

Industry integration is sustained through guest seminars, employer engagement initiatives, thesis showcases, and regular participation in careers events and professional development activities. Students gain hands-on experience with the tools shaping modern engineering practice, including

numerical modelling, data analytics, sensing technologies, design software platforms and sustainability assessment frameworks, ensuring they graduate work-ready for an evolving infrastructure landscape.

### **3. Specialisation Framework**

Initial development of the Specialisation Learning Outcomes (SLOs) involved a working party consisting of the Specialisation Coordinators for Civil Engineering (undergraduate), Civil Engineering (postgraduate) and Civil Engineering with Architecture (undergraduate). The draft was then presented to the School Teaching and Learning Committee (TLC) for discussion. This discussion included student opinion collected from representatives of the Civil and Environmental Engineering Student Society (CEVSOC). After including amendments from TLC, the draft was presented to the School Management Committee (SMC) for discussion. After approval from the SMC, the draft was submitted to the Industry Advisory Committee (IAC) for comment.

The final set of suggested improvements was received from the Faculty Accreditation Working Group (FAWG). The final version of the SLOs incorporated all the comments from the TLC, SMC, IAC and FAWG. The final SLOs were then resubmitted to the TLC, SMC and IAC in turn for final endorsement.

On successful completion of this specialisation, graduates will be able to:

1. Show proficiency in the enabling sciences (maths, physics and materials science) that underpin Civil Engineering.
2. Demonstrate proficiency in Civil Engineering specialist technical knowledge areas such as: Structural Engineering, Geotechnical Engineering, Engineering Construction and Management, Transport Engineering and Water Engineering.
3. Critically evaluate and apply information and current research to the solution of complex problems in Civil Engineering.
4. Use appropriate design, analysis and computational tools, including structural modelling and design programs, hydraulic modelling, simulation software, laboratory procedures and analysis, Australian Standards, industry design codes, management of digital data sets and project management and control tools to analyse complex problems in Civil Engineering.
5. Design and implement innovative engineering solutions and systems in Civil Engineering.
6. Manage Civil Engineering projects, individually or as part of a team under a team leader, in a systematic and professional manner.
7. Apply professional judgement that contributes to the ethical and sustainable practice of Civil Engineering.
8. Communicate professionally and effectively in work teams, across the profession and the wider community.

The discipline-specific technical knowledge and application skills embedded in this program ensure the attainment of the Engineers Australia Stage 1 competencies through a systematic alignment of Course Learning Outcomes, Specialisation Learning Outcomes, Program Learning Outcomes, and EA Professional competencies Stage 1. Details of this are provided on Section 6 of this document.

## 4. Continuous Improvement

The Head of School and the Deputy Head (Education) have the overall responsibility for the management of the undergraduate and postgraduate coursework programs within the School. The Teaching and Learning Committee of the School consists of academic staff members, teaching support assistants, members of the undergraduate and postgraduate student societies, and a representative from the student nucleus. The committee meets monthly to discuss coordination of teaching, program review, designing new courses and revision of existing courses, course organisation and administration, students' feedback on courses, etc. The undergraduate and postgraduate student society representatives provide a student voice and present focus group feedback each term.

Proposals for new courses or course revisions relating to a particular discipline are born out of discussion among all staff in that discipline, as well as relevant industry representatives. New proposals for both undergraduate and postgraduate elective courses are typically driven by discipline-specific academic staff and motivated by current industry or research trends. Course changes are first discussed at the TLC and then at the School level during School Management Committee meetings.

To ensure program design is informed by ongoing evaluation of practice, industry needs, and future demand, the School draws on regular input from the Industry Advisory Committee (IAC) and engagement with Industry Partners. The School has active partnerships with industry organisations that provide regular input on current practice and workforce needs, including through engagement with academic staff and guest lectures. In addition, as Australia's top-ranked civil engineering school, many courses are taught by academics who lead internationally recognised research programs. This leadership, together with strong industry links, keeps teaching research-informed and up to date, with new methods and tools translated into course content. The School also keeps a watch on updates to relevant standards and guidelines and refreshes teaching software in computer labs through annual licensing reviews, so students can learn and use current industry-standard tools.

## 5. Review Process

UNSW's Academic Offering Review and Monitoring Procedure outlines a structured approach to maintaining the quality and relevance of academic programs and courses. It includes both program-level and course-level review processes, with defined responsibilities and timelines.

Program Monitoring is conducted annually for all programs and specialisations. A comprehensive program review must occur at least once every five years for accredited programs, and every seven years for others. These reviews include a self-evaluation report (SER), review panel, review event, and a formal response with an implementation plan. Oversight is provided by the Academic Board and University Academic Quality Committee (UAQC), with input from Faculty Education Committees and Deans.

Course Review within UNSW Engineering is managed through a two-tiered process: Routine Course Review and Comprehensive Course Review. Routine reviews are conducted at the end of each term by Schools, using data such as enrolment, assessment outcomes, academic integrity issues, WAM differences, and student feedback (myExperience). Courses flagged through this process are added to the Comprehensive Course Review roster.

Comprehensive Course Reviews are detailed evaluations led by the Course Convenor in collaboration with a Faculty Educational Developer, Nexus Fellow, or Senior Academic. These reviews assess course design, pedagogy, alignment with learning outcomes, and feedback mechanisms. Outcomes are documented in a Course Development Plan and an Evaluation Report following the next course delivery. Schools must review at least 10% of their courses annually.

Stakeholder involvement spans multiple levels, including the Academic Board, UAQC, Faculty and School committees, Course Convenors, and external contributors such as students and professional bodies.

Frequency of updates includes termly course reviews, annual program monitoring, and five-yearly comprehensive reviews for accredited programs.

## 6. Curriculum Mapping

A curriculum mapping exercise has been carried out for the CVENAH Civil Engineering specialisation of the 3707 Bachelor of Engineering (Honours) program at UNSW. The specialisation covers all the Engineers Australia Stage 1 Graduate Competencies. It is particularly strong in specialist engineering knowledge, the use of design, analysis and computation tools, and the design of innovative engineering solutions and systems. Improvements involve embedding ethics and sustainability more systematically throughout the specialisation. The stream has rigorous and varied assessment tasks.

SLO 1 coverage is concentrated primarily in Level 1 and Level 2 courses, where students develop mastery in enabling sciences. First-year courses such as MATH1131/1141, MATH1231/41, PHYS1121/1131, ENGG1300 and ENGG1811 establish foundational knowledge in mathematics, physics, programming and engineering science. Second-year courses such as MATH2018/19, CVEN2002, CVEN2101, CVEN2303, ENGG2400, ENGG2500, further develop this foundation by introducing solid mechanics, fluid mechanics, engineering construction as well as furthering maths and programming skills.

SLO 2 demonstrates progression from introduction in Level 2 courses to proficiency in Level 3 and Level 4 courses. Year 3 core course such as CVEN3101 (Engineering Operations and Control), CVEN3202 (Soil Mechanics), CVEN3203 (Applied Geotechnics and Engineering Geology), CVEN3303 (Steel Structures), CVEN3304 (Concrete Structures), CVEN3401 (Transport and Highway Engineering), CVEN3501 (Water Resources Engineering), CVEN3502 (Water and Wastewater Engineering) cements specialist technical knowledge in areas such as structures, geotechnical, water, construction management and transport disciplines. Advanced electives in Level 4 enable students to achieve proficiency in specialised areas aligned with their career interests.

SLO 3 (research and industry best practice) demonstrates progressive development from Level 2 onwards, with particular emphasis in Level 3 and Level 4 courses where students engage with current research literature, industry case studies, and emerging technologies. The thesis courses in final year require students to demonstrate proficiency by conducting independent literature reviews and applying research methodologies to solve complex civil engineering problems.

SLO 5 (design, critique, and implement sustainable engineering solutions) shows clear progression through the curriculum as well. Students have their first experience designing in DESN1000 (Introduction to Engineering Design and Innovation) in Level 1, develop these skills through DESN2000 (Engineering Design and Professional Practice) in Level 2, and progress to proficient application in Level 3 courses such as CVEN3303, CVEN3304, CVEN3501, CVEN3502. The capstone experience in Level 4, through the Thesis sequence (CVEN4050/4051 or CVEN4951/4952/4953), demonstrates proficient capability in designing and implementing innovative civil engineering solutions.

SLO 6 (project management) and SLO 7 (professional judgement) receive more selective coverage. These capabilities are explicitly developed in CVEN3101, DESN2000, and the capstone thesis courses.

The mapping ensures alignment among CLOs, SLOs, and PLOs within the specialisation. CLOs are created by course coordinators to support relevant SLOs while addressing the specific technical knowledge, skills, and practices expected of students. Each assessment task is clearly mapped to CLOs to ensure direct measurement of student achievement. Every course undergoes an annual review where course convenors analyse assessment results, gather student feedback, reflect on industry and societal trends and issues, and update courses if necessary. The achievement of learning outcomes is verified through analysis of assessment performance at the course level, with results then aggregated to evaluate attainment across the specialisation and program level for different student cohorts.

Table 1 provides the alignment mapping between the specialisation learning outcomes and the Engineers Australia Stage 1 Competencies. Table 2 provides the alignment mapping between the Specialisation Learning Outcomes and each Course.

Table 1: Mapping of the specialisation learning outcomes to the Engineers Australia Stage 1 Competencies

| SLO/PLO                                                                                                                                                                                                                                                                                                                                                                | PLO1 | PLO2 | PLO3 | PLO4 | PLO5 | PLO6 | PLO7 | PLO8 | PLO9 | PLO10 | PLO11 | PLO12 | PLO13 | PLO14 | PLO15 | PLO16 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 1. Show proficiency in the enabling sciences (maths, physics and materials science) that underpin Civil Engineering                                                                                                                                                                                                                                                    | x    | x    |      |      |      |      |      |      |      |       |       |       |       |       |       |       |
| 2. Demonstrate proficiency in Civil Engineering specialist technical knowledge areas such as: Structural Engineering, Geotechnical Engineering, Engineering Construction and Management, Transport Engineering and Water Engineering.                                                                                                                                  |      |      | x    |      | x    |      |      |      |      |       |       |       |       |       |       |       |
| 3. Critically evaluate, and apply information and current research to the solution of complex problems in Civil Engineering                                                                                                                                                                                                                                            |      |      |      | x    |      |      |      |      |      |       |       |       |       |       |       |       |
| 4. Use appropriate design, analysis and computational tools, including: structural modelling and design programs, hydraulic modelling, simulation software, laboratory procedures and analysis, Australian Standards, industry design codes, management of digital data sets and project management and control tools to analyse complex problems in Civil Engineering |      |      |      |      | x    |      | x    | x    |      |       |       |       |       | x     |       |       |
| 5. Design and implement innovative engineering solutions and systems in Civil Engineering                                                                                                                                                                                                                                                                              |      |      |      |      |      |      |      |      | x    |       |       |       | x     |       |       |       |
| 6. Manage Civil Engineering projects, individually or as part of a team under a team leader, in a systematic and professional manner                                                                                                                                                                                                                                   |      |      |      |      |      |      |      |      |      | x     |       |       |       | x     |       | x     |
| 7. Apply professional judgement that contributes to the ethical and sustainable practice of Civil Engineering                                                                                                                                                                                                                                                          |      |      |      |      | x    | x    |      |      |      |       | x     |       |       |       | x     |       |
| 8. Communicate professionally and effectively in work teams, across the profession and the wider community.                                                                                                                                                                                                                                                            |      |      |      |      |      |      |      |      |      |       |       | x     |       |       |       | x     |

Table 2: Mapping of courses to the stream learning outcomes

| Course code          | 1. Show proficiency in the enabling sciences (maths, physics and materials science) that underpin Civil Engineering | 2. Demonstrate proficiency in Civil Engineering specialist technical knowledge areas such as: Structural Engineering, Geotechnical Engineering, Engineering Construction and Management, Transport Engineering and Water Engineering. | 3. Critically evaluate, and apply information and current research to the solution of complex problems in Civil Engineering | 4. Use appropriate design, analysis and computational tools, including: structural modelling and design programs, hydraulic modelling, simulation software, laboratory procedures and analysis, Australian Standards, industry design codes, management of digital | 5. Design and implement innovative engineering solutions and systems in Civil Engineering | 6. Manage Civil Engineering projects, individually or as part of a team under a team leader, in a systematic and professional manner | 7. Apply professional judgement that contributes to the ethical and sustainable practice of Civil Engineering | 8. Communicate professionally and effectively in work teams, across the profession and the wider community. |
|----------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Level 1 Core Courses |                                                                                                                     |                                                                                                                                                                                                                                       |                                                                                                                             |                                                                                                                                                                                                                                                                    |                                                                                           |                                                                                                                                      |                                                                                                               |                                                                                                             |
| DESN1000             | Introduced                                                                                                          | Introduced                                                                                                                                                                                                                            | Developed                                                                                                                   | Developed                                                                                                                                                                                                                                                          | Developed                                                                                 | Introduced                                                                                                                           | Introduced                                                                                                    | Developed                                                                                                   |
| ENGG1300             | Introduced                                                                                                          | Introduced                                                                                                                                                                                                                            | Introduced                                                                                                                  | Introduced                                                                                                                                                                                                                                                         | Introduced                                                                                | Introduced                                                                                                                           | Introduced                                                                                                    | Introduced                                                                                                  |
| ENGG1811             | no alignment                                                                                                        | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | Introduced                                                                                                                                                                                                                                                         | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| MATH1131             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| MATH1141             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| MATH1231             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| MATH1241             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| MATS1101             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| PHYS1121             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| PHYS1131             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| Level 2 Core Courses |                                                                                                                     |                                                                                                                                                                                                                                       |                                                                                                                             |                                                                                                                                                                                                                                                                    |                                                                                           |                                                                                                                                      |                                                                                                               |                                                                                                             |
| CVEN2002             | Introduced                                                                                                          | no alignment                                                                                                                                                                                                                          | Introduced                                                                                                                  | Developed                                                                                                                                                                                                                                                          | Introduced                                                                                | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| CVEN2101             | no alignment                                                                                                        | Introduced                                                                                                                                                                                                                            | Introduced                                                                                                                  | Developed                                                                                                                                                                                                                                                          | no alignment                                                                              | Introduced                                                                                                                           | Introduced                                                                                                    | Introduced                                                                                                  |
| CVEN2303             | Developed                                                                                                           | Developed                                                                                                                                                                                                                             | no alignment                                                                                                                | Developed                                                                                                                                                                                                                                                          | no alignment                                                                              | Introduced                                                                                                                           | no alignment                                                                                                  | Introduced                                                                                                  |
| DESN2000             | no alignment                                                                                                        | Developed                                                                                                                                                                                                                             | Developed                                                                                                                   | Developed                                                                                                                                                                                                                                                          | Developed                                                                                 | Developed                                                                                                                            | Developed                                                                                                     | Developed                                                                                                   |
| ENGG2400             | Developed                                                                                                           | Developed                                                                                                                                                                                                                             | Introduced                                                                                                                  | Introduced                                                                                                                                                                                                                                                         | Introduced                                                                                | no alignment                                                                                                                         | no alignment                                                                                                  | Introduced                                                                                                  |
| ENGG2500             | Developed                                                                                                           | Developed                                                                                                                                                                                                                             | no alignment                                                                                                                | Introduced                                                                                                                                                                                                                                                         | no alignment                                                                              | Introduced                                                                                                                           | no alignment                                                                                                  | Introduced                                                                                                  |
| MATH2018             | Developed                                                                                                           | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| MATH2019             | Developed                                                                                                           | no alignment                                                                                                                                                                                                                          | no alignment                                                                                                                | no alignment                                                                                                                                                                                                                                                       | no alignment                                                                              | no alignment                                                                                                                         | no alignment                                                                                                  | no alignment                                                                                                |
| Level 3 Core Courses |                                                                                                                     |                                                                                                                                                                                                                                       |                                                                                                                             |                                                                                                                                                                                                                                                                    |                                                                                           |                                                                                                                                      |                                                                                                               |                                                                                                             |

|                      |              |            |              |              |              |              |              |              |
|----------------------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| CVEN3101             | Developed    | Developed  | Developed    | no alignment | Proficient   | Developed    | Developed    | no alignment |
| CVEN3202             | Proficient   | Proficient | Developed    | Proficient   | Introduced   | Introduced   | Introduced   | Introduced   |
| CVEN3203             | Introduced   | Introduced | Introduced   | Developed    | no alignment | no alignment | no alignment | Introduced   |
| CVEN3303             | Developed    | Developed  | Developed    | Developed    | Developed    | no alignment | Introduced   | Developed    |
| CVEN3304             | Developed    | Proficient | Developed    | Developed    | Introduced   | Introduced   | Introduced   | no alignment |
| CVEN3401             | no alignment | Introduced | Developed    | Developed    | Introduced   | no alignment | Introduced   | Introduced   |
| CVEN3501             | Developed    | Developed  | Developed    | Developed    | Developed    | Developed    | Developed    | Developed    |
| CVEN3502             | Developed    | Developed  | Introduced   | Introduced   | no alignment | no alignment | no alignment | no alignment |
| Thesis Courses       |              |            |              |              |              |              |              |              |
| CVEN4050             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Proficient   | Proficient   |
| CVEN4051             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Proficient   | Proficient   |
| CVEN4951             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   |
| CVEN4952             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   |
| CVEN4953             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   |
| CVEN4961             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | Proficient   | no alignment | Proficient   |
| CVEN4962             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | Proficient   | no alignment | Proficient   |
| Discipline Electives |              |            |              |              |              |              |              |              |
| CODE2170             | no alignment | Developed  | Developed    | Proficient   | Introduced   | no alignment | Developed    | no alignment |
| CVEN3701             | no alignment | Proficient | Proficient   | Proficient   | Developed    | Proficient   | Proficient   | Developed    |
| CVEN4102             | no alignment | Proficient | Proficient   | Proficient   | Proficient   | Developed    | Developed    | Proficient   |
| CVEN4103             | no alignment | Proficient | Proficient   | Developed    | Developed    | Proficient   | Developed    | Developed    |
| CVEN4104             | Developed    | Developed  | Proficient   | Developed    | Proficient   | Developed    | Proficient   | Proficient   |
| CVEN4106             |              |            |              |              |              |              |              |              |
| CVEN4201             | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | Proficient   | no alignment | Proficient   |
| CVEN4202             | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | Developed    | Proficient   | Proficient   |
| CVEN4204             | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Proficient   | Proficient   |
| CVEN4300             |              |            |              |              |              |              |              |              |
| CVEN4301             | no alignment | Proficient | no alignment | Proficient   | Proficient   | no alignment | Introduced   | Introduced   |
| CVEN4308             | Proficient   | Proficient | Proficient   | Proficient   | no alignment | no alignment | no alignment | Developed    |
| CVEN4309             | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Developed    | Developed    |
| CVEN4402             | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Proficient   | no alignment |
| CVEN4404             | no alignment | Developed  | Developed    | Developed    | Developed    | Developed    | Introduced   | Introduced   |



|          |              |            |              |              |              |              |              |              |
|----------|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|
| CVEN4405 | no alignment | Developed  | Proficient   | Developed    | Developed    | Proficient   | Proficient   | Proficient   |
| CVEN4503 | Proficient   | Proficient | Proficient   | Proficient   | Developed    | Introduced   | Developed    | Developed    |
| CVEN4504 | Proficient   | Proficient | Proficient   | Proficient   | Developed    | Developed    | no alignment | Developed    |
| CVEN4507 | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Developed    | no alignment |
| CVEN4701 | no alignment | Developed  | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   |
| CVEN4703 | Developed    | Developed  | Proficient   | Developed    | Developed    | Proficient   | Proficient   | Proficient   |
| CVEN4705 | no alignment | Developed  | Developed    | Proficient   | no alignment | no alignment | Proficient   | Developed    |
| CVEN4706 | no alignment | Developed  | Introduced   | Developed    | no alignment | no alignment | Proficient   | Proficient   |
| CVEN4800 |              |            |              |              |              |              |              |              |
| CVEN9405 | Proficient   | Proficient | Proficient   | Developed    | Developed    | Developed    | Introduced   | Proficient   |
| CVEN9415 | no alignment | Developed  | Developed    | Developed    | Developed    | Developed    | Developed    | Developed    |
| CVEN9612 | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Developed    | Developed    |
| CVEN9620 | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | Developed    | Proficient   | Proficient   |
| CVEN9640 | Introduced   | Introduced | Developed    | Developed    | Developed    | no alignment | Developed    | Developed    |
| CVEN9806 | no alignment | Proficient | Proficient   | Proficient   | Proficient   | no alignment | no alignment | no alignment |
| CVEN9809 | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | no alignment | no alignment | Developed    |
| CVEN9818 | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | no alignment | Proficient   | no alignment |
| CVEN9820 | Proficient   | Proficient | Proficient   | Proficient   | no alignment | no alignment | no alignment | Developed    |
| CVEN9822 | Developed    | Proficient | Introduced   | Proficient   | Proficient   | no alignment | Introduced   | Introduced   |
| CVEN9824 | Developed    | Developed  | Proficient   | Proficient   | Developed    | no alignment | Developed    | no alignment |
| CVEN9826 | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | Developed    | Developed    | Proficient   |
| CVEN9840 | Developed    | Proficient | Proficient   | Proficient   | Proficient   | Developed    | Introduced   | Developed    |
| CVEN9881 | Developed    | Developed  | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   |
| ENGG1400 | Proficient   | Proficient | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   | Proficient   |
| ENGG3001 | no alignment | Developed  | Developed    | Developed    | Introduced   | Developed    | Developed    | Proficient   |
| ENGG3741 | Developed    | Developed  | no alignment | no alignment | no alignment | no alignment | Introduced   | Introduced   |
| ENGG4060 |              |            |              |              |              |              |              |              |
| ENGG4102 | Developed    | Developed  | Proficient   | Developed    | Developed    | Developed    | Developed    | Developed    |
| ENGG4103 | Developed    | Developed  | Developed    | Developed    | Developed    | Developed    | Developed    | Developed    |
| GMAT1110 | Introduced   | Introduced | no alignment | Introduced   | no alignment | no alignment | no alignment | no alignment |
| GMAT3220 | no alignment | Developed  | Developed    | Developed    | Developed    | Developed    | no alignment | Developed    |
| GMAT9600 | Developed    | Developed  | Introduced   | Introduced   | Developed    | no alignment | no alignment | no alignment |

[illegible]

## 7. Assessments

A complete overview of the assessment types is provided in Figures 1-3. Figure 1 shows assessment distribution for all specialisation courses, while Figures 2 and 3 show assessment distribution for core and elective courses, respectively.

Analysis of assessment distribution in core courses (Figure 2) reveals that majority of assessments are exams (51.58% combined of tests and examinations), followed by assignments (20.63%) and lab-work (8.73%). As is typical of many streams, early courses are content-driven, and the assessments reflect a need to demonstrate individual learning in tests or examinations. Laboratory work constitutes 8.73% of core assessment, providing hands-on experience in experimental methods, data collection, and scientific reporting, fundamental for the different civil engineering disciplines.

Analysis of assessment distribution in elective courses (Figure 3) shows distinct patterns that reflect opportunities for specialisation and advanced application in different civil engineering disciplines. Exams (combined 45.08% between tests and examinations) comprise the largest proportion, followed by assignments at 36.27%. This increase in assignment-based assessment in electives enables students to engage deeply with specialised topics through research, design tasks, and case study analysis aligned with their career interests. The elective portfolio includes greater diversity in assessment approaches, with presentations accounting for 6.22%, essays (1.04%), and projects (1.04%). Laboratory work (1.04%) and portfolio assessments (0.52%) appear in specialised courses where hands-on technical skills or cumulative work products are emphasised.

The thesis pathway (CVEN4050/4051 or CVEN4951/4952/4953) scaffolds independent research and professional work, with students demonstrating progressive capability through draft chapters, literature reviews, methodology reports, and final thesis documents. These courses provide extensive formative feedback through regular supervisor meetings, progress reports, and milestone reviews that enable students to refine their technical work, critical thinking, and communication before final assessment.

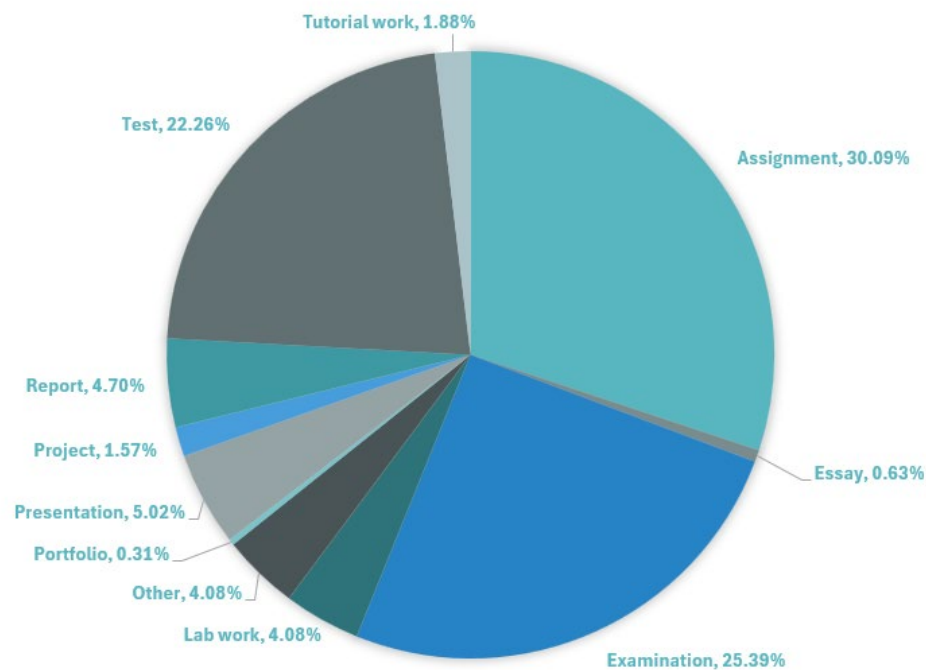
Reflective practice and peer assessment are embedded throughout the program to develop metacognitive awareness and critical evaluation skills. Design courses (DESN1000, DESN2000) require students to maintain design journals documenting their learning process, design iterations, team collaboration experiences, and personal growth in professional capabilities. Selected courses employ peer assessment and peer review activities, particularly in team projects and presentations, enabling students to develop evaluative judgement and appreciate diverse approaches to solving complex civil engineering problems. Thesis courses (CVEN4050/4051, CVEN4951/4952/4953) incorporate reflective components where students critically evaluate their methodological decisions and the broader implications of their work. These reflective and peer-based activities help students recognise their capability development and build the self-directed learning habits essential for lifelong professional practice.

The School has implemented many processes to ensure that academic integrity is maintained:

- All exam papers are reviewed by another academic. The reviewer will also be given the rubric and worked solution. When a paper is written by a new academic, it will be reviewed by a professor or an Associate Professor to ensure standards are being maintained. Admin staff follow up to ensure all papers have been reviewed. Reports are submitted via Turnitin to help detect plagiarism and collusion.

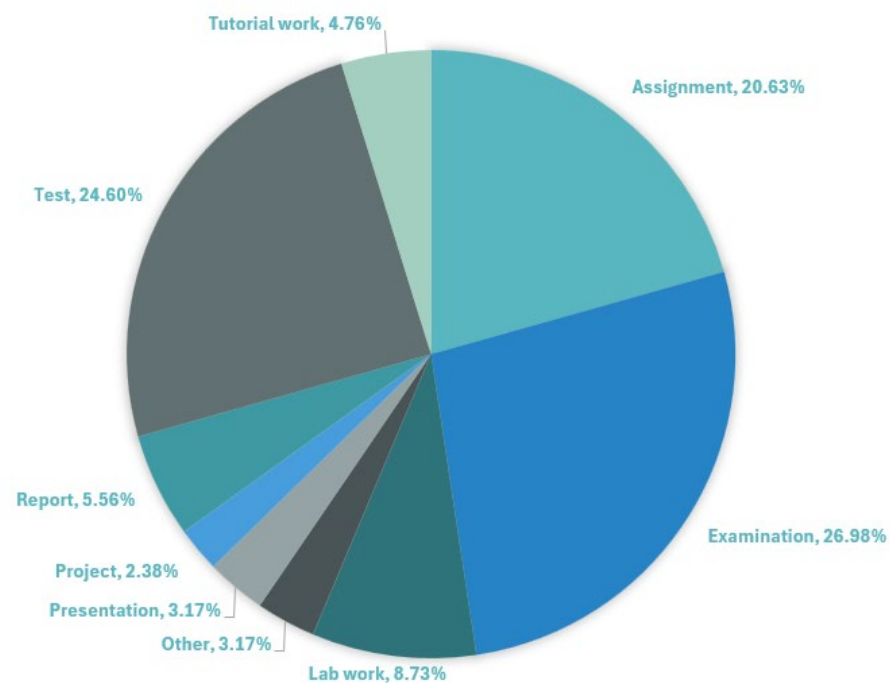
- Academics provide rubrics and worked solutions to markers. In this case, the academic will re-mark a sample of the reports or exam papers to ensure the rubric is being used correctly.
- Significant student works, such as a thesis, will have two examiners to ensure consistency.
- The School has invested heavily in online assessment platforms, such as Inspira and STACK, that enable advanced computational questions and allow programming of mathematical models that can be specific to individual students through randomisation of input values. Since the programming is time-intensive, the School has employed a team of programmers to code the questions as specified in detail by the academics.
- The School allows the use of generative AI in coursework only to the extent explicitly stated in each assessment's instructions. Where AI is allowed (e.g., limited planning or ideation, or language polishing), students must transparently acknowledge and reference any AI assistance. Assessment design prioritises authentic evidence of individual learning, so some assessments, including invigilated exams and quizzes as well as presentations, prohibit AI entirely, while others may allow constrained use with proper attribution. These settings align with UNSW's AI teaching guidelines and assessment guidance for ethical, responsible use.

**CIVIL ENGINEERING**

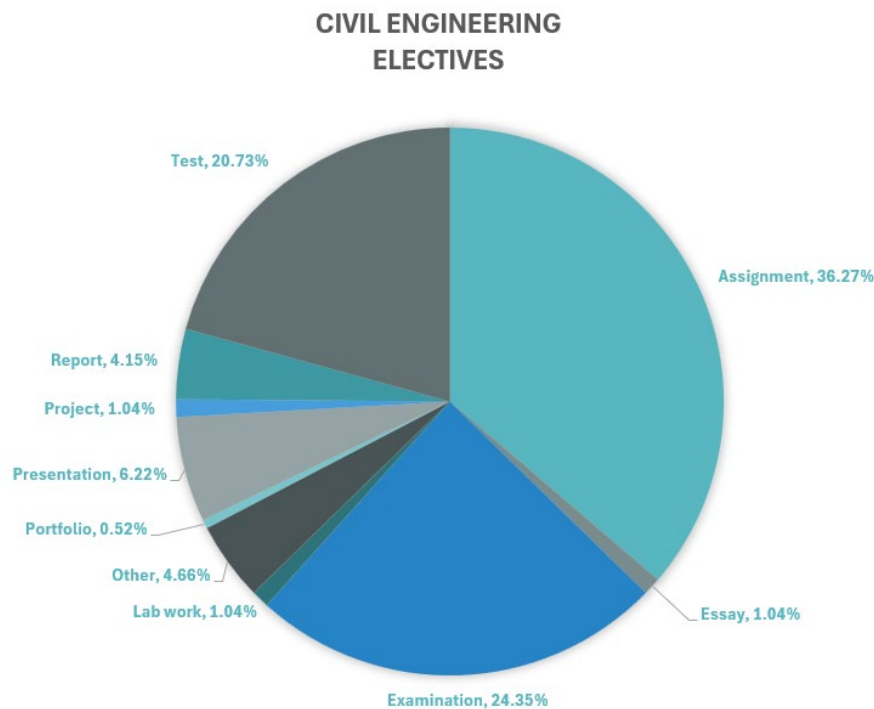


**Figure 1: Percentage of assessment types used within the specialisation.**

**CIVIL ENGINEERING  
CORE**



**Figure 2: Percentage of assessment types used within the core of the specialisation.**



**Figure 3: Percentage of assessment types used within the electives of the specialisation.**

## 8. Specialisation Progression Plan

The structure of the CVENAH specialisation ensures that graduate-level capabilities are developed through science and programming courses in Year 1, core courses in Years 2 and 3, and specialised knowledge in Structural Engineering, Geotechnical Engineering, Engineering Construction and Management, Transport Engineering, and Water Engineering in Year 4. This scaffolding approach allows students to reflect on their learning, enabling them to self-assess and develop graduate capabilities aligned with their interests or career aspirations.

To this end, students are supported in monitoring and adjusting their study progress through UNSW's official advising channels. Program information and enrolment support are provided through The Nucleus: Student Hub. Specialisation-specific level support is provided by designated year advisors who are appointed by the School. A study plan specific to each term entry and a progression checklist is provided to the student. In addition, the myPlan online tool combines the study plans progression checklist into a single interactive tool that allows students and staff to plan courses, view prerequisites, and track progress toward graduation in real time.

Each term, students use myPlan to confirm which requirements they have completed, which remain, and which prerequisite sequences apply, which supports self-checking of readiness for later-stage courses and informed elective selection. This is reinforced by term-by-term communications from the

specialisation coordinator and by course coordinators clarifying how courses link across the program, which helps students to reflect on their results and feedback against course learning outcomes and graduate capabilities and to adjust their plan where needed.

Students can track their progression through the “myPlan” checker tool.

[myPlan | Current Students - UNSW Sydney](#)

A progression checklist and/or study plan is also available for students for the single degree and the double degree offerings.

[Progression checksheets & study plans | Engineering - UNSW Sydney](#)