Engineering Institute of Technology.

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What Does It Really Mean to Study EIT's Master of Engineering (Civil: Structural)?

15:00pm – 16:00pm (UTC)

Presented by:
Dr. Karoline Figueiredo | EIT Lecturer and Civil Engineer
Rey Ortuoste | EIT Student

Introduction – Presenter

Dr. Karoline Figueiredo | EIT Lecturer and Civil Engineer

Dr. Karoline Figueiredo is a civil and environmental engineer specializing in sustainable construction and the integration of digital technologies into the built environment.

She holds a Ph.D. in Environmental Engineering (Concentration: Built Environment) from the Federal University of Rio de Janeiro (UFRJ), where her research focused on optimizing construction material selection to reduce environmental, social, and economic impacts through the use of Digital Twins and Blockchain. She also earned her Master's degree in Environmental Engineering and her Bachelor's degree in Civil Engineering from UFRJ. Her academic experience includes research stays at Universitat Rovira i Virgili (Spain) and Western Sydney University (Australia), as well as teaching at Universidad de Santiago de Chile (Chile). She is also the author of a published book based on her Ph.D. research, further consolidating her contributions to sustainable construction.

Alongside her academic career, Dr. Figueiredo works as a civil engineer in Brazil, applying her expertise to real-world projects in structural design and sustainable construction. She lectures in postgraduate programs at UFRJ, where she coordinates a unit on Building Information Modelling (BIM), and serves as a contracted lecturer at the Engineering Institute of Technology (EIT), Australia, teaching both Higher Education and VET courses. Her expertise spans BIM, Digital Twins, and Life Cycle Sustainability Assessment (LCSA), with a strong commitment to advancing sustainable practices in engineering and construction.

Agenda

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2. Fields of Engineering
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What is a Master's Degree?

Our 2-year master's degrees provide students with the opportunity to design projects with the potential to benefit and improve the engineering communities they serve.

EIT's Master's degrees are available both online and on-campus (please note that not all programs are offered at every campus).

Some of EIT's Master's degrees (offered online, at the Perth campus and the Melbourne campus) are fully accredited by Engineers Australia and internationally recognized under the Washington Accord.

Studying a Master of Engineering can open new doors.

Fields of Engineering

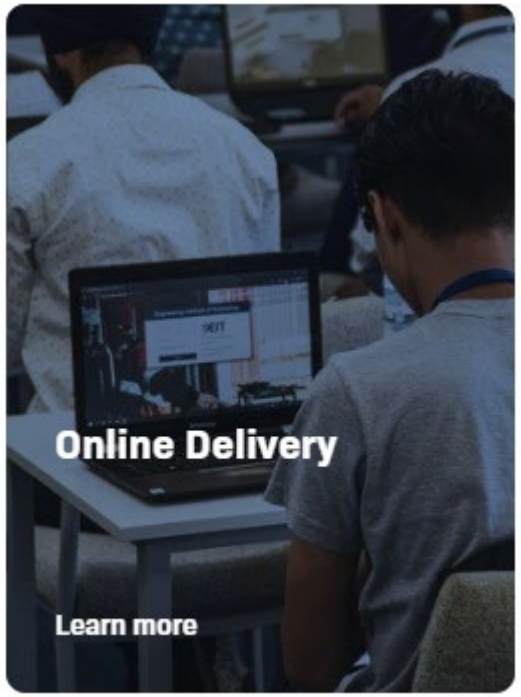
Master of Engineering (Civil: Structural)

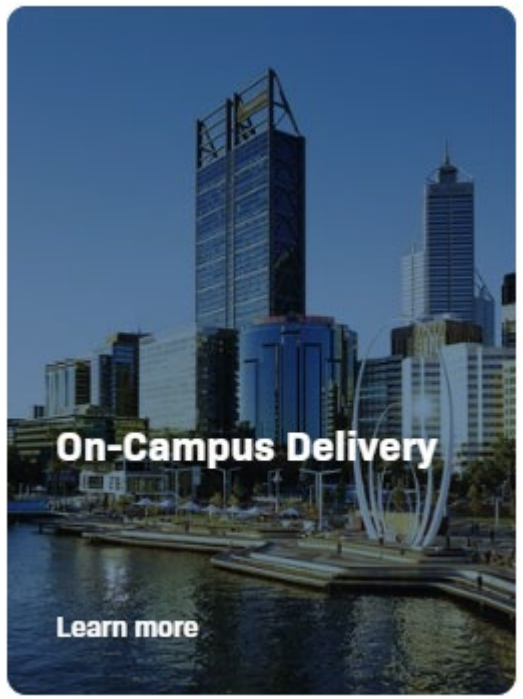
Master of Engineering (Mechanical)

Master of Engineering (Electrical Systems)

Master of Engineering (Industrial Automation)

Study Modes





The MCS program is offered at our **Perth, Melbourne, and Brisbane campuses.**

Study Modes: Online Snapshot

Study Modes: On-Campus Snapshot

Course Overview

The Master of Engineering (Civil: Structural) will equip you with the necessary skills to address the demands of the structural engineering industry.

Professional Engineers with a background in civil, construction, transport, and systems engineering will especially benefit from this program as it prepares them for further career development in the structural engineering industry.

Upon completion of this program, you will gain skills and knowledge in the latest and developing technologies in civil and structural engineering.

Graduates of This Program Will Be Able To:

- Identify, critically analyze, and creatively solve complex, specialized civil and structural engineering problems, individually or in teams, using research, innovation, evaluation, synthesis, accountability, and sound professional engineering judgement.

- Demonstrate advanced synthesis and design skills in civil and structural engineering, including application of fundamental principles; analysis of statically indeterminate and dynamic structures; hazard, risk, and safety system evaluation; earthquake impact assessment; and systematic project management, applying scientific, mathematical, ethical, and international standards perspectives.

- Apply advanced synthesis and design across civil and structural engineering disciplines, integrating fundamental principles, structural and dynamic analysis, hazard and risk assessment, safety system design, earthquake engineering, and project management in line with professional, ethical, and international standards.

Program Details

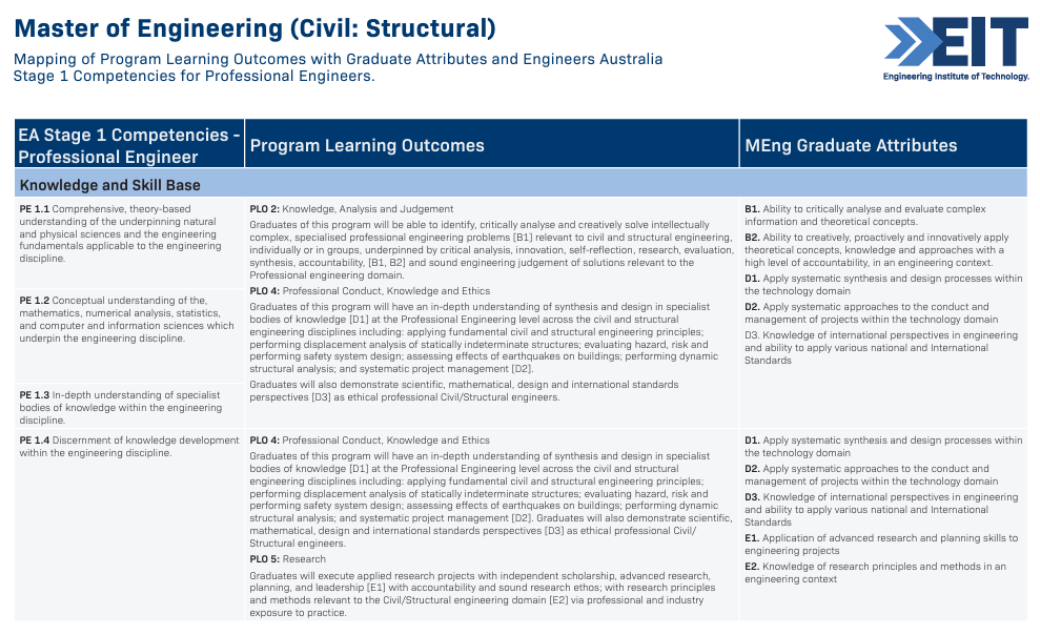
The society in which we live today is fundamentally dependent on the structures that structural engineers design and deliver. This Master of Engineering (Civil: Structural), therefore, addresses the specific core competencies and associated underpinning knowledge required of structural engineers.

The curriculum covers a diverse range of topics geared to producing well-rounded graduates equipped with the knowledge that employers require. This master's program aims to provide the student with a multitude of tools and techniques, including those that tackle specific organizational problems and also those needed to design and implement engineering structures.

The Project Thesis is the capstone unit of the program and draws on the topic and reinforces the knowledge and skill base developed in the preceding units. As a significant research component of the program, this project will facilitate research, critical evaluation along with the application of knowledge and skills with creativity and initiative, enabling students to critique and potentially enhance current professional practice in the civil engineering industry. The Project Thesis requires a high level of personal autonomy and accountability.

Learning Outcomes

Master of Engineering (Civil: Structural) – Alignment of Program Learning Outcomes with Graduate Attributes and Engineers Australia Stage 1 Competencies for Professional Engineers, demonstrating how the program equips graduates with the knowledge, skills, and professional capabilities required for industry practice.



Master of Engineering (Civil: Structural)

Mapping of Program Learning Outcomes with Graduate Attributes and Engineers Australia Stage 1 Competencies for Professional Engineers.

EA Stage 1 Competencies - Professional Engineer	Program Learning Outcomes	MEng Graduate Attributes
Knowledge and Skill Base		
PE 1.1 Comprehensive, theory-based understanding of the underpinning natural and physical sciences and the engineering fundamentals applicable to the engineering discipline.	**PLO 2:** Knowledge, Analysis and Judgement Graduates of this program will be able to identify, critically analyse and creatively solve intellectually complex, specialised professional engineering problems [B1] relevant to civil and structural engineering, individually or in groups, underpinned by critical analysis, innovation, self-reflection, research, evaluation, synthesis, accountability, [B1, B2] and sound engineering judgement of solutions relevant to the Professional engineering domain.	**B1.** Ability to critically analyse and evaluate complex information and theoretical concepts. **B2.** Ability to creatively, proactively and innovatively apply theoretical concepts, knowledge and approaches with a high level of accountability, in an engineering context. **D1.** Apply systematic synthesis and design processes within the technology domain
PE 1.2 Conceptual understanding of the, mathematics, numerical analysis, statistics, and computer and information sciences which underpin the engineering discipline.	**PLO 4:** Professional Conduct, Knowledge and Ethics Graduates of this program will have an in-depth understanding of synthesis and design in specialist bodies of knowledge [D1] at the Professional Engineering level across the civil and structural engineering disciplines including: applying fundamental civil and structural engineering principles; performing displacement analysis of statically indeterminate structures; evaluating hazard, risk and performing safety system design; assessing effects of earthquakes on buildings; performing dynamic structural analysis; and systematic project management [D2].	**D2.** Apply systematic approaches to the conduct and management of projects within the technology domain D3. Knowledge of international perspectives in engineering and ability to apply various national and International Standards
PE 1.3 In-depth understanding of specialist bodies of knowledge within the engineering discipline.	Graduates will also demonstrate scientific, mathematical, design and international standards perspectives [D3] as ethical professional Civil/Structural engineers.	
PE 1.4 Discernment of knowledge development within the engineering discipline.	**PLO 4:** Professional Conduct, Knowledge and Ethics Graduates of this program will have an in-depth understanding of synthesis and design in specialist bodies of knowledge [D1] at the Professional Engineering level across the civil and structural engineering disciplines including: applying fundamental civil and structural engineering principles; performing displacement analysis of statically indeterminate structures; evaluating hazard, risk and performing safety system design; assessing effects of earthquakes on buildings; performing dynamic structural analysis; and systematic project management [D2]. Graduates will also demonstrate scientific, mathematical, design and international standards perspectives [D3] as ethical professional Civil/ Structural engineers. **PLO 5:** Research Graduates will execute applied research projects with independent scholarship, advanced research, planning, and leadership [E1] with accountability and sound research ethos; with research principles and methods relevant to the Civil/Structural engineering domain [E2] via professional and industry exposure to practice.	**D1.** Apply systematic synthesis and design processes within the technology domain **D2.** Apply systematic approaches to the conduct and management of projects within the technology domain **D3.** Knowledge of international perspectives in engineering and ability to apply various national and International Standards **E1.** Application of advanced research and planning skills to engineering projects **E2.** Knowledge of research principles and methods in an engineering context

**Extract from "Mapping of Program Learning Outcomes with Graduate Attributes and Engineers Australia"*

Entry Requirements

To gain entry into this program, we require applicants to hold:

- A recognized 3-year bachelor degree* in an engineering qualification in a congruent** field of practice; **OR**
- An EIT Bachelor of Science (Engineering) degree* in a congruent** field of practice; **OR**
- A 4-year Bachelor of Engineering qualification (or equivalent) that is recognized under the Washington Accord or by Engineers Australia, in a congruent**, or a different field of practice at the discretion of the Admissions Committee; **OR**
- A 4-year Bachelor of Engineering qualification (or equivalent)* that is not recognized under the Washington Accord, in a congruent** field of practice to this program; **AND**
- An appropriate level of English Language Proficiency equivalent to an English pass level in an Australian Senior Certificate of Education, or an IELTS score of 6.0 (with no individual band less than 6.0), or equivalent as outlined in the EIT Admissions Policy; AND
- Evidence of mathematical competence by means of completion of courses/units which include:
  - Complex Numbers,
  - Ordinary Differential Equations (ODEs) and Series,
  - Multivariable Calculus, and
  - Linear Algebra

* With integrated compulsory twelve-week professional industry experience, training or project work of which six weeks are directly supervised by a professional/eligible professional engineer as determined by EIT.

** All applicants must have a background in structural mechanics at the undergraduate level and/or work experience. A congruent field of practice includes disciplines with adequate Civil Engineering content consisting of fundamentals of **Structural Analysis** (Alternative names: Theory of Structures, Structural Mechanics, Solid Mechanics) AND **Structural Design** (Alternative names: Design of Concrete Structures, Design of Steel Structures, Design of Timber Structures, Design of Bridges and Roads).

Entry Requirements

Congruency fields not listed below are to be considered by the Dean and the Admissions Committee on a case-by-case basis:

- Civil Engineering,
- Structural Engineering,
- Geotechnical Engineering,
- Bridge Engineering,
- Offshore Structures,
- Tunnel Engineering,
- Water Resource Engineering,
- Infrastructure Engineering,
- Transport Engineering,
- Agriculture Engineering,
- Applied Mechanics,
- Environmental Engineering (with structural or geotechnical emphasis),
- Architectural Engineering (with structural focus),
- Materials Engineering (if construction materials are covered).

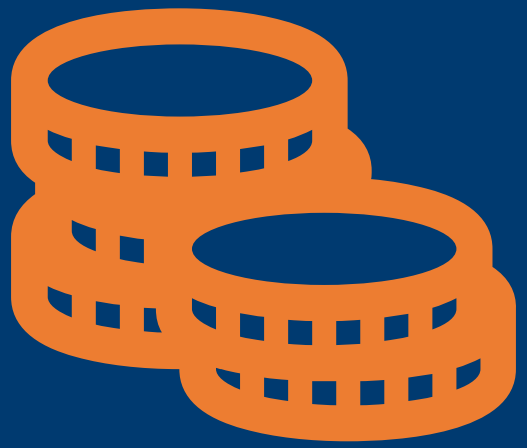
Please note: meeting the minimum admission criteria does not guarantee entry to our programs. Applications are assessed on a case-by-case basis.

Fees & Payments

For full current fees in your country go to the drop down filter at the top of this page or visit the Fees page.

Payment Methods

Learn more about payment methods, including payment terms & conditions and additional non-tuition fees.



Accreditation

Online MCS

Like all Australian higher education providers and universities, EIT programs are accredited by the exacting standards of the Australian Government's Tertiary Education Quality and Standards Agency (TEQSA).

This course is classified as Level 9 under the Australian Qualifications Framework (AQF).

This online Master's degree is fully accredited by **Engineers Australia** under the **Washington Accord.**

It is internationally recognized through the International Engineering Alliance (IEA) and its signatory countries, ensuring global recognition of the qualification and alignment with international engineering education standards.

Find out more about country-specific accreditation and professional recognition.

Students should satisfy themselves through their own research with their local accreditation before commencing the program.

On-Campus MCS

Like all Australian higher education providers and universities, EIT programs are accredited by the exacting standards of the Australian Government's Tertiary Education Quality and Standards Agency (TEQSA).

This course is classified as Level 9 under the Australian Qualifications Framework (AQF).

The Master's degree is fully accredited by **Engineers Australia under the Washington Accord. The course is accredited for delivery at Perth and Melbourne campuses.** It is internationally recognized through the International Engineering Alliance (IEA) and its signatory countries, ensuring global recognition of the qualification and alignment with international engineering education standards.

You can find the accreditation here.

Find out more about country-specific accreditation and professional recognition.

Students should satisfy themselves through their own research with their local accreditation before commencing the program.

Software Used

This course may use the following software:

- SPACE GASS
- ABAQUS
- Virtual Labs-Self Compacted Concrete
- Inducta (FTG, SLB)
- Abaqus and Matlab
- Excel programming
- Abaqus / SAP 2000
- ETABS
- MATLAB
- SpaceGass
- BXX001-004 software (various)
- MXX001 software

Due to ongoing unit and course reviews, software may change from the list provided. Learn more about the Practical Learning at EIT here.

Time Commitment & Duration

Online

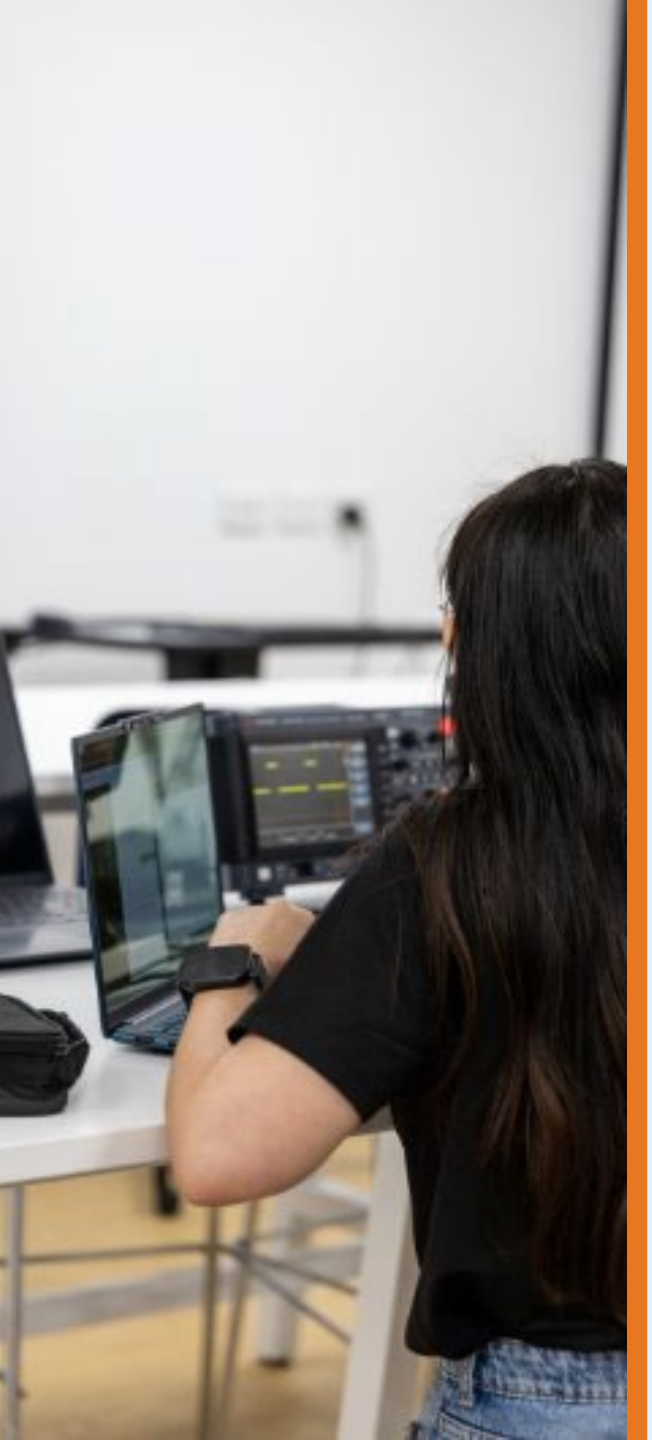
Our master's degrees take **two years** to complete full-time, and longer for those studying part-time. It is delivered over 4 terms per year, each of 12 weeks.

Students are expected to spend approximately 10 hours per unit, per week learning the program material, completing assessments and attending tutorials. After enrolment the maximum time allowed to complete all units is 5 years.

On-Campus

Our master's degrees take **two years** to complete full-time on-campus, and longer for those studying part-time.

You will spend approximately 10 hours per week, per unit, learning the program material, completing assessments and attending tutorials. After enrolment the maximum time allowed to complete all units is 5 years.



Student Support

Both online and on-campus students need support, encouragement, and a go-to person. Our students are supported by dedicated Learning Support Officers (LSOs) for the duration of their studies, giving them a greater chance of success. Students studying our higher education programs will have a committed LSO for each unit of study.

They provide guidance on non-content related information such as :

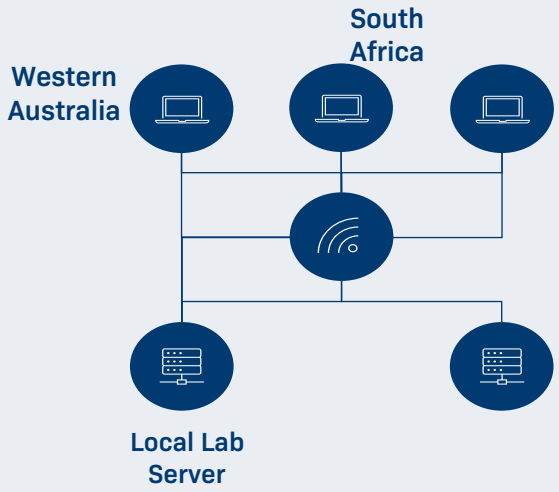
- Live tutorial information
- Assessment dates, times and extensions
- Grades
- Health and well-being information

Remote and Virtual Labs

When studying at EIT, students complete practical exercises using a combination of remote and virtual laboratories and simulation software.

Practical Experience

In these remote and virtual laboratories students can control physical equipment and sensors equivalent to the traditional university engineering lab.



1. Traditional, physical labs at a distance, but operating in real time.
2. Accurate representation of current industry hands-on.
3. The interface to equipment is digital and data-driven.
4. High availability and asynchronous – anytime.
5. Access to specialized equipment in a safe and near-limitless testing environment.
6. Diverse student cohorts.
7. Bandwidth requirements can be demanding.
8. Support

What Structural Engineers Actually Face Today

- **Increasing Structural Complexity**
  - Taller, lighter, more efficient structures
  - Complex load paths and interactions
- **Multi-Hazard Design**
  - Wind, seismic, vibration, dynamic effects
  - Combined loading scenarios
- **Performance & Sustainability Requirements**
  - Serviceability + durability + environmental performance
  - Life-cycle thinking
- **Digital & Data-Driven Engineering**
  - BIM, advanced simulation, structural monitoring
  - Integration between design and real performance

What This Means for You as an EIT Master's Student

- **You will move beyond applying formulas**
  - Understand assumptions behind models
  - Interpret structural behaviour
- **You will work with complexity**
  - Combined loading scenarios
  - Real, imperfect structural systems
- **You will develop engineering judgment**
  - No single "correct" answer
  - Decision-making under uncertainty
- **You will connect analysis, design, and practice**
  - Not isolated subjects
  - Integrated engineering thinking

How the EIT Program develops this capability

Three Core Dimensions:

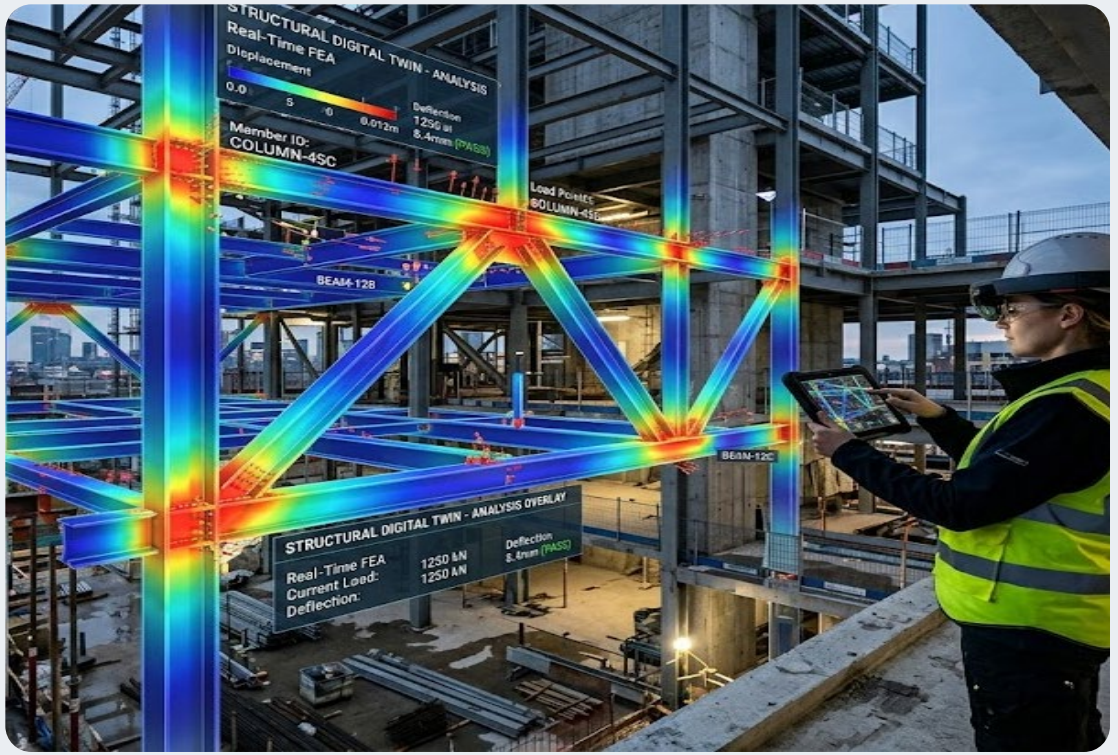
1. **Advanced Structural Analysis**
   - Understanding structural behaviour under complex loading
   - Moving beyond simplified models

2. **Design Integration**
   - Reinforced concrete, steel, and real systems
   - Linking analysis to practical design decisions

3. **Applied Engineering & Research**
   - Solving open-ended engineering problems
   - Developing and justifying solutions

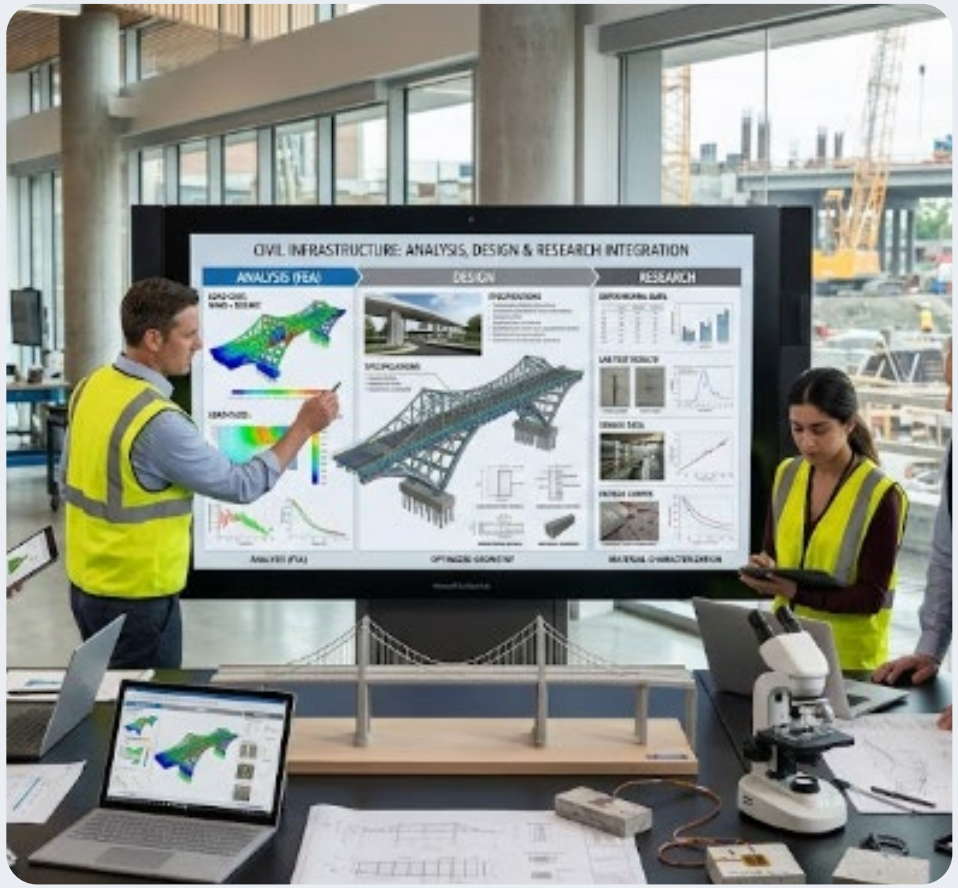
Year 1: Building Technical Depth

- **Structural Analysis & Behaviour**
  - Advanced structural analysis
  - Structural dynamics
  - Understanding response under complex loading
- **Materials & Structural Design**
  - Reinforced concrete design (advanced)
  - Steel design (advanced)
  - Material behaviour and failure mechanisms
- **Engineering Methods & Modelling**
  - Numerical and computational methods
  - Structural modelling approaches
  - Understanding model limitations
- **Integration with Practice**
  - Project, design, and construction management
  - Linking technical decisions to real-world constraints



Year 2: Specialization and Real-World Application

- **Advanced Structural Applications**
  - High-rise building design
  - Lateral load systems and stability
  - Wind and dynamic effects
- **Specialized Engineering Areas**
  - Earthquake structural design
  - Structural health monitoring
  - Bridge engineering
- **Engineering Practice & Research**
  - Research methodologies for engineering
  - Critical evaluation of design approaches
  - Evidence-based decision-making
- **Master's Thesis (ME700)**
  - Solving a real or industry-relevant problem
  - Independent analysis and modelling
  - Integration of analysis, design, and research



Hear From A Past Student

Rey Ortuoste - Master of Engineering (Civil: Structural)

Hear From A Past Student

What initially motivated you to pursue the Master of Engineering (Civil: Structural) with EIT, and why did you choose this program in particular?

I started my career in construction, where I observed structural drawings from experienced engineers and applied them on-site. This helped me understand material specifications and construction processes, key foundations for good structural design.

As I moved into structural engineering design, I developed my skills through mentorship, webinars, and continuous learning. During the pandemic, I sought flexible study options and discovered EIT, where I pursued a Master of Engineering (Civil: Structural) aligned with my career path.

Before starting, I made it a goal to document practical questions from my work and raise them with professors at the right time. Topics like when to use pin versus fixed restraints, or references for non-linear static analysis, were addressed by experienced lecturers, adding real value to my learning.

Hear From A Past Student

As a structural engineer based in the Philippines, how did studying online with EIT help you balance your professional responsibilities while advancing your education?

When I was taking the Masters in Engineering (Civil/Structural), I was managing our construction projects in our construction family business, growing my structural engineering career, lecturing in a university, and personal responsibilities. I was happy about how EIT formulates the class schedule in which we have one live meeting and pre-recorded lectures for each subject per week. This type of scheduling has helped me balance all of my responsibilities. We only have four assessments per term per subject. The first two assessments were theoretical and the final two assessments were practical. So overall, this study has helped me balanced professional growth and career responsibilities.

Hear From A Past Student

Were there any challenges you faced during the program, and how did you overcome them?

The challenges I faced were more of the difficult topics of advanced engineering methods and it was addressed right away because our professors are very responsive in emails. Usually, the average duration of the response of all professors I encountered is 2-3 days. There are plenty of professors who can respond within a day.

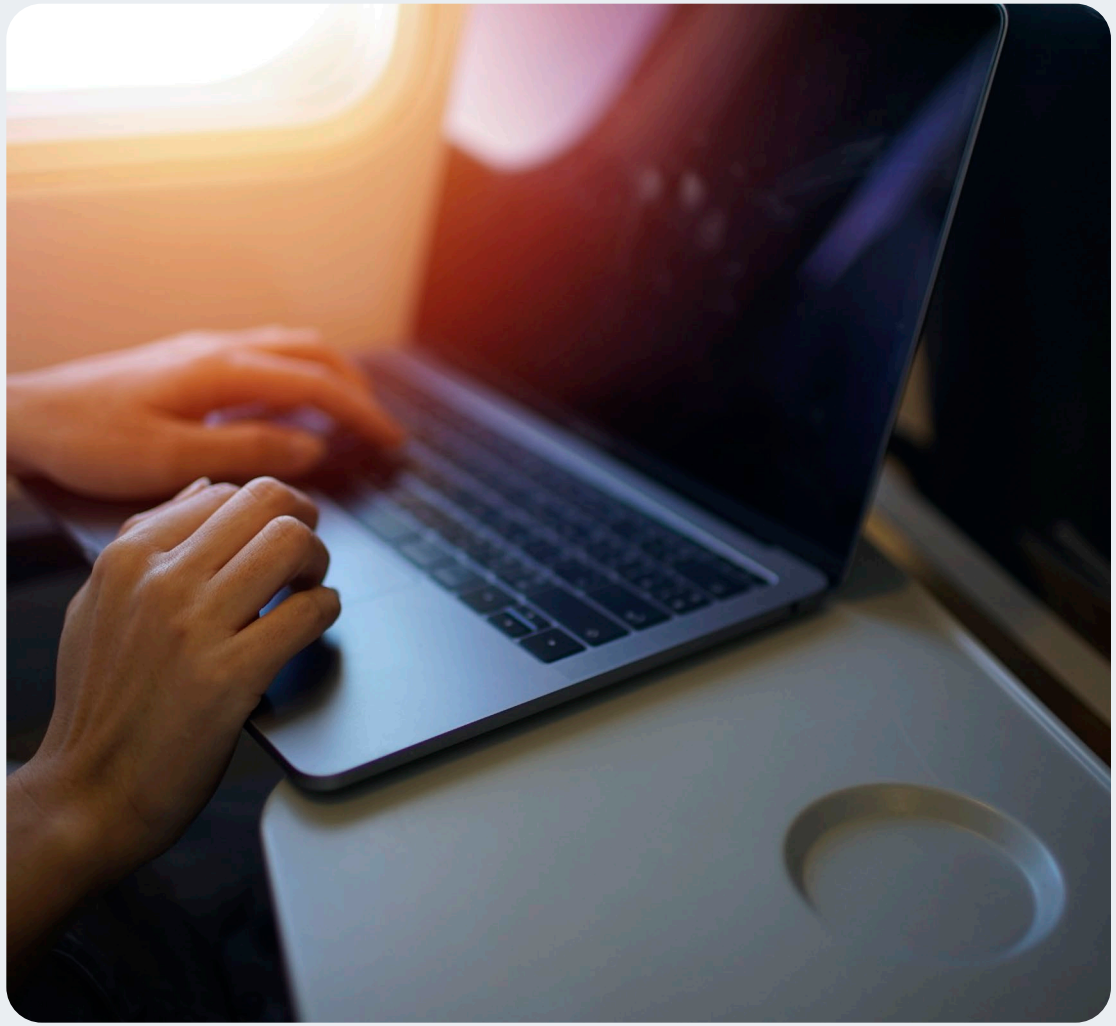
Can you share a project, research topic, or subject during the program that you found especially impactful for your career in structural engineering?

Before joining EIT, I had several thesis ideas focused on non-linear seismic analysis. With guidance from my adviser, Dr. Alok Dua, I researched the seismic performance of RC and CFS frames, learning pushover analysis and cold-formed steel design. I've applied these principles in my career, such as using pushover analysis in structural investigations (Tier 3, ASCE 41) and designing arches with wide-flange steel, where the neutral axis and centroid don't align, insights I've also shared in speaking events.

Hear From A Past Student

How did you find the online and remote labs compared to traditional labs?

One thing I was extremely happy about it since I get to have access on licensed software. It was easy to access and have plenty of “rooms” so I never got the chance to run out of access.



Hear From A Past Student

In what ways has completing the Master of Engineering (Civil: Structural) influenced your professional work or approach to structural engineering projects?

Learnings

The theories, concepts and applications I encountered during my study has helped me further in my career. I was able to enhance my intuition and judgement. It has also reinforced and corrected what I understood during my study in bachelor's degree. Matrix structural analysis, advanced engineering methods, earthquake engineering, and project management subjects are very helpful up until today when applied in practice.

Accreditation

I was able to join Engineers Australia. In our country, I was able to attain higher position(from lecturer to associate professor) when I was still teaching in University of Mindanao. I just got accepted to study Masters in Science in Geotechnical Engineering in the US(Thanks to my professor Dr. Ana Evangelista and adviser Dr. Alok Dua for their recommendation) because they recognized EIT's documents.

Culture

I always love to interact with diverse culture and nationalities. I love how the faculties and supporting staff respond to student's inquiries. Moreover, to interact with my classmates from different parts of the world made my personal views wider.

Hear From A Past Student

For engineering professionals who are considering studying this program with EIT, what advice would you give them about making the most of the online learning experience?

I want to advise the student considering to take their courses now as long as it is aligned with what they want to do in their career. Specially for MS in Civil Structural Engineering, where it is now fully accredited to Washington accord. Certainly, they can work while studying.

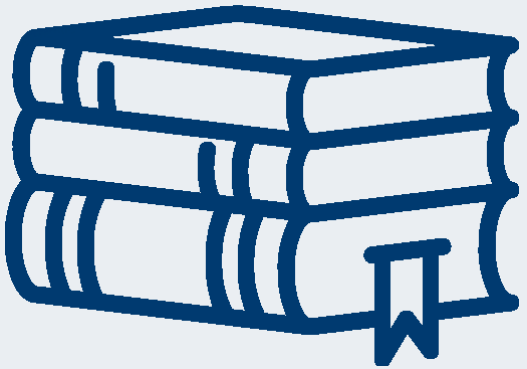
Thank You!

What courses cover this topic?

This webinar/topic relates to our school of Civil and Structural Engineering and is particularly found in the following courses:

- Online – Master of Engineering (Civil: Structural)
- On-Campus – Master of Engineering (Civil: Structural)

CRICOS Course Code: 0100461



Upcoming Courses

Please note courses listed below are subject to their own regulatory requirements, refer to the relevant website for further information.

Engineering Institute of Technology (EIT)	Start Date
Online – Master of Engineering (Civil: Structural)	29/06/2026
On-Campus – Master of Engineering (Civil: Structural) *CRICOS Course Code: 0100461*	27/07/2026

Q&A

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