

# Master of Professional Engineering

[swinburne.edu.au/international](http://swinburne.edu.au/international)

The Master of Professional Engineering is designed to help students develop skills in professional management, communication, and research methods and principles in the engineering discipline. Students undertake research and project work, and benefit from the industry focus of the program. Students participate in a professional industry project which allows them to apply their knowledge and skills to industry problems, gain an enhanced awareness of industry and access valuable networking opportunities.

Graduate will have the skills and knowledge to pursue employment in a range of industries including consulting engineering, construction, local government, and public and private infrastructure owners.

## Course snapshot

Duration	Two years full-time
Campus	Hawthorn (Melbourne)
Fees	A\$40,800*
Intakes	March, August

\*Fees displayed are relevant to 2019 and are subject to annual review. Fees are based on a student's study load in each semester. Please see website for more.

## Career Success Program

The Master of Professional Engineering include the Career Success Program, delivered by a specialist career coaching and graduate placement management provider. The program focuses on career planning and employment readiness through a combination of employability activities and networking events. Visit [swinburne.edu.au/professionalmasters](http://swinburne.edu.au/professionalmasters)

## Entry requirements

- A recognised bachelor degree in engineering
- English language proficiency (please see website for details)

## Scholarship opportunities

Scholarships of up to 25 per cent off tuition fees are available for selected students who apply for and begin this two-year master by coursework program. For more on scholarships, visit [swinburne.edu.au/international/scholarships](http://swinburne.edu.au/international/scholarships)

## Why Swinburne?

A world-ranked university in Melbourne, Australia, Swinburne is focused on creating careers. Upon graduation, our students are career-ready professionals who regularly find employment with the world's best companies, including PricewaterhouseCoopers, IBM, Siemens, Mercedes-Benz and more.

Swinburne is proud to be recognised as one of the world's top universities under 50 years, ranked number 45 in the 2019 QS Top 50 Under 50

Situated in Hawthorn, just ten minutes by train from Melbourne's city centre, Swinburne boasts shops, cafes and a train station right on its doorstep. With high-quality teaching and research, state-of-the-art facilities, student accommodation options and a range of support services, Swinburne is the ideal choice for students.

## Industry connections

For over 50 years, Swinburne University of Technology has been partnering with leading organisations to offer students practical learning and authentic workplace experiences. Our postgraduate programs are co-designed with industry, and many of our students undertake industry-linked projects or projects with their own employers as part of their studies.



*Before she joined Swinburne, Yvonne spent 11 years at BHP, the second largest mining company in the world. As a Senior Research Engineer, she led projects to develop new steel manufacturing processes. Today, she continues with R&D work for industry and always uses real-life case studies in her classes. She also directs a team that creates work-integrated learning opportunities for students, so that they are better equipped to compete for jobs when they graduate.*

### Dr Yvonne Durandet

Senior Lecturer (Advanced Manufacturing) and Academic Director (Industry Engagement) in the Faculty of Science, Engineering and Technology.

## Course overview

Students must complete units of study as follows:

- 9 engineering core units (as below)
- 4 specialisation units (choose your specialisation)
- 1 elective unit (chosen from any other specialisation)

### Core engineering units of study

- Technology Management
- Engineering Project Management
- Principles of Sustainability
- Risk Management
- Professional Masters Career Management
- Research Methods
- Professional Engineering Entrepreneurship Project
- Professional Masters Industry Project
- Opportunity Discovery

## Specialisations

Students complete four units from their chosen specialisation.

### Construction Management

Learn management and engineering techniques in the fields of construction, building and maintenance. Gain knowledge and skills in project delivery, resource planning and management, project costing, health and safety. Learn about the environmental, financial, legal and contractual considerations associated with project-based industries.

#### Units of study

- Construction Law
- Location-based Management for Construction
- International Construction
- Environmental Sustainability in Construction
- Resource Planning and Management

#### Career outcomes

Graduates may find employment as construction engineers, construction managers, project managers or asset management engineers.

### Engineering Management

Learn how to apply practical knowledge to the management of engineering projects, including procurement, risk analysis and monitoring, budget control, and resource planning and management.

#### Units of study

- Resource Planning and Management
- Procurement and Risk Management in Projects
- Maintenance Management of Engineering Assets
- Risk Perception and Analysis
- Quantitative Risk Modelling

#### Career outcomes

Graduates may find employment as design engineers, structural system engineers, asset management engineers, construction engineers or managers, or project engineers or managers.

## Manufacturing Engineering

Learn how to develop and employ advanced manufacturing processes to meet a set goal. Gain the skills and knowledge to implement ideas relating to human-centred design, new materials in the nanofabrication space and computer-aided visualisations.

#### Units of study

- Human Factors
- Nanofabrication Technologies
- Work Systems in Manufacturing
- Advanced Manufacturing Processes
- Computer Modelling, Analysis and Visualisation

#### Career outcomes

Graduates may find employment as production engineers, project engineers or project managers.

## Mechanical Engineering Design

Learn how to design items that move in an efficient and effective manner. Focus on the design of mechanical systems by gaining a thorough understanding of the fundamentals of mechanical engineering, relevant computer programs, work systems and visualisation techniques.

#### Units of study

- Work Systems in Manufacturing
- Surface Engineering
- Advanced CAD/CAM
- Computer Modelling, Analysis and Visualisation
- Manufacturing Systems and Design

#### Career outcomes

Graduates may find employment as mechanical engineers, production engineers, or project engineers or managers.

## Microelectronics

Focus on the electronics components required for a successful career in the microelectronics industry. Learn about electronic design, digital signal processing systems, and hardware modelling and infrastructure.

#### Units of study

- HDL and High Level Synthesis
- VLSI Digital Signal Processing Systems
- RF Circuit Design Techniques
- Hardware-Software Codesign

#### Career outcomes

Graduates may find employment as microelectronics engineers, inspectors or designers; project managers; or research and development engineers.

## Renewable Energy

Gain a thorough understanding of the renewable energy industry and infrastructure, and learn how to design, build and implement renewable energy systems. Focus on power systems and their operation.

#### Units of study

- Electrical Power Systems Safety
- Operation of Power Systems
- Analysis Techniques for Large Scale Power Systems
- Renewable Energy
- Design of Smart Power Grids

## Career outcomes

Graduates may find employment as electrical power engineers, project managers, or research and development engineers.

## Robotics and Mechatronics

Acquire practical knowledge and skills in the design and implementation of robotic automation systems and their various applications. Focus on using robotics in manufacturing, intelligent inspection and renewable energy.

#### Units of study

- Robotics in Manufacturing
- Intelligent Inspection Systems
- Linear Systems
- Renewable Energy

#### Career outcomes

Graduates may find employment as robotics and mechatronics engineers, design engineers, or research and development engineers.

## Structural Engineering and Design

Gain advanced knowledge and skills for the design and analysis of building and civil structures as well as the advanced uses of traditional and new construction materials. Learn skills relevant to professional practice in organisations of all sizes across the public, private and non-profit sectors.

#### Units of study

- Advanced Concrete Design
- Building Design
- Strengthening and Monitoring of Structures
- Finite Element Methods and Applications
- Structural Dynamics and Earthquake Engineering
- Bridge Design

#### Career outcomes

Graduates may find employment as structural engineers or design engineers.

## Sustainable Manufacturing

Combine manufacturing principles with the environmental and social-impact implications of engineering. Learn about renewable energy, environmental sustainability, social entrepreneurship and how best to combine these for a better outcome.

#### Units of study

- Work Systems in Manufacturing
- Six Sigma
- Sustainable Design and Manufacture
- Renewable Energy
- Social Entrepreneurship

#### Career outcomes

Graduates may find employment as manufacturing managers, manufacturing engineers, design engineers, design managers or engineering consultants.



## How to apply

Visit our website for step-by-step application instructions: [www.swinburne.edu.au/international/apply/](http://www.swinburne.edu.au/international/apply/)

## More information

+61 3 9214 8444 (outside Australia)  
1300 275 794 (within Australia)  
[international@swinburne.edu.au](mailto:international@swinburne.edu.au)  
[swinburne.edu.au/engineering](http://swinburne.edu.au/engineering)