

# College of Engineering

## Master's Degree in Renewable Energy

The Master of Engineering Studies in Renewable Energy MEngSt (Renewable Energy) is a one year, course-based masters aimed at graduates from a wide range of engineering backgrounds.

A candidate for the MEngSt (Renewable Energy) degree will learn about the breadth of renewable energy resources, conversion technologies, modelling techniques, challenges and solutions surrounding energy sustainability. They will have access to high-level professional, technical and research expertise and facilities. The programme is designed to enable graduates to transition their careers into a profession and/or industry of their choice which involves renewable energy and energy sustainability practices.

The degree comprises 8 courses of which 4 are compulsory. Candidates may select 1-3 elective courses from Set 1, one elective course from Set 2 and up to 2 courses from Set 3.

#### Compulsory Courses

- Energy, Technology & Society
- Energy Systems Modelling & Analysis
- Renewable Electricity System Design
- Risk Management



#### Electives (Set 1; choose up to 3)

- Wind Resource Modelling
- Construction Procurement & Contract Administration
- Project (equivalent to 2 courses; available to top students)

#### Electives (Set 2; choose 1)

- Sustainable Energy Systems
- Renewable Energy Technology & Management
- Energy Systems Engineering

#### Electives (Set 3; choose up to 2)

- Advanced Energy Processing Technologies and Systems
- Geographic Information Systems (GIS)

#### Features

- Podcast lectures & discussions
- Selected live streaming
- Block course mode: Risk Management; Construction Procurement & Contract Administration

## Entry requirements

Candidates must normally have completed one of the following:

- Bachelor of Engineering with Honours with first or second class honours
- The equivalent of a 4-year Bachelor of Engineering degree with a B-average
- Postgraduate Certificate in Engineering with a GPA of 5 or more
- Bachelor of Science with Honours in appropriate subjects.

Relevance and standard of previous study are the main criteria for approval.

#### English Language Requirements (any one of the following)

- IELTS Academic with an overall band score of 6.5 and a minimum of 6.0 in each band
- TOEFL iBT total minimum score of 90; minimum score of 20 in writing
- PTE with an overall score of 64 and no PTE communicative skills score below 58

<b>Duration:</b>	1 year , full time (8 courses, 120 points)
<b>Fees:</b>	NZ\$36,800 (indicative)
<b>Funding:</b>	Up to NZ\$5,000 (Deans Awards)
<b>Course type:</b>	Course-based, taught masters
<b>Intakes:</b>	February and July

#### Pay

Graduate Renewable Energy engineers can earn \$55,000 per year

Senior Renewable Energy engineers who work as team leaders or managers can earn \$100,000 per year

#### Job opportunities

The fast-growing renewable energy sector is expected to provide many good job opportunities for suitably qualified energy engineers now and well into the future.

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### Compulsory courses:

#### **ENGR621 Energy, Technology & Society**

The roles of civil, natural resources, electrical, mechanical, chemical/process engineering, environmental psychology, sociology and economics in the multi-disciplinary subject of energy engineering; the application of thermodynamics and electricity in energy system conceptual design, advanced concepts in energy economics comparing paradigms such as classical, neo-classical and steady-state economics; the decoupling of economic growth from energy consumption; energy poverty and energy services.

#### **ENCN623 Energy Systems Modelling & Analysis**

Critical analysis of 100% renewable energy systems; energy system modelling including advanced solar models; analysis and application of selected software for energy system modelling including EnergyPLAN.

#### **ENEL664 Renewable Electricity System Design**

This course is aimed at applying systems theory to the practical design of renewable energy systems. It is primarily focused on technical design, modelling of energy systems and the integration of these energy systems into society. Topics can include (but are not limited to) the design of renewable energy systems and/or their components: generation, inverters, electricity storage devices, component or system protection and control, plus integrated off-grid and grid-tied systems.

#### **ENCI601 Risk Management**

Risk concepts; context and perceptions; risk identification, analysis, evaluation and treatment; quantitative and qualitative risk analysis; ethical issues and risk communication; applications and case studies. Special note: this paper includes individual projects; an energy-based topic will be studied in-depth by MEngSt (Renewable Energy) students.

### Elective courses:

**ENCN625** Wind Resource Modelling

**ENGR683** Project

**ENCM620** Construction Procurement and Contract Administration

**ENNR423** Sustainable Energy Systems

**ENGR404** Renewable Energy Technology & Management

**ENME405** Energy Systems Engineering

**HAZM408** Special Topic in GIS

**ENCH486** Advanced Energy Processing Technologies and Systems

For further elective course details enter the course code at this link:

[www.canterbury.ac.nz/future-students/qualifications-and-courses/](http://www.canterbury.ac.nz/future-students/qualifications-and-courses/)

### For further Information

Email:

[postgrad-enquiries@civil.canterbury.ac.nz](mailto:postgrad-enquiries@civil.canterbury.ac.nz)

