Specialisation

Renewable Energy (8621)

SOLAGS | 96 Units of Credit

Overview

The Master of Engineering in Renewable Energy enables students to specialise and gain depth of knowledge in areas related to renewable energy technologies, systems engineering, energy efficiency, and assessment frameworks.

Industrial Training Students must complete 60 days of renewable energy related industrial experience.


Cognate disciplines: Renewable Energy Engineering, Photovoltaic Engineering, Electrical Engineering, Mechanical Engineering, or equivalent. Professional experience in renewable energy industry will be highly regarded.
<table>
<thead>
<tr>
<th><strong>Faculty</strong></th>
<th>Faculty of Engineering</th>
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<tbody>
<tr>
<td><strong>School</strong></td>
<td>School of Photovoltaic and Renewable Engineering</td>
</tr>
<tr>
<td><strong>Study Level</strong></td>
<td>Postgraduate</td>
</tr>
<tr>
<td><strong>Minimum Units of Credit</strong></td>
<td>96</td>
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<tr>
<td><strong>Specialisation Type</strong></td>
<td>Specialisation</td>
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Learning Outcomes

1. The capacity for application of established engineering methods to complex engineering problem solving (satisfying Engineers Australia Stage 1 competency 2.1). This capability is enhanced via the compulsory research project and core design course, such that students have the ability to analyse, criticise, and undertake design. Graduates will be capable of exercising advanced and creative problem solving skills when applied to unique and unfamiliar problems.

2. Proficiency in applying systematic approaches to carrying out engineering design and projects (satisfying Engineers Australia Stage 1 competencies 2.3, and 2.4). This outcome is developed via the research project and compulsory design course. Graduates will develop an appreciation of, and ability to, engage in research and engineering design.

3. Knowledge of contextual factors impacting the relevant discipline (satisfying Engineers Australia Stage 1 competency 1.5). This capability is attained via the engineering and technical management electives as well as compulsory industrial training.

4. Discernment of knowledge development and research directions within the discipline (satisfying Engineers Australia Stage 1 competency 1.4). This is enhanced via postgraduate electives which reflect the current developments and research directions in renewable energy.

5. Proficiency in applying engineering techniques, tools, and resources (satisfying Engineers Australia Stage 1 competency 2.2). This outcome is developed via the compulsory design course and a research project.

6. Effective professional communication (satisfying Engineers Australia Stage 1 competency 3.2). This capability is enhanced by via research project, management electives, design course and industrial training. Graduates will be able to effectively communicate with each other, with other professional groups, and with the general community, in order to convey the principles and merits of designs and innovation, and of analytical results.

7. A respect for, and understanding of, professional engineering practice in renewable energy. (satisfying Engineers Australia Stage 1 competencies 1.6 and 3.1).
This capability is enhanced via the research project, engineering and technical management electives, compulsory design course, and compulsory industrial training.

8. In-depth as well as broad understanding of the discipline knowledge (satisfying Engineers Australia Stage 1 competency 1.3). This learning outcome is developed within the Master's program following a sufficient foundation from an existing 4-year bachelor's degree and then enhanced via substantial professional development and postgraduate elective choice. Graduates should be thoroughly versed in, and be able to apply, the advanced technologies relevant to their chosen discipline.

Graduate Capabilities:

For more information on Graduate Capabilities, please click on this link.
Specialisation Structure

Students must complete 96 UOC.

In order to qualify for degree, students are required to successfully complete 96 UOC courses comprising of:

- 36 UOC Disciplinary courses (professional development electives)
- 30 UOC Advanced disciplinary courses (postgraduate specialisation electives)
- 12 UOC Postgraduate project (Research/capstone, advanced disciplinary)
- 12 UOC Engineering and technical management
- 6 UOC Design course

and 60 days of renewable energy related industrial training.

Advanced Disciplinary Courses List 1

Students must take 18 UOC of the following courses.

GSOE9017 | 6 UOC
Managing Energy Efficiency

GSOE9111 | 6 UOC
Energy Storage

SOLA9103 | 6 UOC
Renewable Energy System Modelling & Analysis

Advanced Disciplinary Courses List 2

Students must take 12 UOC of the following courses.

ELEC9711 | 6 UOC
Power Electronics for Renewable and Distributed Generation

ELEC9714 | 6 UOC
Electricity Industry Planning and Economics
Students must take 6 UOC of the following courses.

SOLA9105 | 6 UOC
Renewable Energy System Design

Disciplinary Core Courses List 1

Students must take 24 UOC of the following courses.

SOLA4012 | 6 UOC
Photovoltaic Systems Design

SOLA5051 | 6 UOC
Life Cycle Assessment

SOLA5053 | 6 UOC
Wind Energy Converters

SOLA9001 | 6 UOC
Photovoltaics

Disciplinary Core Courses List 2
Students must take 12 UOC of the following courses.

**ELEC4612  |  6 UOC**  
Power System Analysis

**SOLA5050  |  6 UOC**  
Renewable Energy Policy

**SOLA5052  |  6 UOC**  
Biomass

**Postgraduate Project**

Students must take 12 UOC of the following courses.

**SOLA9914  |  6 UOC**  
Project Report

**SOLA9915  |  6 UOC**  
Project Report

**Technical and Management Electives**

Students must take 12 UOC of the following courses.

Please note:
- Other Engineering and Technical Management courses may be taken with the approval of the Stream Authority.
- With permission of the stream authority, a student may be permitted to take any advanced disciplinary knowledge course within the Faculty as an elective for which prerequisite requirements are met.

**GSOE9445  |  6 UOC**  
Entrepreneurial Engineering

**GSOE9510  |  6 UOC**  
Ethics and Leadership in Engineering

**GSOE9820  |  6 UOC**  
Engineering Project Management


GSOE9830 | 6 UOC  
Economic Decision Analysis in Engineering

**Industrial Training**

Students must complete 60 days of renewable energy related industrial experience.

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**Enrolment Disclaimer**

Unless advised otherwise by your program authority, you should follow the rules for the handbook for the year you commenced your program. You are also responsible for ensuring you enrol in courses according to your program requirements. myUNSW enrolment checks that you have met enrolment requirements such as pre-requisites for individual courses but not that a course will count towards your program requirements.
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Pre-2019 Handbook Editions