

Handbook 2020

Coursecode

M1268

MASTER OF RENEWABLE AND SUSTAINABLE ENERGY

Murdoch University

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Cancellation of Courses, Majors, Minors and Units

The University reserves the right to cancel, without notice, any course, major, minor or unit if the number of students enrolled falls below limits set by the University or in other unforeseen circumstances.

Alternative Formats

Handbook home page:

<http://handbook.murdoch.edu.au>

This publication can also be provided in alternative formats by contacting the Equity and Social Inclusion Office at Murdoch University

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Group	Course	Offerings
Graduate Coursework Degrees and Professional Doctorates		
Energy Studies	Master of Renewable and Sustainable Energy (MRenSusEn)	<ul style="list-style-type: none"> • Murdoch campus (internal) • Murdoch campus (external) • International Online (Australia) ['INT-ONLINE'] (external)

ENERGY STUDIES

MASTER OF RENEWABLE AND SUSTAINABLE ENERGY (MRENSUSEN)

Availability:

- Murdoch campus (internal)
Murdoch campus (external)
International Online (Australia) ['INT-ONLINE'] (external)

Employment Prospects:

Graduates can expect to gain employment in power generation companies, renewable energy manufacturing and installation companies, international aid organisations, government departments, energy efficiency, carbon accounting and environmental consultancies, university and private industry research organisations and local government.

Environmental Engineering

Admission Requirements (Onshore):

Recognised Bachelor's degree (AQF Level 7) or higher, or equivalent training, or professional experience in a related area. Students may be eligible for advanced standing in the Masters if they have achieved AQF Level 8 in a recognised, cognate discipline. Some of the units taken assume some prior knowledge, details of which are given in the description of each unit in the Handbook. The most common of these is the high school Physics prerequisite for units such as Energy in Society, Energy Management and Energy System Some students may therefore need to complete additional prerequisite units.

Restriction: All graduate courses are subject to restriction.

Master of Renewable and Sustainable Energy (MResSusEn)

This 2 year course offers advanced training in the area of renewable and sustainable energy systems, sustainable energy policy and development, climate change adaptation and resilience, energy efficiency and carbon management. The first year is the Graduate Diploma in Energy and Carbon Studies OR the Graduate Diploma in Energy and the Environment. In the second year students will complete a research dissertation, in the areas of renewable and sustainable energy (including energy efficiency) or in the areas of climate change mitigation and adaptation.

Course Codes: M1268

Duration: 2 years full-time or part-time equivalent

Main Research Areas:

Renewable energy in developing countries, energy storage, solar cells, wind turbines, biomass, energy policy and economics, sustainable transport, micro-grids, remote area power supply systems, energy efficiency, climate change response.

Special Requirements:

This course is available to external students anywhere in the world who wish to study off campus by using on-line facilities. Assistance is provided by tutors who correspond with students by telephone, email or the Internet.

Course Structure - 48 credit points

Year 1 - 24 credit points

Core Units - 24 credit points

PEN590 Energy Systems - 3 points
MURDOCH: S2-internal, S2-external

PEN591 Energy Policy - 3 points
MURDOCH: S1-internal, S1-external

PEN592 Energy in Society - 3 points
MURDOCH: S1-internal, S1-external, S2-external

PEN593 Energy Economics - 3 points

MURDOCH: S2-internal, S2-external

PEN594 Energy Auditing and Management - 3 points
MURDOCH: S1-internal, S1-external

PEN597 Climate Change Science and Policy - 3 points
MURDOCH: S1-internal, S1-external

PEN504 Greenhouse Gas Reporting and Life Cycle Assessment - 3 points
MURDOCH: S2-internal, S2-external

PEN598 Carbon Management - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external

Year 2 - 24 credit points

Core Units - 6 or 12 credit points

PEN628 Sustainable Energy Development - 6 points
MURDOCH: S1-internal, S1-external

OR

PEN624 Renewable and Sustainable Energy Dissertation - 12 points
MURDOCH: H-internal, H-external, Y-internal, Y-external

Specified Electives - 12 or 18 credit points

Select from the Specified Elective Unit List below.

ENG225 Circuits and Systems I - 3 points
MURDOCH: S1-internal

PEN502 Climate Change Impact Assessment - 3 points
MURDOCH: S1-internal, S1-external, S2-external

PEN623 Renewable Energy Systems Design - 3 points
MURDOCH: S1-internal, S1-external

ENV556 Principles of Environmental Impact Assessment - 3 points
MURDOCH: S1-internal, S1-external

PEN503 Climate Change Adaptation and Resilience - 3 points
MURDOCH: S1-external, S2-internal, S2-external

PEN670 Energy Efficient Buildings - 3 points
MURDOCH: S1-internal, S1-external

ENV617 Sustainability Assessment - 3 points
Not available this year

PEN637 Applied Solar Photovoltaics - 3 points
MURDOCH: S2-internal

PEN639 Wind Energy and Hydroelectricity - 3 points
MURDOCH: S2-internal, S2-external

ENV680 Climate Change Adaptation: Ecosystems and Societies - 3 points
MURDOCH: S2-internal, S2-external

PEN634 Solar Thermal and Biomass Energy - 3 points
MURDOCH: S1-internal, S1-external

MBS684 Managing Strategic Risk and Projects - 6 points
MURDOCH: S2-internal, S2-external, SUM-internal, SUM-external

PREREQUISITES

Applied Solar Photovoltaics (PEN637)

ENG297 Circuits and Systems II; Completion of 24 points in the Master of Renewable and Sustainable Energy OR Enrolment in the Master of Engineering.

Carbon Management (PEN598)

Enrolment in an Honours or Graduate-level course. Completion of either PEN597/OEENV599 Climate Change Science and Policy or PEN504 /OEENV504 Greenhouse Gas Reporting and Lifecycle Assessment or PEC632/PEN632 Greenhouse Science and Policy or

PEC611/PEN611 Greenhouse Accounting and Life Cycle Assessment.

Circuits and Systems I (ENG225)

Corequisite: MAS182 Applied Mathematics or MAS161 Calculus and Matrix Algebra.

Climate Change Adaptation and Resilience (PEN503)

Enrolment in an Honours or Graduate-level course. Recommended PEN597 Climate Change Science and Policy and PEN504 Greenhouse Gas Reporting and Lifecycle Assessment.

Climate Change Adaptation: Ecosystems and Societies (ENV680)

Enrolment in a graduate-level course.

Climate Change Impact Assessment (PEN502)

Enrolment in an Honours or Graduate-level course. Recommended PEN597 Climate Change Science and Policy (may be concurrent enrolment).

Climate Change Science and Policy (PEN597)

Enrolment in an honours or graduate-level course.

Energy Auditing and Management (PEN594)

Enrolment in the Graduate Certificate in Energy Studies, Graduate Certificate in Energy and Carbon Studies, Graduate Diploma in Energy Studies, Graduate Diploma in Energy and Carbon Studies, Graduate Diploma in Energy and the Environment, Master of Renewable Energy or Master of Renewable and Sustainable Energy

Energy Economics (PEN593)

Enrolment in an honours or graduate level course. Recommended PEC592/PEN592 Energy in Society (may be concurrent).

Energy Efficient Buildings (PEN670)

Enrolment in the Master of Renewable Energy or Master of Renewable and Sustainable Energy.
Recommended: PEN592 Energy in Society.

Energy Policy (PEN591)

Enrolment in an honours or graduate-level course. Recommended: PEC592/PEN592 Energy in Society and PEC593/PEN593 Energy Economics.

Energy Systems (PEN590)

Enrolment in the Graduate Certificate in Energy Studies, Graduate Certificate in Energy and Carbon Studies, Graduate Diploma in Energy Studies, Graduate Diploma in Energy and Carbon Studies, Graduate Diploma in Energy and the Environment, Master of Renewable Energy or Master of Renewable and Sustainable Energy and Master of Engineering.

Energy in Society (PEN592)

Enrolment in the Graduate Certificate in Energy Studies, Graduate Certificate in Energy and Carbon Studies, Graduate Diploma in Energy Studies, Graduate Diploma in Energy and Carbon Studies, Graduate Diploma in Energy and the Environment, Master of Renewable Energy or Master of Renewable and Sustainable Energy.

Greenhouse Gas Reporting and Life Cycle Assessment (PEN504)

Enrolment in an Honours or Graduate-level course. Recommended PEN597 Climate Change Science and Policy (may be concurrent enrolment).

Managing Strategic Risk and Projects (MBS684)

Enrolment in a graduate-level course.

Principles of Environmental Impact Assessment (ENV556)

Enrolment in Bachelor Environmental Science or Bachelor Marine Science or Graduate Certificate in Environmental Assessment and Management or Graduate Diploma in Environmental Science or Graduate Diploma in Energy and the Environment or Master of Sustainable Development or Master of Public Policy and Management.

Renewable Energy Systems Design (PEN623)

Enrolment in the Master of Renewable and Sustainable Energy or Master of Renewable Energy.

PEC590/PEN590 Energy Systems.

Renewable and Sustainable Energy Dissertation (PEN624)

Completion of 24 points in the Master of Renewable and Sustainable Energy AND an invitation to enter the research experience stream of the 2nd year of the Masters.

Solar Thermal and Biomass Energy (PEN634)

Completion of 24 points in Master of Renewable and Sustainable Energy including PEN590 Energy Systems OR Enrolment in the Master of Engineering

Sustainability Assessment (ENV617)

Enrolment in Master of Environmental Science or Master of Protected Area Management.

Sustainable Energy Development (PEN628)

Graduate Diploma in Energy and Carbon Studies, Graduate Diploma in Energy and the Environment OR completion of 24 points in the Master of Renewable and Sustainable Energy.

Wind Energy and Hydroelectricity (PEN639)

Completion of 24 points in Master of Renewable and Sustainable Energy including PEN590 Energy Systems; OR Enrolment in the Master of Engineering