Handbook
2020

Coursecode	
M1193	MASTER OF ENGINEERING

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		
Engineering	Master of Engineering (ME)	• Murdoch campus (internal)

ENGINEERING

MASTER OF ENGINEERING (ME)

Availability:
• Murdoch campus (internal)

Employment Prospects:
Graduates in majors 1 and 2 can find employment in the following areas of manufacturing, medical, mining, processing energy supply, communications, electronics, computer systems and defence-related industries.
Graduates in major 3 can find employment in municipal water supply and wastewater management, governmental departments of water and natural resources, and private or public irrigation and water resource management entities, mining, manufacturing and other industrial enterprises in which water is extensively used.

Special Requirements:
Some units in this course are offered in a flexible delivery mode, allowing candidates to complete some of their studies at home or at their workplace.
Special Requirements Apply for admission to and participation in the Water Treatment and Desalination Major as follows:
- Some attendance at on- and off-campus site visits and technology operation sessions will be a requirement.
- Water treatment engineering is a highly quantitative profession requiring a sound grounding in physics, chemistry, fluid mechanics, and mathematics. The coursework assumes a prior understanding of the fundamentals of these disciplines to a level allowing entry into the specifics of water engineering without further general instruction in these disciplines. Consequently, students entering the course must have passed the following units at Murdoch or their equivalent elsewhere:
MAS221 Mathematical Modelling
ENG201 Fluid Mechanics
CHE144, Foundations of Chemistry
PEN152, Principles of Physics
For students with potentially equivalent alternative training, contact the Academic Chair for assessment of equivalency.

Main Research Areas:
Control theory, control systems, robotics and automation, industrial electronics, process control and simulation, signal processing, circuits and systems, power and energy systems engineering, renewable energy technologies, water and wastewater treatment processes.

Master of Engineering (ME)

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

Admission Requirements (Onshore):
Entry may be gained through any of three means:
1. Recognised Engineering Bachelor's degree (AQF Level 7) in the specific disciplinary area of the major,
2. Evidence of an appropriate level of industrial experience and possession of a Bachelor's degree (AQF Level 7) in a technical, non-engineering area as
judged adequate by the Academic Chair or their designate, or
3. Applicants without the necessary qualifications and/or background may be admitted with the caveat that they will be required to pass additional units as part of the course requirements, as judged by the Course Coordinator or their designate. This entry option may increase the required duration to complete the degree.

To gain entry by either means 2 or 3, the applicant should provide educational and industrial experience details by a Curriculum Vitae, tertiary education transcripts, and a personal statement of no more than 300 words detailing why this course has been selected and how any extra-curricular experience has prepared the applicant to complete the course.

The Master of Engineering is intended for practising professionals who wish to update their existing qualifications and/or enhance their skills in one of the following three majors:
. Major 1: Industrial Control Systems Engineering;
. Major 2: Electrical Power Engineering; or
. Major 3: Water Treatment and Desalination

Environmental Engineering

Course Codes: M1193

Restriction: All graduate courses are subject to restriction.

Course Structure - 48 credit points

Core Units - 18 credit points

Required Unit

ENG100 Engineering Professional Practice - 0 points
MURDOCH: YU5-internal

Specified Electives - 18 credit points

Choose either the Engineering Masters Project unit group or the Engineering Design Project unit group.

Engineering Masters Project - 18 credit points

Required Unit - 12 credit points

ENG615 Engineering Masters Project - 12 points
MURDOCH: H-internal, S1-internal, SS4-internal, SUM-internal, WU3-internal, Y-internal

Specified Elective Units - 6 credit points

TLC501 Communication Skills for Postgraduate Study - 3 points
MURDOCH: S1-internal, S2-internal

ICT616 Data Resources Management - 3 points
MURDOCH: S1-internal, S2-internal

ICT615 Information Technology Research Methods - 3 points
MURDOCH: S1-internal

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

Students taking the Water Treatment and Desalination major may not take this elective.
PEN590 Energy Systems - 3 points
MURDOCH: S2-internal, S2-external

Students taking the Water Treatment and Desalination major may not take this elective.
PEN634 Solar Thermal and Biomass Energy - 3 points
MURDOCH: S1-internal, S1-external

MBS538 Organisational Behaviour and Management - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external, SUM-internal, SUM-external

MBS673 Entrepreneurship and Innovation Management - 3 points
MURDOCH: S1-internal, S1-external, SUM-internal, SUM-external

For students taking the Water Treatment and Desalination major only:
ENV536 Education for Sustainability - 3 points
MURDOCH: S2-internal, S2-external

For students taking the Water Treatment and Desalination major only:
ENV554 Land and Water Management - 3 points
MURDOCH: S1-internal, S1-external

ENG670 Measurement and Uncertainty Analysis - 3 points
MURDOCH: S2-internal

OR

Engineering Design Project - 18 credit points

Required Unit - 6 credit points

ENG610 Engineering Design Project - 6 points
MURDOCH: H-internal, S1-internal, S2-internal, SUM-internal, Y-internal

Specified Electives - 12 credit points

TLC501 Communication Skills for Postgraduate Study - 3 points
MURDOCH: S1-internal, S2-internal

ICT616 Data Resources Management - 3 points
MURDOCH: S1-internal, S2-internal

ICT615 Information Technology Research Methods - 3 points
MURDOCH: S1-internal

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

Students taking the Water Treatment and Desalination major may not take this elective.
PEN590 Energy Systems - 3 points
MURDOCH: S2-internal, S2-external

Students taking the Water Treatment and Desalination major may not take this elective.
PEN634 Solar Thermal and Biomass Energy - 3 points
MURDOCH: S1-internal, S1-external

MBS538 Organisational Behaviour and Management - 3 points
MURDOCH: S1-internal, S1-external, S2-internal, S2-external, SUM-internal, SUM-external

MBS673 Entrepreneurship and Innovation Management - 3 points
MURDOCH: S1-internal, S1-external, SUM-internal, SUM-external

For students taking the Water Treatment and Desalination major only:
ENV536 Education for Sustainability - 3 points
MURDOCH: S2-internal, S2-external

For students taking the Water Treatment and Desalination major only:
ENV554 Land and Water Management - 3 points
MURDOCH: S1-internal, S1-external

ENG670 Measurement and Uncertainty Analysis - 3 points
MURDOCH: S2-internal

Major - 18 credit points

MJ-ICS Industrial Control Systems Engineering - 18 credit points
OR
MJ-EPE Electrical Power Engineering - 18 credit points
OR
MJ-WTD Water Treatment and Desalination - 18 credit points

Options - 12 credit points

Minor - 12 credit points

MN-ICS Industrial Control Systems Engineering (For students taking the Electrical Power Engineering major only) - 12 credit points
OR
MN-EPE Electrical Power Engineering (For students taking the Industrial Control Systems major only) - 12 credit points
OR
MN-RET Renewable Energy Technologies (For students taking the Industrial Control Systems major or Electrical Power Engineering major only) - 12 credit points

OR

Specified Electives - 12 credit points

ENG509 Water Regulation, Finance and Management - 3 points
MURDOCH: S1-internal

ENG603 Advanced Water Treatment Design - 3 points
MURDOCH: S1-internal

ENG524 Process Unit Operations - 3 points
MURDOCH: S1-internal, S1-external

ENG517 Water Treatment Technology Practical - 3 points
MURDOCH: S2-internal

ENG670 Measurement and Uncertainty Analysis - 3 points
MURDOCH: S2-internal

PREREQUISITES

Advanced Water Treatment Design (ENG603)
Successful completion of ENG510 Physicochemical Water Treatment Operations and ENG515 Biological Water Treatment Operations (or their equivalent with permission from the unit coordinator).

Communication Skills for Postgraduate Study (TLC501)
Nil.

Data Resources Management (ICT616)
Enrolment in a graduate-level IT course.

Education for Sustainability (ENV536)
Enrolment in Graduate Certificate in Environmental Science or Graduate Certificate in Protected Area Administration or Graduate Diploma in Environmental Science or Bachelor of Marine Science or Master of Sustainable Development, or Doctor of Education, or Masters in Education, or Graduate Diploma in Education.

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.

Engineering Design Project (ENG610)
Enrolment in the Master of Engineering or Graduate Diploma in Engineering or MBA+ME or ME+MIT

Engineering Masters Project (ENG615)
Enrolment by permission of the Engineering Academic Chair.

Engineering Professional Practice (ENG100)
Enrolment in the second year of the Bachelor of Engineering (Honours), Bachelor of Engineering Technology or any combined Engineering degree.

Entrepreneurship and Innovation Management (MBS673)
Enrolment in a graduate-level course.

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).

Information Technology Research Methods (ICT615)
Enrolment in a graduate IT course or permission of the Academic Chair.

Land and Water Management (ENV554)
Enrolment in a graduate-level (AQF level 8) course.

Measurement and Uncertainty Analysis (ENG670)
Completion of at least 24 credit points of the Master of Engineering or permission of the Engineering Academic Chair.

Organisational Behaviour and Management (MBS538)
Enrolment in a graduate-level course.

Process Unit Operations (ENG524)
Enrolment in G1034 Graduate Diploma in Extractive Metallurgy, G1070 Graduate Diploma in Engineering, M1259 Master of Water Treatment and Desalination or M1193 Master of Engineering.

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

Water Regulation, Finance and Management (ENG509)
Enrolment in graduate coursework in a Murdoch Environmental, Energy, Physics, Electrical, Chemical or Metallurgical Engineering discipline. Other Murdoch graduate students with equivalent qualifications may be enrolled with permission from the unit coordinator.

Water Treatment Technology Practical (ENG517)
Enrolment in graduate coursework in a Murdoch Environmental, Energy, Physics, Electrical, Chemical or Metallurgical Engineering discipline. Other Murdoch graduate students with equivalent qualifications may be enrolled with permission from the unit coordinator.