

Energy Efficiency Modelling and Implementation

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| Year and Campus: | 2015 |
| Coordinator: | Dr Dominique Hes, Faculty of Architecture, Building & Planning Assoc Professor Lu Aye, Melbourne School of Engineering |
| Contact: | <p>Office for Environmental Programs Ground Floor, Walter Boas Building (building 163)</p> <p><i>Enquiries</i> Phone: 13 MELB (13 6352) Email: 13MELB@unimelb.edu.au (mailto:13MELB@unimelb.edu.au)</p> |
| Overview: | <p>Energy Efficiency Modelling and Implementation is offered as a major field of study in the Master of Environment degree.</p> <p>Energy modelling and implementation for buildings has become an important area in the light of growing concerns about climate change, energy security and the general need to adopt more sustainable practices. Despite the obvious need for people with such knowledge, there is a severe shortage of people that are trained in energy modelling who have the capacity to interpret the modelling results to effective practice. The realms of energy knowledge required include heating and cooling requirements, as well as use of day lighting and natural lighting. These skills are crucial to being able to reduce the risk in the integration of innovative sustainability initiatives, this risk reduction centres on assurances of performance and delivery of desired sustainability outcomes.</p> <p>Energy modelling is a key tool for the development and adoption of energy efficiency in new and existing buildings. This course develops the skills of complex modelling informed by an understanding of the results ensuring the graduate has the ability to both interpret and communicate outcomes effectively. Units of study include a mix of building management, architecture, engineering, management, education and communication subjects.</p> |
| Learning Outcomes: | <p>Students who complete the Master of Environment will have:</p> <ul style="list-style-type: none"> # Knowledge to undertake professional practice in environment or sustainability, including: # Skills for collaborative and creative problem solving in environmental practice, including: # Demonstrated capacity to: <p>Upon successful completion of the Energy Efficiency Modelling and Implementation major, students will be able to:</p> <ul style="list-style-type: none"> # Work in multi-disciplinary groups; # Understand the outcome of modelling and be able to both communicate and integrate them into project development and management; # Use results as part of business case development; and # Carry out the modelling or interpret the modelling of complex building with innovative environmental initiatives from passive design, complex facades, natural lighting and heating and cooling systems. |
| Structure & Available Subjects: | <p>Students will be required to complete two subjects core to the degree (Sustainability, Governance and Leadership, and Interdisciplinarity and Environment), and four subjects compulsory to the specialisation. One of these subjects, Complex Building Energy Modelling (12.5 points), contributes to a capstone experience. Knowledge from this subject will be applied to an actual project including research of alternative retrofit options, testing, analysis and scholarly writing of the results. This research or internship project subject will be selected from a list of available research project subjects and must have a minimum weight of 12.5 points. Students choose subjects from a recommended list of electives to make up the balance of the award. The selection of electives is made in consultation with the Energy Efficiency Modelling and Implementation major coordinators. A full list of subjects available within this specialisation can be found at:</p> <p>http://environment.unimelb.edu.au/courses/streams/energy_efficiency_modelling_and_implementation (http://environment.unimelb.edu.au/courses/streams/energy_efficiency_modelling_and_implementation)</p> |

Subject Options:**Core Subjects**

Students are required to complete the following subjects:

| Subject | Study Period Commencement: | Credit Points: |
|--|----------------------------|----------------|
| MULT90004 Sustainability Governance and Leadership | March, July | 12.50 |
| MULT90005 Interdisciplinarity and the Environment | Semester 2 | 12.50 |

Compulsory Specialisation

Students are required to complete the following core specialisation subjects:

| Subject | Study Period Commencement: | Credit Points: |
|---|----------------------------|----------------|
| ENEN90011 Energy Efficiency Technology | Semester 2 | 12.50 |
| ENEN90033 Solar Energy | Semester 1 | 12.50 |
| ABPL90268 Building Envelopes | September | 12.50 |
| ABPL90153 Complex Building Energy Modelling | June | 12.50 |

Compulsory Capstone Experience

Students must complete at least 12.5 points from the following compulsory capstone subjects - please note that if you select either a 25 or 50 point subject that spreads across two semesters you must enrol into the subject in both semesters (your student centre will be able to assist with this).

| Subject | Study Period Commencement: | Credit Points: |
|--|---------------------------------|----------------|
| ENST90006 Environmental Research Review (12.5) | Semester 1, Semester 2 | 12.50 |
| ENST90007 Environmental Research Project (25) | Semester 1, Semester 2 | 25 |
| ENST90024 Environmental Research Project - 25 Long | Semester 1, Semester 2 | 12.50 |
| ENST90016 Environmental Research Project (50) | Semester 1, Semester 2 | 50 |
| ENST70001 Environmental Research Proj (50 Long) | Semester 1, Semester 2 | 25 |
| ENST90025 Environmental Industry Research (25) | Semester 1, Semester 2 | 25 |
| ENST90026 Environmental Industry Research: 25 Long | Semester 1, Semester 2 | 12.50 |
| ENST90020 Environmental Industry Research (50) | Semester 1, Semester 2 | 50 |
| ENST70002 Environmental Industry Research: 50 Long | Semester 1, Semester 2 | 25 |
| DEVT90002 Internship in Development | January, Semester 1, Semester 2 | 12.50 |
| DEVT90008 International Internship in Development | January, Semester 1, Semester 2 | 25 |

Recommended Elective Subjects

and choose the remaining subjects from the list of:

| Subject | Study Period Commencement: | Credit Points: |
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| ABPL90032 Building Services and Operations | Semester 1 | 12.50 |
| ABPL90049 Environmental Design | Semester 1 | 12.50 |

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| | ABPL90283 Performative Ecologies | Semester 2 | 12.50 |
| | ENEN90014 Sustainable Buildings | September | 12.50 |
| | ABPL90120 Building Sustainability | September | 12.50 |
| | ENEN90031 Quantitative Environmental Modelling | Semester 1 | 12.50 |
| | ENEN90032 Environmental Analysis Tools | Semester 2 | 12.50 |
| | ABPL90016 Asset Management | Semester 1 | 12.50 |
| | ABPL90030 Project Evaluation | Semester 2 | 12.50 |
| | GEOG90021 Conservation and Cultural Environments | Semester 1 | 12.50 |
| | DEVT90009 Development Theories | Semester 1 | 12.50 |
| | ECON90016 Environmental Economics and Strategy | Semester 1 | 12.50 |
| | ENST90002 Social Impact Assessment and Evaluation | Semester 2 | 12.50 |
| | ENST90017 Environmental Policy Instruments | Semester 2 | 12.50 |
| | EVSC90014 Environmental Risk Assessment | November | 12.50 |
| | EVSC90015 Environmental Impact Assessment | Semester 1 | 12.50 |
| | FRST90034 Ecological Restoration | September | 12.50 |
| | LAWS70068 Environmental Law | September | 12.50 |
| | MAST90007 Statistics for Research Workers | July | 12.50 |
| | MGMT90022 Managing Organisational Change | August | 12.50 |
| | NRMT90003 Social Research Methods | Semester 1 | 12.50 |
| | POPH90014 Epidemiology 1 | Semester 1 | 12.50 |
| | ABPL90056 Sustainable Transport and Public Policy | Semester 1 | 12.50 |
| | ABPL90309 Supply Chains in Construction | Semester 1 | 12.50 |
| | ABPL90310 Construction Industry and Environment | Not offered 2015 | 12.50 |
| | ABPL90329 Construction Policy | Not offered 2015 | 12.50 |
| | ABPL90326 Technological Innovations | Semester 1 | 12.50 |
| | HORT90046 Green Roofs and Walls | June | 12.50 |
| | ABPL90152 Sustainable Tropical Housing | Not offered 2015 | 12.5 |
| | ABPL90009 Participation and Negotiation | July, November | 12.5 |
| Links to further information: | http://www.environment.unimelb.edu.au | | |
| Notes: | Other subjects may be approved at the discretion of the coordinator. | | |
| Related Course(s): | Master of Environment | | |