B477-SUE Master of Science in Sustainability Engineering

PROGRAMME DETAILS
Programme Code: B477-SUE
Department: Chemical Engineering
Main Award: MSC - Master of Science
Full Award Title: Master of Science in Sustainability Engineering
Level: Postgraduate Taught

LOCATION OF STUDY
Edinburgh Y Scottish Borders N Orkney N
Dubai N Malaysia N Approved Learning Partner N
Independent Distance Learners N Collaborative Learning Partner N Other N

ASSOCIATED AWARDS
Programme Code Award Title
B470-SUE PGCERT Postgraduate Certificate in Sustainability Engineering
B475-SUE PGDIP Postgraduate Diploma in Sustainability Engineering
B477-SUE MSC Master of Science in Sustainability Engineering

ACCREDITATION
N/A

LEARNING OUTCOMES – SUBJECT MASTERY
Understanding, Knowledge and Cognitive Skills

Understanding

• Of the benefits, applicability and relevance of environmental engineering, environmental management systems and life cycle assessment to sustainable processing.

• Of the role of economics in the creation and solution of sustainability issues leading to sustainable development.
• Of the technologies, techniques and approaches, both available and potential, for the implementation of sustainable development in industry.
• Of basic scientific and engineering principles, used to define environmental problems and to enact their prevention and/or eradication.
• Of the features and trends of environmental and sustainability legislation,
• Of "behind the scene" influences and perceptions forming and influencing the sustainability debate.

Knowledge

• A broad knowledge of the main areas of sustainability and sustainable development.
• Detailed and critical knowledge of at least one area of specialism in sustainability engineering, incorporating awareness of current issues and research.
• Application-based knowledge and skills relating to the broad range of activities within the domain of sustainability engineering.

Cognitive skills

• Develop and apply skills in critical analysis, evaluation and synthesis in considering the range of theories, concepts and techniques used for and required for sustainable development.
• Ability to critically understand and apply relevant theories and technologies to develop analytical and design skills.
• Develop and utilise advanced problem-solving skills and techniques in providing original and creative solutions to general and specialist issues.

Scholarship, Enquiry and Research (Research Informed Learning)

• Build an overview of current sustainability methodologies with a critical understanding of the current state-of-the-art, based on independent research-informed learning.
• Develop advanced skills by transferring and applying knowledge acquired through research-informed learning.

LEARNING OUTCOMES – PERSONAL ABILITIES

Industrial, Commercial and Professional Practice

• To create particular sustainable Development strategies for actual business situations.
• To apply environmental (sustainability) management tools tailored to assess sustainability and to oversee its delivery in a business context.
• To integrate engineering principles with knowledge and understanding of science and management in order to adopt a holistic approach to problem-solving in sustainability.

• Demonstrate critical awareness of the current issues within the discipline, and make informed judgements with incomplete or inconsistent data, or where there are no professional/ethical codes or practices for guidance.

Autonomy, Accountability and Working With Others
• Work autonomously and within teams, as appropriate, demonstrating a capability for both
taking and critically reflecting on roles and responsibilities.

Communication, Numeracy & Information and Communications Technology

• Develop and demonstrate skills and techniques in oral and written communication with
peers and academic/industrial staff, using a range of appropriate methods to suit different
levels of knowledge and expertise within the audience.

• Develop and demonstrate critical knowledge and skills in the planning and usage of
industry standard tools and numerical techniques, including applicable software.
• An ability to identify, formulate and resolve problems.

APPROACHES TO TEACHING AND LEARNING

The courses draw on a broad range of teaching and learning approaches, including

• Formal lectures in which essential knowledge and skills are introduced
• Group-based learning where specialist skills are applied and practised, team work and
communicative skills are developed
• Individual assignments which can focus on application of specialist skills, numeracy and
ICT with a particular emphasis on communication through oral presentations and written
reports, individual responsibility and research-informed learning

EDUCATIONAL AIMS OF THE PROGRAMME

The overall educational aim is to produce well-balanced fully aware sustainability development
practitioners who are able to analyse and assess the essence of sustainability issues and to formulate
the required strategy to implement practical sustainable development solutions. This requires a
working knowledge of the relevant science and technology, i.e. Environmental Science and
Engineering, Energy, Recycling, Sustainable Processing, Impact Assessment and Environmental
Economics. We foster an awareness of the context and the ‘behind the scenes’ framework within
which the environmental degradation and sustainability problem and solution is enacted. The course is
structured to break down the barriers between and within disciplines and to promote the required synergy and mutual understanding between the various branches of learning so that a holistic view of problems and solutions can be developed. The students are expected to apply a mature approach to learning, tackling personal projects and organizing their study. They will learn communication skills both written and oral; they are required to make a series of presentations as part of their coursework and to defend their MSc thesis. The mode of assessment of the masters is a synergistic combination of formative continuous assessment and summative examination.

**ASSESSMENT POLICIES**

All taught modules are assessed by a combination of coursework and summative examination. Coursework is both formative and summative; % coursework weighting varies from 30-50%. The coursework may be individual work or group work. Students are required to complete all coursework. The formative assessment can make use of specific exercises, compilation of a portfolio, a research-informed report or an oral presentation. Summative assessment can take the form of an end-of-module examination or a series of unit tests held over the course of the module. The overall dissertation mark is a composite with contributions from a project presentation (15%) and the dissertation document (85%).

**PROGRAMME STRUCTURE**

**Mandatory Courses**

<table>
<thead>
<tr>
<th>Edinburgh</th>
<th>SBC</th>
<th>Orkney</th>
<th>Dubai</th>
<th>HWUM</th>
<th>IDL</th>
<th>Coll. Partner</th>
<th>ALP</th>
<th>Other</th>
<th>Stage</th>
<th>Semester</th>
<th>Phase</th>
<th>Course Code</th>
<th>Course Title</th>
<th>SCQF Cr</th>
<th>SCQF Lvl</th>
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### Optional Courses

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<th>Semester</th>
<th>Phase</th>
<th>Course Code</th>
<th>CourseTitle</th>
<th>SCQF Cr</th>
<th>SCQF Lvl</th>
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### COMPOSITION NOTES (PG)

9 modules

(including a project dissertation)

8 taught modules

(all mandatory)

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<tr>
<th>Mandatory Credits</th>
<th>120</th>
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<td>Optional Credits</td>
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<td>Elective Credits</td>
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<td>Dissertation Credits</td>
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<td>Total</td>
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### AWARDS, CREDITS AND CRITERIA (PG)

**Awards, Credits and Levels**

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<th>Overall Credits</th>
<th>Specific Requirements</th>
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<td>Masters Degree</td>
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<td>180 SCQF credits including a minimum of 150 credit at Level 11</td>
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<td>Postgraduate Diploma</td>
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<td>120 SCQF credits including a minimum of 90 credit at Level 11</td>
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<td>Postgraduate Certificate</td>
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<td>60 SCQF credits including a minimum of 40 credit at Level 11</td>
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**Award Requirements**

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<tr>
<th>Award Requirements</th>
<th>Total Course Passes</th>
<th>Overall Mark</th>
<th>Overall Grade</th>
<th>Basis of Overall Mark/Grade</th>
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<td>Master (Distinction)</td>
<td>8+Dissertation</td>
<td>70</td>
<td>A</td>
<td>Credit Weighted Average greater than or equal 70% over 8 courses at grades A-C plus a Dissertation at grade A.</td>
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<tr>
<td>Master</td>
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<td>Credit Weighted Average greater than or equal 70% over 8 courses at grades A-C</td>
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<td>Diploma</td>
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<td>Credit Weighted Average greater than or equal 40% over 8 courses at grades A-E</td>
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<td>Certificate</td>
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<td>40</td>
<td>D</td>
<td>Credit Weighted Average greater than or equal 40% over 4 courses at grades A-E</td>
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DURATION OF STUDY

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<tr>
<th>IN MONTHS</th>
<th>Full-time</th>
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<td>Masters</td>
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<td>Diploma</td>
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<tr>
<td>Certificate</td>
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<td>12</td>
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RE-ASSESSMENT (PG)

1. A student who has been awarded a Grade E or F in a course may be re-assessed in that course. A student who has been awarded a Grade D in a course may be re-assessed in that course in order to proceed to or be eligible to receive the award of Masters.
2. A student shall be permitted only one re-assessment opportunity in a maximum of three taught courses. The opportunity for re-assessment in four or more taught courses shall be at the discretion of the Progression Board.
3. Any further re-assessment opportunities in a course will require the approval of the Postgraduate Studies Committee.
4. A student may be permitted, at the discretion of the Progression Board, to be re-assessed in the dissertation, project or other supervised research component of the course of study.

PROGRESSION TO DISSERTATION/PROJECT

In accordance with University Regulations, to progress to Masters level a minimum of Grade C is required.