Module descriptor

<table>
<thead>
<tr>
<th>Module code:</th>
<th>ENGM253</th>
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<tbody>
<tr>
<td>Module title:</td>
<td>Life Cycle Assessment</td>
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<tr>
<td>FHEQ level:</td>
<td>7</td>
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<tr>
<td>Module Leader:</td>
<td>Jhuma Sadhukhan</td>
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<tr>
<td>Other contributors:</td>
<td>Richard Murphy</td>
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<tr>
<td>Number of credits:</td>
<td>15</td>
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<td>Number of ECTS credits:</td>
<td>7.5</td>
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<tr>
<td>Module availability:</td>
<td>Semester 2</td>
</tr>
<tr>
<td>Overall student workload:</td>
<td>150 hours</td>
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<td>Date of production/revision of the descriptor:</td>
<td>19 July 2017</td>
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Assessment pattern

<table>
<thead>
<tr>
<th>Units of assessment</th>
<th>Weighting towards module mark (%)</th>
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<tbody>
<tr>
<td>Pre-course individual foundation concepts quiz</td>
<td>20%</td>
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<tr>
<td>LCA group exercise during module week</td>
<td>20%</td>
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<tr>
<td>Individual post-module report</td>
<td>60%</td>
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Alternative assessment:
- Resubmission of ‘Pre-course individual foundation concepts quiz’ if failed
- Individual report alternative to ‘LCA group exercise during module week’ if failed
- Resubmission of ‘Individual post-module report’ if failed

Qualifying condition(s)
A weighted aggregated mark of 50% is required to pass the module.

Pre-requisite/co-requisites

None

Module overview

To build understanding of life cycle assessment (LCA) methodology developed in the Life Cycle Thinking module by providing more in-depth training on LCA methodology and practical experience of doing a LCA. Students will be encouraged to take ENGM058 Life Cycle Thinking module.

Module aims

This module aims:
- Understand all four stages of the LCA methodology
- Be aware of the resources required to do a LCA study in practice
- Be able to provide a critical perspective on the quality of a LCA study done by others
- Understand the key benefits and challenges of the application of LCA for a range of purposes

Learning outcomes

On completion of this module, students will be able to:
- Demonstrate understanding of the LCA methodology (C)
- Be aware of the resources required to do a LCA study in practice (K)
- Be able to provide a critical perspective on the quality of a LCA study done by others – peer review skill (P)
- Understand the key benefits and challenges of the application of LCA for a range of purposes (T)
- Undertaking of practical LCA (T, P)

Key: C-Cognitive/Analytical; K-Subject Knowledge; T-Transferable Skills; P- Professional/Practical skills
Module content

The module will cover a detailed overview LCA methodology including impact assessment and management of uncertainty; practical experience of executing an LCA using commercial software; exposure to a range of resources available to do LCA (inventory databases, life cycle impact assessment (LCIA) methods, etc.).

Methods of teaching/learning

The learning and teaching strategy is designed to take an active learning approach, in which the students are engaged in class exercises and discussions. The learning and teaching methods include preparatory reading and exercises; lectures, hands-on LCA study, group discussions and exercises to do an LCA:

- Preparatory reading (~10 hours);
- Lectures (~12 hours)
- Hands-on LCA study and group discussions (~18 hours)
- Post course study and assignment (~110 hours)

Assessment strategy

The assessment strategy is designed to provide students with the opportunity to demonstrate the ability to conduct research in the scientific literature and thus build upon concepts introduced in the module’s lectures.

The summative assessment for this module consists of:

- Pre-course individual foundation concepts quiz (20%)
- LCA group exercises during module week (20%)
- Individual post-module report (60%)

Formative assessment and feedback

Students will receive qualitative feedback (and marks) on every piece of summative assessment.

Reading list

Essential reading


Recommended reading

- USA-TRACI "Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts" method is available on the internet
- CML database (Institute of Environmental Sciences; Leiden University, Netherlands), available on the internet
Background reading
None