



MODULE SPECIFICATION

| Part 1: Information | | | |
|---------------------------|---|--------------------|-------------------------------------|
| Module Title | Sustainable Engineering for Global Challenges | | |
| Module Code | UFMFBM-30-M | Level | Level 7 |
| For implementation from | 2020-21 | | |
| UWE Credit Rating | 30 | ECTS Credit Rating | 15 |
| Faculty | Faculty of Environment & Technology | Field | Engineering, Design and Mathematics |
| Department | FET Dept of Engin Design & Mathematics | | |
| Module type: | Standard | | |
| Pre-requisites | None | | |
| Excluded Combinations | None | | |
| Co- requisites | None | | |
| Module Entry requirements | None | | |

| Part 2: Description |
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| <p>Overview: By studying this module, students will be equipped with advance knowledge, tools and techniques to identify social-economic impact of global challenges and identify appropriate strategies that delivers long-term benefits for both their business and the world as a whole.</p> <p>Through engaging in project work and real sustainable engineering case studies, this module will prepare students to:</p> <ul style="list-style-type: none"> • Recognise the complexity of our interconnected world • Understand the socioeconomic impact of global challenges • Recognise their role as technology/engineering managers in providing solutions to global challenges • Understand the ethical, moral and legal responsibilities of their decision and conduct towards providing sustainable engineering solutions to global challenges • Solve complex global challenges through innovative engineering and entrepreneurship • Develop global mind-set by working in diverse and multicultural teams <p>Educational Aims: The aim of this module is to ensure students are aware of the major global issues facing society and organisations and the potential for engineering-based solutions.</p> <p>Outline Syllabus: This module will cover the following themes:</p> |

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- Global Sustainable Development goals
- Engineering innovation and the future
- The global challenges of carbon emissions
- Environmental impact analyses
- Data management and sustainable development goals
- Ethics and sustainable development for engineering solutions

Teaching and Learning Methods: Students will experience real-world sustainability challenges through case study analysis and group presentations. Through the evidence from case analysis, students will take the role of either middle, a senior manager or an engineer and make recommendations that will convince a critical mass of key employees on the best approach to align organisation strategy to support sustainability initiatives.

Case method teaching immerses students into realistic global challenges and help them to analyse current global issues and at the same time work in a team and apply critical thinking skill in creating innovative engineering solutions that supports the creation of a better world.

Part 3: Assessment

Component A: A controlled element consists of 15 minutes individual presentation to the tutors to demonstrate managerial level of communication of a complex multifaceted problem. It provides an opportunity for individuals to develop independent leadership qualities through demonstrating critical understanding of the challenge.

Component B is a group report of 3000 words in length. Students will identify one sustainable development goal and analyse where the world, a region or a country is today in delivering the sustainable development goal. The students will identify the key elements and factors that hinder or facilitate the achievement of the identified sustainable goals and make recommendations on the way forward using engineering and innovative solutions.

A transparent published method is in place for identifying students' contribution to group work. This peer assessed process is moderated by the module leader.

Both assessment components are designed to encourage students to evaluate the theoretical concepts encountered within the module and apply them to a real-world problem.

A peer review process will be applied to group work assessment in accordance with the Department Group Work Policy.

The referred assignment will be based on the original written tasks (component B) and will use feedback received from the initial submission. The length of the referred individual report is 3,000 words.

The referred presentation will differ from the first presentation in that it will take place after the submission of the report. It will be based on presenting the challenge and suggested outcome in their written report.

| First Sit Components | Final Assessment | Element weighting | Description |
|----------------------------|------------------|-------------------|--------------------------------------|
| Presentation - Component A | ✓ | 25 % | Individual presentation (15 minutes) |
| Report - Component B | | 75 % | Group report (3000 words) |
| Resit Components | Final Assessment | Element weighting | Description |
| Presentation - Component A | ✓ | 25 % | Individual presentation (15 minutes) |
| Report - Component B | | 75 % | Individual report (3000 words) |

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| Part 4: Teaching and Learning Methods | | | | | | | | | | | | | | | | | |
|---|---|---------------------------------|------------------|---|-----|--|-----|---|-----|--|-----|--|-----|------------------------------|-----|------------------------|-----|
| Learning Outcomes | <p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Conduct, synthesise and critically evaluate professionally relevant information, arguments and assumptions of a selected global challenge</td> <td>MO1</td> </tr> <tr> <td>Apply theoretical knowledge, critical thinking and problem solving skills and analyse complex information in a specific global context</td> <td>MO2</td> </tr> <tr> <td>Demonstrate systematic knowledge and critical understanding of your chosen topic in a form of practical yet sustainable recommendations</td> <td>MO3</td> </tr> <tr> <td>Demonstrate independent leadership qualities via planning, monitoring and evaluating significant constraints, barriers and opportunities</td> <td>MO4</td> </tr> <tr> <td>Demonstrate the requirements of professional standards of consultancy report and presentations</td> <td>MO5</td> </tr> </tbody> </table> | Module Learning Outcomes | Reference | Conduct, synthesise and critically evaluate professionally relevant information, arguments and assumptions of a selected global challenge | MO1 | Apply theoretical knowledge, critical thinking and problem solving skills and analyse complex information in a specific global context | MO2 | Demonstrate systematic knowledge and critical understanding of your chosen topic in a form of practical yet sustainable recommendations | MO3 | Demonstrate independent leadership qualities via planning, monitoring and evaluating significant constraints, barriers and opportunities | MO4 | Demonstrate the requirements of professional standards of consultancy report and presentations | MO5 | | | | |
| Module Learning Outcomes | Reference | | | | | | | | | | | | | | | | |
| Conduct, synthesise and critically evaluate professionally relevant information, arguments and assumptions of a selected global challenge | MO1 | | | | | | | | | | | | | | | | |
| Apply theoretical knowledge, critical thinking and problem solving skills and analyse complex information in a specific global context | MO2 | | | | | | | | | | | | | | | | |
| Demonstrate systematic knowledge and critical understanding of your chosen topic in a form of practical yet sustainable recommendations | MO3 | | | | | | | | | | | | | | | | |
| Demonstrate independent leadership qualities via planning, monitoring and evaluating significant constraints, barriers and opportunities | MO4 | | | | | | | | | | | | | | | | |
| Demonstrate the requirements of professional standards of consultancy report and presentations | MO5 | | | | | | | | | | | | | | | | |
| Contact Hours | <table border="1"> <tbody> <tr> <td colspan="2">Independent Study Hours:</td> </tr> <tr> <td style="text-align: center;">Independent study/self-guided study</td> <td style="text-align: center;">230</td> </tr> <tr> <td style="text-align: center;">Total Independent Study Hours:</td> <td style="text-align: center;">230</td> </tr> <tr> <td colspan="2">Scheduled Learning and Teaching Hours:</td> </tr> <tr> <td style="text-align: center;">Face-to-face learning</td> <td style="text-align: center;">70</td> </tr> <tr> <td style="text-align: center;">Total Scheduled Learning and Teaching Hours:</td> <td style="text-align: center;">70</td> </tr> <tr> <td>Hours to be allocated</td> <td style="text-align: center;">300</td> </tr> <tr> <td>Allocated Hours</td> <td style="text-align: center;">300</td> </tr> </tbody> </table> | Independent Study Hours: | | Independent study/self-guided study | 230 | Total Independent Study Hours: | 230 | Scheduled Learning and Teaching Hours: | | Face-to-face learning | 70 | Total Scheduled Learning and Teaching Hours: | 70 | Hours to be allocated | 300 | Allocated Hours | 300 |
| Independent Study Hours: | | | | | | | | | | | | | | | | | |
| Independent study/self-guided study | 230 | | | | | | | | | | | | | | | | |
| Total Independent Study Hours: | 230 | | | | | | | | | | | | | | | | |
| Scheduled Learning and Teaching Hours: | | | | | | | | | | | | | | | | | |
| Face-to-face learning | 70 | | | | | | | | | | | | | | | | |
| Total Scheduled Learning and Teaching Hours: | 70 | | | | | | | | | | | | | | | | |
| Hours to be allocated | 300 | | | | | | | | | | | | | | | | |
| Allocated Hours | 300 | | | | | | | | | | | | | | | | |
| Reading List | <p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ufmfbm-30-m.html</p> | | | | | | | | | | | | | | | | |

| Part 5: Contributes Towards | |
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| <p>This module contributes towards the following programmes of study:</p> <p>Engineering Business Management [Sep][PT][Frenchay][2yrs] MSc 2019-20</p> | |