

| Module Details |  |
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| Module Title   | Strategic Management and Cost Engineering  |
| Module Code    | ENB7010-B                                  |
| Academic Year  | 2023/4                                     |
| Credits        | 20   |
| School         | Engineering and Informatics (Faculty-wide) |
| FHEQ Level     | FHEQ Level 7                               |

| Contact Hours  |   |
|----------------|---|
| Type           | Hours   |
| Tutorials      | 1. Develop a comprehensive and in-depth knowledge on engineering strategic management and leadership principles and tools, with an emphasis on sustainability, the circular economy and the management of change. 2. Gain a comprehensive and in-depth understanding of cost engineering concepts in the context of the management of complex engineering products and projects.  |
| Tutorials      | Presentation and discussion with individual students of rationale for selecting case study company and plan for application of strategic management concepts.   |
| Directed Study | 164   |
| Lectures       | 24  |
| Tutorials      | 12  |
| Tutorials      | ? The significant of effective strategic management and leadership in achieving sustainable competitive advantage to the modern engineering company. ? The use of strategic analysis tools, strategy formulation, strategy implementation, performance measurement in an engineering company and managing organisational change. Academic models applied to engineering companies include PESTLE / SWOT / VRIO / Boston box / Porter five forces model and generic business strategy model / Lewin?s model of change / Kotter model of change / Balanced scorecard/ Case studies of strategy and leadership in engineering companies. ? Implementing a strategy for achieving sustainability and circular economy principles in the context of engineering processes. Consideration of the United Nations sustainable development goals and the implications for engineering organisations. ? Cost engineering concepts, cost estimation, budgeting, allocation and cost control/monitoring used in the management of engineering products and projects. The use of marginal and absorption costing in engineering companies, product lifecycle costing.  |
| Tutorials      | 1.The module is delivered through a series of face-to-face lectures and tutorials, supported by appropriate case study material. ?The learning materials (both lecture notes and case study materials) use a coherent problem-based approach, introducing strategic management principles and application of costing tools and methods to address these issues. ? In addition, lectures provide the opportunity to undertake guided reading to understand and address a variety of strategic management and cost engineering issues. 2. Face-to-face tutorial sessions offer the opportunity to interact more with students, reinforce learning, provide formative feedback and to further develop interpersonal and intercultural skills. ? Teamworking is facilitated via participation in multidisciplinary group discussions and presentation skills is used in tutorial sessions including group discussions to analyse case studies with relevant strategic management and cost engineering issues. ? Formative feedback is provided by the instructor and peers. This enhances the development of interpersonal and intercultural skills and promotes identity with programme to enhance a cohesive student experience. Tutorial sessions are designed to promote the development of teamwork, oral presentation, e-learning, peer feedback and self-learning skills. 3. Directed study hours are dedicaed to self-study, reading study materials before lectures and tutorials, research and preparation of coursework and exam. The development of independent learning skills and the ability to self-reflect are also facilitated. 4. The module is aligned with the ?Conceive, Design, Implement, Operate? (CDIO) innovative educational philosophy which is embedded throughout all Bradford engineering programmes. This enables students to develop new and unique solutions to real-world problems and to reflect upon the issues in implementing them in practice. |

| Availability |                                     |
|--------------|-------------------------------------|
| Occurrence   | Location / Period                   |
| BDA          | University of Bradford / Semester 1 |

## Module Aims

1. Develop a comprehensive and in-depth knowledge on engineering strategic management and leadership principles and tools, with an emphasis on sustainability, the circular economy and the management of change.
2. Gain a comprehensive and in-depth understanding of cost engineering concepts in the context of the management of complex engineering products and projects.

## Outline Syllabus

- ? The significant of effective strategic management and leadership in achieving sustainable competitive advantage to the modern engineering company.
- ? The use of strategic analysis tools, strategy formulation, strategy implementation, performance measurement in an engineering company and managing organisational change. Academic models applied to engineering companies include PESTLE / SWOT / VRIO / Boston box / Porter five forces model and generic business strategy model / Lewin's model of change / Kotter model of change / Balanced scorecard/ Case studies of strategy and leadership in engineering companies.
- ? Implementing a strategy for achieving sustainability and circular economy principles in the context of engineering processes. Consideration of the United Nations sustainable development goals and the implications for engineering organisations.
- ? Cost engineering concepts, cost estimation, budgeting, allocation and cost control/monitoring used in the management of engineering products and projects. The use of marginal and absorption costing in engineering companies, product lifecycle costing.

## Learning Outcomes

| Outcome Number | Description   |
|----------------|---|
| LO1            | Critically analyse the strategic management process in engineering organisations and apply appropriate tools and techniques of strategic analysis.  |
| LO2            | Critically examine engineering leadership and strategy formulation and implementation concepts performance measurement.   |
| LO3            | Critically examine the principles of sustainability and the circular economy in the context of strategic management and implementing change in engineering organisations.   |
| LO4            | Apply cost principles and methods in the context of managing complex engineering projects.  |
| LO5            | Apply data presentation skills and quantitative analysis related to the application of principles of cost engineering and strategic management concepts, apply communication and oral presentation skills, gain and enhance ICT skills, acquire problem solving and teamwork abilities in multidisciplinary groups and develop self-learning and personal reflection. |

## Learning, Teaching and Assessment Strategy

1. The module is delivered through a series of face-to-face lectures and tutorials, supported by appropriate case study material.

? The learning materials (both lecture notes and case study materials) use a coherent problem-based approach, introducing strategic management principles and application of costing tools and methods to address these issues.

? In addition, lectures provide the opportunity to undertake guided reading to understand and address a variety of strategic management and cost engineering issues.

2. Face-to-face tutorial sessions offer the opportunity to interact more with students, reinforce learning, provide formative feedback and to further develop interpersonal and intercultural skills.

? Teamworking is facilitated via participation in multidisciplinary group discussions and presentation skills is used in tutorial sessions including group discussions to analyse case studies with relevant strategic management and cost engineering issues.

? Formative feedback is provided by the instructor and peers. This enhances the development of interpersonal and intercultural skills and promotes identity with programme to enhance a cohesive student experience. Tutorial sessions are designed to promote the development of teamwork, oral presentation, e-learning, peer feedback and self-learning skills.

3. Directed study hours are dedicated to self-study, reading study materials before lectures and tutorials, research and preparation of coursework and exam. The development of independent learning skills and the ability to self-reflect are also facilitated.

4. The module is aligned with the ?Conceive, Design, Implement, Operate? (CDIO) innovative educational philosophy which is embedded throughout all Bradford engineering programmes. This enables students to develop new and unique solutions to real-world problems and to reflect upon the issues in implementing them in practice.

### Mode of Assessment

| Type      | Method                    | Description   | Weighting |
|-----------|---------------------------|---|-----------|
| Summative | Coursework                | Individual coursework. 2500 words   | 50%       |
| Summative | Examination - Closed Book | Exam  | 50%       |
| Formative |                           | Presentation and discussion with individual students of rationale for selecting case study company and plan for application of strategic management concepts. | N/A       |

### Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>

Please note:

*This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.*

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