University of East Anglia

ACADEMIC PARTNERSHIPS

**Module Outline** **Part 1- as validated**

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|---|---|---|
| **1.** | **Title** | **Lean Manufacturing and Quality Applications** |
| **2.** | **Level** | **6** |
| **3.** | **Credits** | **20** |
| **4.** | **Indicative Student Study Hours** | **36 hours lectures**<br>**164 hours self-directed learning** |
| **5.** | **Core (must take and pass), Compulsory (must take) or Optional** | **Optional** |

**5. Brief Description of Module (purpose, principal aims and objectives)**

The purpose of the module is to develop lean thinking skills in its participants.
Lean principles are recognized the world over as a powerful and effective way to develop and sustain continuously improving organizations. The lean philosophy is a proven and established long-term approach that engineering and manufacturing companies use to align all aspects of their business to deliver ever-increasing customer value, recognised in McLaughlin's (2013) report 'Manufacturing best practice and UK productivity', commissioned by the UK Government's Foresight Future of Manufacturing Project.

Lean methods focus on orientating people and systems to provide a continuous stream of value for customers and eliminate waste in organizational activity.
The module introduces lean philosophy from a strategic view and then expands to describe and critique many of the lean business tools that are used to deliver continuous improvement in engineering and manufacturing environments, with a particular focus on statistical techniques. Its aim is to enable students to successfully use appropriate improvement tools in a work environment with the objective of developing continuous improvement practices within their employers/host companies.
The module provides a technical platform to enable students to produce a more strategic levelreview of business improvement with the module: M2

**6. Learning Outcomes - On successful completion of this module a student will be able to:**

(*Add more lines if required)*

| | Subject Specific Learning Outcomes |
|---|---|
| 1. | Analyse an operational process and present a justified plan to make improvements using recognised lean concepts. |

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|---|---|
| 2. | Effectively apply statistical process control and improvement practices to enhance quality, production, and cost performance in a manufacturing/engineering setting. |
| 3. | Analyse waste in engineering and manufacturing operations and apply improvement actions to develop operational excellence. |
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| | Generic Learning Outcomes |
| 4. | Apply knowledge in unfamiliar contexts, synthesising ideas or information to generate appropriate solutions |
| 5. | Work with ideas and concepts by evaluating information from a range of perspectives |

**7. Assessment**

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| **Pass on aggregate or Pass all components**<br>*(modules can only be pass all components if this is a PSRB requirement)* | Pass on aggregate |

**Summary of Assessment Plan**

| | Type | % Weighting | Annonymous Yes / No | Word Count/ Exam Length | Learning Outcomes Coverage | Comments |
|---|---|---|---|---|---|---|
| 1. | Written assignment | 100% | Yes | 3,500 words | LO 1,2, 3, 4, 5 | |
| | | | | | | |

**Further Details of Assessment Proposals**

Give brief explanation of each assessment activity listed

Written assignment

Students are required to identify an operation in a work area they are familiar with and apply lean improvement strategies, including statistical methods, to reduce inefficiencies. The focus of the assignment is equally on process and outcome; students should clearly argue the advantages and disadvantages of at least two improvement options, and draw an analytical, evidence-based conclusion.

**8. Summary of Pre and / or Co Requisite Requirements**

Not applicable

| **9. For use on following programmes** |
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| BEng Engineering (Mechanical) |