ES2G3-15 Engineering Management

26/27

Department
School of Engineering
Level
Undergraduate Level 2
Module leader
Adriana Smith Ortiz
Credit value
15
Module duration
24 weeks
Assessment
100% coursework
Study locations
University of Warwick main campus, Coventry Primary
Distance or Online Delivery

Description

Introductory description

ES-13076 -15 Engineering Management

Module web page

Module aims

Whilst the various technical sciences form the basis of any Engineering degree, relatively few graduate Engineers will follow careers that will focus on any one of those topics specifically; they often contribute highly specialised, ‘niche’ occupations within the sector. In contrast, the vast majority of graduate Engineers are employed to address the great demand for leadership skills in the implementation of those technical sciences, in a wide range of Project Management roles. Professionally-qualified engineers are often not involved in actually ‘making things’; they are, however highly sought-after to lead teams of skilled specialists who address the specific technical details of a project and implement the research, design or manufacturing effort. In all branches of Engineering, the projects are often large, high value undertakings that can span months or even years. It is therefore essential that the management of these projects is able to delivery against very demanding constraints of Quality, Cost and Time.
The principal aims of this module are to address these essential management skills within the

Engineering environment, by covering the four main topics of Project Management, Finance (Management Accounting), Risk Management and the processes of Quality Control.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Project Management:

- Characteristics of a project
- Project management methodologies
- Project planning, monitoring and control
- Leadership and change management
  Risk Management:
- Introduction to engineering and managing risks
- Risk management principles
- Risk diagnostic and analysis
- Risk treatment/reduction
- Event analysis
  Finance:
- Introduction to management accounting and costing
- Costs, overheads, gross margin, net margin, profit, cash
- Financial statements, financial reporting
- Basic statistics and the use of spreadsheets
  Quality:
- Evolution of quality: inspection, quality control, quality assurance, quality management
- Quality Management Systems including ISO 9000
- Continuous improvement and overview of approaches used in manufacturing organisations e.g. Six Sigma, TPM, SPC, 7 Tools

Learning outcomes

By the end of the module, students should be able to:

- 1. Discuss project management techniques and evaluate their effectiveness in project delivery commenting on the role of change management.
- 2. Identify, analyse, evaluate and mitigate risks affecting engineering projects and solutions.
- 3. Critically analyse approaches to quality management and demonstrate the effectiveness of continuous improvement tools and techniques.
- 4. Critically assess the financial performance of an engineering project or solution, reflecting on its financial performance and identifying areas for improvement or optimisation.

Indicative reading list

Reading lists can be found in Talis

Subject specific skills

Project management: : Plan, manage and lead engineering projects, specifically in terms of project planning, management of risks, commercial awareness (costs, overheads, gross margin, net margin, profit, cash), resourcing and quality assurance.
Understand the impact of management accounting and costing on the competitive performance of a business.
Perform risk management for engineering activities.

Transferable skills

Follow a methodical approach to engineering problem solving.
Prioritise quality. Follow rules, procedures and principles in ensuring work completed is it for purpose, and pay attention to detail / error checks throughout activities.
Communicate confidently to create and maintain working relationships. Be respectful.
Demonstrate a commitment to professional standards (or codes of conduct) of their employer and the wider industry.

Study

Study time

Type	Required
Lectures	28 sessions of 1 hour (19%)
Work-based learning	94 sessions of 1 hour (63%)
Private study	28 hours (19%)
Total	150 hours

Private study description

28 hours guided independent learning (including VLE use).

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A3

	Weighting	Study time	Eligible for self-certification
Assessment component			
Project Planning and Risk Management	50%		Yes (extension)
Individual written report focusing on applying project management tools and techniques to plan the execution of an engineering project, detailing the project management monitoring and control processes, as well as conducting a project risk assessment.			
Reassessment component is the same			
Assessment component			
Quality and Financial Appraisal	50%		Yes (extension)
Individual report critically analysing the quality and lean approach/tools used in an engineering project or manufacturing process. The report should also assess the financial performance of an engineering project or solution, reflecting on its performance and identifying areas for improvement or optimisation.			
Reassessment component is the same			

Feedback on assessment

Individual and cohort-level feedback provided for each report.
Support through advice and feedback hours.

Availability

Courses

This module is Core for:

- Year 3 of DESA-H360 Undergraduate Electromechanical Engineering (Degree Apprenticeship)