

## Engineering Project Management (E900526)

**Course size** (nominal values; actual values may depend on programme)  
**Credits** 6.0      **Study time** 180 h      **Contact hrs** 22.0 h

**Course offerings and teaching methods in academic year 2017-2018**

A (semester 1)	seminar	15.0 h
	lecture	30.0 h

**Lecturers in academic year 2017-2018**

Smith, Simon	EDINBU lecturer-in-charge
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**Offered in the following programmes in 2017-2018**

	crdts	offering
<a href="#">International Master of Science in Fire Safety Engineering</a>	6	A

**Teaching languages**

English

**Keywords**

projects, project management, procurement, planning, case studies

**Position of the course**

Project Management is the application of management principles to deliver a project in accordance with predetermined objectives for time, cost & quality. This course will consider these principles in the management of all types of engineering project, with respect to the project's life-cycle, the parties involved, planning, estimating, team and people management, contract strategy, contractor selection and contract management.

**Contents**

- 1 Introduction to Project Management and Project Life Cycle  
 Overview of Project Management with introduction and characteristics of projects, definition of project management, project problems and success criteria, project life cycle, and API Process Groups.
- 2 Parties to a Project, Stakeholder Analysis & Project Appraisal  
 Emphasising the importance of starting the project well through identifying the parties and stakeholders to the project, carrying out a stakeholder analysis and creating a stakeholder map, appraising the financial aspects of the project with discounted cash flows.
- 3 Work Breakdown Structures and Introduction to Estimating.  
 Project initiation with preliminary scope definition and management, developing the Work Breakdown Structure and relate to Cost and Organisational Structures. Introduction to estimating and the relevance of accuracy to the stage of the project.
- 4 Critical Path Analysis and Resource Management  
 The planning of the project using Critical Path Analysis, Networks, Gantt Charts and other data for the project. Identifying and managing resources using CPA.
- 5 Qualitative and Quantitative Risk Analysis  
 The importance of Risk Analysis in projects, the identification and evaluation of project risks in qualitative terms, developing response strategies to prioritised risks, and techniques in quantifying risks.
- 6 Teams & Leadership, Belbin Model  
 Success of a project depends on the effectiveness of people working in teams, the leadership of the team and the stage of formation of the team. The Belbin model will be presented

and students would have the opportunity to identify a project team role particularly suited to them.

#### 7 Estimating and Contracts

Estimating methods and levels of accuracy, and issues related to the use of the methods, and the

use of Work Breakdown Structures to improve accuracy with the bi-nomial theorem.

Types and classifications of engineering contracts, the advantages and disadvantages of their use in different types of projects and an overview of contract planning and contractor selection.

#### 8 Project Monitoring & Control

The factors required to be identified and measured during project execution are described, which

are compared to the plan. Based on this information techniques, such as Earned Value Analysis, can be used to forecast final project costs and time. Control measures to implement change are discussed.

#### 9 Quality and Managing the end of the Project

The reinforcing of the importance of Quality, Safety and Environmental Standards, and if not

enforced the impact on the outcome of projects. Discusses project closure, the activities and documents to be completed and causes of incomplete project closure.

### **Initial competences**

None are assumed.

### **Final competences**

- 1 Recognise the constituent parts of a project life cycle and the relevant parties involved
- 2 Demonstrate understanding of the importance project demand and client responsibility in project success
- 3 Be able to analyse basic project cost and time information and produce simple estimates and plans
- 4 Distinguish between different contractual and procurement methods for engineering projects
- 5 Appraise project information and critique a project's likely success

### **Conditions for credit contract**

This course unit cannot be taken via a credit contract

### **Conditions for exam contract**

This course unit cannot be taken via an exam contract

### **Teaching methods**

Lecture, seminar

### **Extra information on the teaching methods**

22 hours of lectures; 2 hours of formative assessment; 2 hours of summative assessment; 2 hours of programme level learning and teaching; 92 hours of directed and independent learning.

Exercises will be provided as part of the tutorials to aid in the understanding of the course material and all students are encouraged to undertake these exercises although they will not be submitted and will not be marked.

Students will be given the opportunity to provide Stop, Start and Continue feedback and comments on this will be provided back by the course lecturer.

Exam Post-Mortem comments.

### **Learning materials and price**

### **References**

- Smith, N (Ed.) Engineering Project Management, Blackwell Science, Oxford, 3rd Edition, 2007. [TA190 Eng]
- P.D. Gardiner, Project Management - A Strategic Planning Approach, Palgrave Macmillan, 2005. [HD69.P75 Gar. - note, main library, 1 copy]
- J.R. Meredith and S.J. Mantel Project management: a managerial approach (9th Edition), Wiley, Chichester, 2015. [HD69.P75 Mer]

### **Course content-related study coaching**

### **Evaluation methods**

end-of-term evaluation

### **Examination methods in case of periodic evaluation during the first examination period**

Written examination

**Examination methods in case of periodic evaluation during the second examination period**

**Examination methods in case of permanent evaluation**

**Possibilities of retake in case of permanent evaluation**

not applicable

**Extra information on the examination methods**

The assessment will be made on the basis of: Written examination 100%:  
The written examination will be 2 hours long with 3 questions from 4.

**Calculation of the examination mark**

Written Exam 100 %, Coursework 0 %, Practical Exam 0 %