

ES194-15 Introduction to Engineering Business Management

20/21

Department

School of Engineering

Level

Undergraduate Level 1

Module leader

Ian Tuersley

Credit value

15

Module duration

10 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

ES194-15 Introduction to Engineering Business Management

[Module web page](#)

Module aims

Most professional engineers apply their skills within a business organisation. A key objective of business is to be commercially successful. Hence it is important for engineers to appreciate the industrial and commercial environment in which businesses operate and recognise the requirements and constraints created by this environment, ultimately with a view to strategically managing the business to greater success.

The aim of this module is to provide the engineering student with an appreciation of some of the practical problems and issues involved in competitively managing an engineering business. The module presents a systems view of the firm or business, consistent with many engineering models, where a collection of inputs are transformed into outputs which are valued by the customer. For the purposes of this module an engineering business is simply defined as a business that employs at least one engineer. The business could deliver a product or a service, it

could be any size from a single consulting engineer to a global corporation and it can take a variety of legal forms from sole trader to public limited company.

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.

Economics;

Development of economies; agriculture based; manufacturing based, service and knowledge based.

External economic influences on competitiveness including:

- Macroeconomics and its impact on business - economic activity, inflation, exchange rates and interest rates.
- Markets - nature & structure, perfect competition, imperfect competition, monopoly.
- Government – regulation / legislation, taxes / subsidies, industrial policy.
- Infrastructure - finance, transport network, business network (clusters), university-industry links.
- Internal competitiveness of the business in terms of price factors and non-price factors.

Structure of Industry;

Types of industry in terms of product, size, ownership, technology.

The changing face of industry - globalisation, consolidation; the knowledge base; information systems; e-commerce; regeneration; infrastructure.

The changing nature of business-to-business relationships and the impact of these on the nature of competition; joint ventures; partnering; alliances, supply chains and networks.

Different forms of business - sole trader, partnership, limited company, public limited company.

Introduction to business strategy and the role of functional strategies.

Ethics - an understanding of ethics associated with business and management activity.

Understanding organisations – organisation structure and theory; organisational differences between consulting engineers; contractors; subcontractors and suppliers.

Marketing;

Buyer behaviour - from that of the consumer/customer to the organisational purchasing role within the contractor or supplier.

The marketing mix - Product, Price, Place, Packaging and Promotion.

Marketing research and multi-media marketing. Sales forecasting techniques. Defining problems, collection of data, and analysis of findings. Development of e-commerce, electronic transference and its uses.

Marketing segmentation. Targeting and positioning. How can /should Contractors diversify?

Product Life Cycle and the importance to a company of having a balanced portfolio of products.

Introduction to Management Accounting and Costing;

Sources of finance for business and projects. Capital investment appraisal techniques.

Estimating costs and profits for one-off projects such as new products; civil projects; constructions; engineering services. Estimation techniques. Sources of data. Break-even analysis.

Life cycle costing;

Estimating costs and profits in business. Costs for decision-making; nature of costs; marginal costing; throughput accounting. Allocation of overheads; standard costing, absorption costing; activity-based costing.

Managing costs – budgets and variance analysis.

Learning outcomes

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

- Apply the concept of the Product Life Cycle and appreciate the importance to a company of having a balanced portfolio of products.
- Develop written, graphical and oral communication skills.
- Appreciate the impact of economic factors on the competitive performance of a business.
- Evaluate the positioning of a business within its market and economic environment and construct recommendations for its strategic development.
- Understand, review and analyse the process and importance of strategic marketing.
- Understand, review and analyse the process and importance of management accounting and costing.

Indicative reading list

- The Business Environment, 7th Edition by Palmer, Publ. McGraw Hill 2011
- Principles and Practice of Marketing, 8th Edition by Jobber, Publ. McGraw Hill, 2016
- Foundations of Economics, 5th Edition by Begg, Publ. McGraw Hill 2013
- Operations and Supply Chain Management, 15th Edition by Jacobs, Chase, Publ. McGraw Hill 2017
- Accounting: Understanding and Practice, 4th Edition by Perks, Leiwyl Publ. McGraw Hill 2013

(Note: Chapters taken from all above texts constitute the custom core text book compiled for this course).

[View reading list on Talis Aspire](#)

Subject specific skills

Understand the impact of economic factors, market positioning, management accounting and costing on the competitive performance of a business.

Ability to analyse the current positioning of a company within a competitive market using a range of models, tools and techniques.

Ability to determine the preferred position of a company within a competitive market and how it may manage its transition from the current situation to that goal position.

Transferable skills

Use of analytical models, tools and techniques.

Use of Library Databases to retrieve subject specific information.

Communicate (written and oral; to technical and non-technical audiences).

Plan self-learning and improve performance, as the foundation for lifelong learning/CPD

Exercise initiative and personal responsibility, including time management.

Awareness of the nature of business and enterprise in the creation of economic and social value

Overcome difficulties by employing skills, knowledge and understanding in a flexible manner

Ability to formulate and operate within appropriate codes of conduct, when faced with an ethical issue

Appreciation of the global dimensions of engineering, commerce and communication

Be professional in their outlook, be effective communicators, and be able to exercise responsibility and sound management approaches.

Study

Study time

Type	Required
Lectures	27 sessions of 1 hour (18%)
Tutorials	2 sessions of 1 hour (1%)
Private study	101 hours (67%)
Assessment	20 hours (13%)
Total	150 hours

Private study description

101 hours of guided independent learning

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A

Weighting Study time Eligible for self-certification

Assessment component

	Weighting	Study time	Eligible for self-certification
Company Analysis Report	50%	10 hours	
Individual Company Analysis Report			

Reassessment component is the same

Assessment component

Multi-Choice Computer-based Test	50%	10 hours	No
Computer-based Multi-Choice Test			

Reassessment component is the same

Feedback on assessment

Individualised feedback on computer-based test.

Individual and cohort-level feedback on Company Analysis Report

Tutorial used for feedback on Company Analysis Report.

Support through advice and feedback hours.

Availability

Courses

This module is Core for:

- Year 1 of UESA-H335 BEng Automotive Engineering
- Year 1 of UESA-H161 BEng Biomedical Systems Engineering
- Year 1 of UESA-H216 BEng Civil Engineering
- Year 1 of UESA-H63W BEng Electronic Engineering
- Year 1 of UESA-H113 BEng Engineering
- Year 1 of UESA-HN15 BEng Engineering Business Management
- Year 1 of UESA-HH75 BEng Manufacturing and Mechanical Engineering
- Year 1 of UESA-H315 BEng Mechanical Engineering
- Year 1 of UESA-HH35 BEng Systems Engineering
- Year 1 of UESA-HN11 BSc Engineering and Business Studies
- Year 1 of UESA-H336 MEng Automotive Engineering
- Year 1 of UESA-H163 MEng Biomedical Systems Engineering
- Year 1 of UESA-H217 MEng Civil Engineering
- Year 1 of UESA-H63X MEng Electronic Engineering

- Year 1 of UESA-H114 MEng Engineering
- Year 1 of UESA-HH76 MEng Manufacturing and Mechanical Engineering
- UESA-H316 MEng Mechanical Engineering
 - Year 1 of H315 Mechanical Engineering BEng
 - Year 1 of H316 Mechanical Engineering MEng
- UESA-HH31 MEng Systems Engineering
 - Year 1 of HH31 Systems Engineering
 - Year 1 of HH35 Systems Engineering
- Year 1 of UESA-H605 Undergraduate Electrical and Electronic Engineering
- Year 1 of UESA-H606 Undergraduate Electrical and Electronic Engineering MEng