

MODULE TITLE	Management of Product Development		CREDIT VALUE	15
MODULE CODE	ECM3153		MODULE CONVENER	Martin Middleton (Coordinator)
DURATION: TERM	1	2	3	
DURATION: WEEKS	11 weeks	0	0	
Number of Students Taking Module (anticipated)	82			

DESCRIPTION - summary of the module content

When it comes to inventing and making a product, a fantastic engineering idea is not enough. The World War 2 Spitfire was an ingenious aircraft to take into battle but its manufacture was very costly, and took three times as long as the enemy's equivalent. An essential aim for engineers today is to design a good product that is also easy to manufacture, and completing this vision demands effective management tools.

This module introduces you to management concepts and techniques and takes you through the whole engineering procedure from marketing your product idea; exploring fundamentals like patents and intellectual property, to ensuring that your design fulfils customer requirements; and use techniques like QFD or House of Quality in which market needs and major product aspects are analysed to guide your design.

Studying design for manufacture is a key element of this module and this covers different techniques that attempt to ensure your designs are suitable to be made. The main aim is to teach you not just about the value of a strong engineering idea but about the practicalities of how you bring it to market and how these two factors must work together.

By the end of the module you will understand the design and development process and how it is controlled; in particular how you will monitor this efficiently at various stages to produce a product that meets the specification you wrote and the original customers' requirements. With a strong grasp of designing for manufacture in mind, you will also have become more competent to work in the design process of real companies and have an excellent knowledge of how to manage this.

AIMS - intentions of the module

The module aims to introduce you to the process of generating ideas for new product development. It also aims to develop your awareness of how the basic concepts and tools for managing new product development are applied in practice. Finally, it highlights the integration of product development process and the delivery system reliability and maintenance.

INTENDED LEARNING OUTCOMES (ILOs) (see assessment section below for how ILOs will be assessed)

This is a constituent module of one or more degree programmes (i.e., Bachelors/MEng) which are accredited by a professional engineering institution under licence from the Engineering Council. The learning outcomes for this module have been mapped to the output standards required for an accredited programme, as listed in the current version of the Engineering Council's 'Accreditation of Higher Education Programmes' document (AHEP-V3).

This module contributes to learning outcomes: **SM1p-SM3p, SM1m-SM3m, SM6m, SM1fl, SM3fl, D1p-D6p, D1m-D8m, D1fl-D3fl, ET1p, ET1m, ET1fl, ET2p, ET2m, ET2fl, ET5p, ET5m, ET5fl, ET7m, EP2p, EP2m, EP1fl, EP9p, EP9m, EP2fl, EP9p, EP11m, EP4fl, G1p, G1m, G1fl, G4p, G4m, G4fl**

A full list of the referenced outcomes is provided online: <http://intranet.exeter.ac.uk/emps/subjects/engineering/accreditation/>

The AHEP document can be viewed in full on the Engineering Council's website, at <http://www.engc.org.uk/>.

On successful completion of this module, **you should be able to:**

Module Specific Skills and Knowledge: SM1p-SM3p, SM1m-SM3m, SM6m, SM1fl, SM3fl, D1p-D6p, D1m-D8m, D1fl-D3fl, EP2p, EP2m, EP1fl, EP9m, EP2fl, EP9p, EP11m, EP4fl

1. Understand the issues that arise when developing products, services and processes and awareness for sources of generating new ideas.
2. Comprehend the fundamental nature of product/service development and its relationship with the delivery system.
3. Participate effectively in the process of new product development.
4. Demonstrate familiarity with a range of concepts and tools for effective management of new product development.

Discipline Specific Skills and Knowledge: ET1p, ET12m, ET1fl, ET2p, ET2m, ET2fl, ET5p, ET5m, ET5fl, ET7m

5. Appreciate the strategic nature and importance of new product development to the corporate success.

Personal and Key Transferable/ Employment Skills and Knowledge: EP9p, EP11m, EP4fl, G1p, G1m, G2fl, G4p, G4m, G4fl

6. Work in teams to analyse problems and present analysis to larger groups.
7. Illustrate critical analysis skills through analysis of case studies.
8. Enhance communication, report writing, and organisational skills.

SYLLABUS PLAN - summary of the structure and academic content of the module

- introduction to new product development;
- the essential differences between product and service;
- the role of markets and marketing function;
- product/service designs - issues and considerations;
- product reliability;
- process reliability - making a system fail-safe;
- process reliability - checking for failure;
- maintenance - concepts and tasks;
- maintenance - types;
- life cycle design and costing;
- design knowledge management;
- management of innovation;
- design re-use.

LEARNING AND TEACHING

LEARNING ACTIVITIES AND TEACHING METHODS (given in hours of study time)

Scheduled Learning & Teaching Activities	22.00	Guided Independent Study	128.00	Placement / Study Abroad	0.00
---	-------	---------------------------------	--------	---------------------------------	------

DETAILS OF LEARNING ACTIVITIES AND TEACHING METHODS

Category	Hours of study time	Description
Scheduled learning and teaching activities	22	Lectures and seminars
Guided independent study	128	Private study

ASSESSMENT

FORMATIVE ASSESSMENT - for feedback and development purposes; does not count towards module grade

Form of Assessment	Size of Assessment (e.g. duration/length)	ILOs Assessed	Feedback Method
Not applicable			

SUMMATIVE ASSESSMENT (% of credit)

Coursework	40	Written Exams	60	Practical Exams
-------------------	----	----------------------	----	------------------------

DETAILS OF SUMMATIVE ASSESSMENT

Form of Assessment	% of Credit	Size of Assessment (e.g. duration/length)	ILOs Assessed	Feedback Method
Written exam – closed book	60	2 hours - January Exam	1, 2, 4, 5	On request
Generation of a Marketing Plan: Group Case Study	10	32 hours	3, 6, 7, 8	Written comments on work and mark sheet
Development of Marketing plan to budgeted Level 1 Schedule: Individual Mini Project	30	96 hours	1, 2, 4, 7, 8	Written comments on work and mark sheet

DETAILS OF RE-ASSESSMENT (where required by referral or deferral)

Original Form of Assessment	Form of Re-assessment	ILOs Re-assessed	Time Scale for Re-reassessment
All above	Written exam (100%)	All	August Ref/Def period

RE-ASSESSMENT NOTES

If a module is normally assessed entirely by coursework, all referred/deferred assessments will normally be by assignment.

If a module is normally assessed by examination or examination plus coursework, referred and deferred assessment will normally be by examination. For referrals, only the examination will count, a mark of 40% being awarded if the examination is passed. For deferrals, candidates will be awarded the higher of the deferred examination mark or the deferred examination mark combined with the original coursework mark.

RESOURCES

INDICATIVE LEARNING RESOURCES - The following list is offered as an indication of the type & level of information that you are expected to consult. Further guidance will be provided by the Module Convener

ELE – <http://vle.exeter.ac.uk>

Reading list for this module:

Type	Author	Title	Edition	Publisher	Year	ISBN	Search
Set	Stevens, R, Brook, P, et al	Systems Engineering: coping with complexity		Prentice Hall	1998	978-0130950858	[Library]
Extended	Lysons, K, Farrington, B	Purchasing and Supply Chain Management	7th	Prentice Hall	2006	978-0273694380	[Library]

CREDIT VALUE	15	ECTS VALUE	7.5
---------------------	----	-------------------	-----

PRE-REQUISITE MODULES	None
------------------------------	------

CO-REQUISITE MODULES	None
-----------------------------	------

NQF LEVEL (FHEQ)	3 (NQF level 6)
-------------------------	-----------------

ORIGIN DATE	Tuesday 10 July 2018
--------------------	----------------------

KEY WORDS SEARCH	Design process; customer; requirements; reliability; management; product development.
-------------------------	---

AVAILABLE AS DISTANCE LEARNING	No
LAST REVISION DATE	Tuesday 10 July 2018