Engineering Tripos Part IIA, 3E10: Operations Management for Engineers, 2017-18

Leader

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Lecturer

Lab Leader

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Timing and Structure

Lent term. 16 lectures and 4 examples classes.

Aims

The aims of the course are to:

- Introduce Operations Management to students coming specifically from an engineering background.
- Give a foundation course for any engineering student who aims to join large manufacturing firms or go into management consultancy.

Objectives

As specific objectives, by the end of the course students should be able to:

- Understand the role, objectives and activities of Operations Management
- Be familiar with the main Operations Management concepts and techniques, which they can apply in practice.

Content

Operations management is concerned with the processes by which organisations deliver goods and services. The course will be covering the basic concepts and techniques used in managing modern manufacturing and service operations, from the composition of a manufacturing system, to planning and scheduling at factory level, and the coordination of supplier networks

- Process Fundamentals, Types of Manufacturing and Service Operations.
- Inventory Management.
- Forecasting.
- Machine-level Scheduling and Assembly Line Balancing.
- Factory-level Scheduling and MRP Systems.
- Toyota Production System and Lean Thinking.
- Quality Management, Six Sigma and Project Management
- Supply Chain Management

Further notes

TEACHING METHODS

A mixture of:

- Interactive lecture sessions
- Group discussion of case studies
- In-class exercises

Coursework

To be announced in lectures.

There is no Full Technical Report (FTR) associated with this module.

[Coursework Title]

Learning objectives:

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Practical information:

- Sessions will take place in [Location], during week(s) [xxx].
- This activity [involves/doesn't involve] preliminary work ([estimated duration]).
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Full Technical Report:

Students [will/won't] have the option to submit a Full Technical Report.

Booklists

Please see the Booklist for Part IIA Courses [2] for references for this module.

Examination Guidelines

Please refer to Form & conduct of the examinations [3].

UK-SPEC

This syllabus contributes to the following areas of the UK-SPEC [4] standard:

Toggle display of UK-SPEC areas.

GT1

Develop transferable skills that will be of value in a wide range of situations. These are exemplified by the Qualifications and Curriculum Authority Higher Level Key Skills and include problem solving, communication, and working with others, as well as the effective use of general IT facilities and information retrieval skills. They also include planning self-learning and improving performance, as the foundation for lifelong learning/CPD.

IA1

Apply appropriate quantitative science and engineering tools to the analysis of problems.

KU1

Demonstrate knowledge and understanding of essential facts, concepts, theories and principles of their engineering discipline, and its underpinning science and mathematics.

KU2

Have an appreciation of the wider multidisciplinary engineering context and its underlying principles.

D3

Identify and manage cost drivers.

D5

Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal.

S1

The ability to make general evaluations of commercial risks through some understanding of the basis of such risks.

S2

Extensive knowledge and understanding of management and business practices, and their limitations, and how these may be applied appropriately to strategic and tactical issues.

E2

Ability to extract data pertinent to an unfamiliar problem, and apply its solution using computer based engineering tools when appropriate.

E4

Understanding of and ability to apply a systems approach to engineering problems.

P1

A thorough understanding of current practice and its limitations and some appreciation of likely new developments.

P3

Understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc).

P7

Awareness of quality issues.

P8

Ability to apply engineering techniques taking account of a range of commercial and industrial constraints.

US2

A comprehensive knowledge and understanding of mathematical and computer models relevant to the engineering discipline, and an appreciation of their limitations.

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Links
[1] mailto:fe251@cam.ac.uk
[2] https://www.vle.cam.ac.uk/mod/book/view.php?id=364091&chapterid=52151
[3] https://teaching24-25.eng.cam.ac.uk/content/form-conduct-examinations
[4] https://teaching24-25.eng.cam.ac.uk/content/uk-spec