Engineering Tripos Part IIB, 4D16: Construction Management (shared with IIA), 2023-24

Leader

Prof I Brilakis [1]

Lecturers

Dr I Brilakis [1]

Lecturers

Dr Brian Sheil [2]

Timing and Structure

Mich term - 16 lectures, including 2 examples classes (note: available to 3rd year students as a Shared Module in Part IIA). Assessment 100% exam

Aims

The aims of the course are to:

- familiarize students with concepts and methods used to manage construction projects and companies
- cover legal, safety and health matters relevant to construction
- cover risk management generally, so far as is possible in time allocated

Objectives

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

- have a broad understanding of how construction projects are initiated and driven forward
- appreciate the roles and responsibilities of the various professionals involved in design and construction
- understand the basics of lean construction
- understand the key issues in managing a construction business
- have some knowledge of the regulations covering construction
- have some knowledge of forms of contract and of law relevant to construction
- appreciate the importance of health and safety in construction and the related regulations and if risk managment generally
- understand something of costing and financial aspects of construction
- have experience of critical study of at least one construction project

Content

This module aims to familiarize students with concepts and methods used to manage construction projects and companies. These include methods for planning operations; improving productivity; controlling budgets, cash flow, and costs; safety; procurement; contracting law; preparing tenders and bidding; company organization and structure; and risk planning.

Booklists

Please see the Booklist for Group D Courses [3] for references for this module.

Examination Guidelines

Please refer to Form & conduct of the examinations [4].

UK-SPEC

This syllabus contributes to the following areas of the UK-SPEC [5] 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.

IA2

Demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs.

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.

D2

Understand customer and user needs and the importance of considerations such as aesthetics.

D3

Identify and manage cost drivers.

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.

S4

Awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

S5

Understanding of the need for a high level of professional and ethical conduct in engineering.

P3

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

P5

Awareness of nature of intellectual property and contractual issues.

P6

Understanding of appropriate codes of practice and industry standards.

US3

An understanding of concepts from a range of areas including some outside engineering, and the ability to apply them effectively in engineering projects.

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Links
[1] mailto:ib340@cam.ac.uk
[2] mailto:bbs24@cam.ac.uk
[3] https://www.vle.cam.ac.uk/mod/book/view.php?id=364101&chapterid=52261
[4] https://teaching25-26.eng.cam.ac.uk/content/form-conduct-examinations
[5] https://teaching25-26.eng.cam.ac.uk/content/uk-spec