ES2F1-15 Construction Management

21/22

Department
School of Engineering
Level
Undergraduate Level 2
Module leader
Alireza Rezaei
Credit value
15
Module duration
24 weeks
Assessment
100% coursework
Study location
University of Warwick main campus, Coventry

Description

Introductory description

ES2F1-15 Construction Management

Module web page

Module aims

The aims of the module are, provide the students with grounding in construction management of building and civil engineering works. The module will prepare students for working in the construction industry through an understanding of the important interactions between construction processes, strategic and business management. Students will apply this understanding to achieve safe, economic, timely and quality outcomes over the life cycle of a project.

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.

o Introduction to Construction Business and Project Management
o Construction Management Roles and Responsibilities
o Obtaining the project

Bids (Pre-qualification and Tendering; Estimating)
Selection methods
Contracts (standard forms of contract; construction law and resolving disputes)
o Project stages
Design (planning approval; stages of design, RIBA; Design Management BS 7000-4; site investigation)
Pre-construction
Procurement
Construction (project management; contract administration; billing; getting paid; cost management; time management, quality management; safety management; environmental management)
o Time management, cost management, and resources managementt.
o Sustainability in Construction
o Building Information Modelling (BIM)
Requirements
BIM maturity levels
o Site Design and Operation
Health and Safety in Design and Construction, CDM Regulations
Site Waste Management Plans
Site Organisation

Learning outcomes

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

- o Describe the range of processes involved in design, construction and post construction of civil engineering projects.
- o Identify and interpret forms of contract and documents associated with a typical construction project.
- o Demonstrate understanding and awareness of team collaboration, building information modelling and management in civil engineering projects.
- o Demonstrate knowledge and awareness of the process of strategy formation and implementation in the construction business and project environment.
- o Demonstrate knowledge and understanding of different knowledge areas in construction management based on standard codes of practice.
- o Demonstrate knowledge, understanding, and application of construction planning and management.
- o Appreciate established ethical concepts and principles within the broader context of own work/practice.
- o Take responsibility for the quality of own learning in a range of individual and group work/practice context.
- o Demonstrate effective communication, both verbal and written, to a range of work/practice and/or academic audiences.

Indicative reading list

CIOB (2014), Code of Practice for Project Management for Construction and Development, Wiley Blackwell, 5th ed., ISBN: 978-1-118-37808-3

Harris F., Ronald McCaffer , Francis Edum-Fotwe (2013) Modern Construction Management, Wiley Blackwell, 7th ed. ISBN-10: 047067217X, ISBN-13: 978-0470672174
Powell, G. (2016) Construction Contract Preparation and Management: From Concept to Completion. UK: Palgrave Macmillan, ISBN-13: 978-1-137-51114-0
Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston (2011) BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors, 2nd Edition ISBN: 978-0-470-54137-1
March, C.,(2009), Operations Management for Construction, Taylor & Francis, ISBN-10: 0415371139, ISBN-13: 978-0415371131

Subject specific skills

- Plan and manage the design process, including cost drivers, evaluating outcomes, and working with technical uncertainty
- Knowledge and understanding of the need for a high level of professional and ethical conduct in engineering and the use of technical literature, other information sources including appropriate codes of practice and industry standards
- Knowledge and understanding of risk issues, including health & safety, environmental and commercial risk, risk assessment and risk management techniques and an ability to evaluate commercial risk
- Knowledge of professional codes of conduct, how ethical dilemmas can arise, relevant legal and contractual issues.

Transferable skills

- Numeracy: apply mathematical and computational methods to communicate parameters, model and optimize solutions
- Apply problem solving skills, information retrieval, and the effective use of general IT facilities
- Communicate (written and oral; to technical and non-technical audiences) and work with others
- Plan self-learning and improve performance, as the foundation for lifelong learning/CPD
- Exercise initiative and personal responsibility, including time management, which may be as a team member or leader
- 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 capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Study

Study time

Type	Required
Lectures	17 sessions of 1 hour (11%)
Seminars	3 sessions of 1 hour (2%)
Supervised practical classes	4 sessions of 1 hour (3%)
Online learning (scheduled sessions)	10 sessions of 1 hour (7%)
Other activity	2 hours (1%)
Private study	114 hours (76%)
Total	150 hours

Private study description

114 hours of guided independent learning (including VLE use and support from Employer)

Other activity description

2x1h revision classes
Student-led learning comprising of:
5 hours of webinars,
5 hours of online exercises (Moodle quizzes)

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
Group Presentation Group oral presentation (including peer assesement)	30%	
Individual report Individual reflective report upon practise (4 pages length)	20%	
ASSESSMENT COURSEWORK ASSESSMENT/COURSEWORK	50%	

Feedback on assessment

Individual & Group feedback will be given on the assignments together with cohort-level feedback.

Questions and model solutions will be published to students for exam preparation.
Cohort-level feedback on written examination.

Availability

Courses

This module is Core for:

- Year 2 of DESA-H221 Undergraduate Civil and Infrastructure Engineering (Non-integrated Degree Apprenticeship)