

Module Information

2022.01, Approved

Summary Information

Module Code	6503CIVSL
Formal Module Title	Structural Design and Risk Management
Owning School	Civil Engineering and Built Environment
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	22
Tutorial	11
Workshop	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

JAN-PAR	PAR	January	12 Weeks
SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks

Aims and Outcomes

Aims	This module is designed to give students an up-to-date knowledge of the structural design of structural members made from a variety of materials. Alongside the structural design they will develop their understanding of Risk Assessment and the associated Risk Management within a construction project environment. Students will develop and consolidate the structural application, design, evaluation and analysis previously introduced with more advanced application to, in particular, concrete, steel, masonry building elements/structures, using the relevant current codes of practice including the Eurocodes.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Critically analyse the design process and apply it to complex structural elements using a variety of building materials and under different environmental and loading conditions.
MLO2	2	Produce and critically review safe and economical design in accordance with the current codes of practice.
MLO3	3	Design more advanced structural elements (such as ribbed slab, composite construction, slender column).
MLO4	4	Apply knowledge and understanding of risk issues to engineering design, and critically evaluate current practices of risk management
MLO5	5	Exercise initiative, personal responsibility and leadership skills as a member of a design team, and critically evaluate the success of team working.

Module Content

Outline Syllabus	<ul style="list-style-type: none"> •Reinforced concrete work to EC2: Frame analysis-design and detailing, design of; ribbed floor slabs. Pre-stressed concrete; Pre-tensioned and post-tensioned flexural members, losses of pre-stress force. •Use of Structural Design software •Health and safety management •Programming, resource implications, time cost applications and project acceleration •Financial risks •Risk management strategy: hazard and risk, definitions and interpretation, strategic risks, political and business implications of risks, understanding the management strategy; •Current practices of risk management: what it is; why it is used; how it is applied; when it should be undertaken; and who should be responsible for it, including the deployment of appropriate practices and procedures for the effective management of risk in construction •Risk perception and identification, risk analysis and assessment, qualitative assessment, quantitative assessment, risk response and mitigation, risk controls, monitoring and audit, risk outcomes.
Module Overview	
Additional Information	This module is intended to extend, develop and consolidate the elements structural design previously introduced, with particular reference to the use of the current Codes of Practice including the Eurocodes and other Standards in practical and more advanced design levels using different loading and environmental conditions. Students will consider the risks associated with the design. The assessments will involve a group work based submission as well as in individual component assessed via examination.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	GROUP STRUCTURAL DESIGN & RISK	30	0	MLO1, MLO2, MLO3, MLO4, MLO5
Exam	Examination	70	2	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Michaela Gkantou	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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