



MODULE SPECIFICATION

Part 1: Information			
Module Title	Technological Innovation and Life Cycles		
Module Code	UBLMFQ-30-3	Level	Level 6
For implementation from	2018-19		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Architecture and the Built Environment
Department	FET Dept of Architecture & Built Environ		
Module type:	Project		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Educational Aims: This module offers the opportunity to develop a holistic approach to construction technology and project management approaches. The intention is to focus on life cycle issues and how they influence decision making on technology. The module will also enhance students' decision making skills by making them aware of the interrelationships between client requirements, building design and performance, production, maintenance and cost considerations working in a team environment.</p> <p>Outline Syllabus: As client demands change and production processes progress, new technological solutions emerge that will require a more fundamental understanding, not only in design but also in their production. Generally seen as innovation many of the current changes come from the increasing need to take the life cycle of the building into account. Contemporary concerns for the environment and procurement methods such as PFI are all accelerating these changes.</p> <p>The content is indicative only since the building projects being investigated or developed will change.</p> <p>Building failure and decay, consequences of inappropriate innovation, the risk and uncertainty of innovatory processes, their regulation, maintenance strategies.</p>

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Post occupational life cycle concepts, their implementation and management; demand for life cycle inputs to meet changing client requirements and performance standards.

Sustainability and environmental impact issues related specifically to life cycle assessment and recycling progressions, low carbon construction.

Manufacturing, prefabrication, standardization, performance standards, appropriate off-site and on-site methods of assembly and production.

Ground engineering problems related to re-development, contaminated sites and environmental risks.

Production issues, evolving production technology, site layout and logistics planning, resource selection including mechanization, temporary works, sequencing of critical activities, hazard analysis and risk assessment on health and safety. Methods of communicating the production process. Managing potential conflict at the interface between work packages.

Teaching and Learning Methods: Contact time: 72 hours

Assimilation and development of knowledge: 148 hours

Presentation Preparation: 20 hours

Coursework preparation: 60 hours

Total study time: 300 hours

The module is divided into two phases as follows:

In phase 1, students will be required to attend a series of lectures on project management approaches and concepts. Students will then be required to become a member of a team whose responsibility is to undertake a critical appraisal of the strategic approach to be adopted for the delivery of a real life project. Individually, each student will be responsible for investigating a different element of the strategy and developing an appropriate response that captures this strategic approach and contributes to the design and construction of the proposed development. Each team will attend tutorial sessions to discuss the processes of investigation and the issues involved. In addition to the group tutorials, each student will have the opportunity to meet with the tutor on an individual basis to discuss progress and draft parts of their project work as part of the un-assessed formative feedback.

An important part of the module requires students to apply and reflect on what they have learnt in previous years and from phase 1 to the second phase.

In phase 2, there will be a similar learning strategy but with more emphasis on workshops. In this phase, students will be involved in the development of a new building where innovative and life cycle issues are present. The workshops are normally based on real life case study material and require students to practise making technological decisions that are then discussed in a plenary session. The intention is therefore to confront students with realistic contemporary problems in preparation for their project work.

Both phases will involve real life buildings and issues that currently challenge the Construction Industry.

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Part 3: Assessment

The assessment strategy is primarily based on individual project coursework that contributes to 75% of the module. The remaining 25% is based on group assessment requiring students to work as part of a team and to undertake a verbal PowerPoint presentation to a panel that includes practitioners from industry. The project work will provide students with the opportunity to use their imagination and creativity, and apply knowledge and understanding.

In phase 1, students will be assessed by producing a team report that requires a critical appraisal involving the strategic approaches to be adopted for the design and construction of the proposed development. The phase 2 report focuses on a new building development and making technological decisions at a strategic and detailed level. Each student will be required to develop a part of their team's overall technological strategy for constructing the building.

Both reports are assessing the student's ability to think critically, and to analyse the complex relationship that exists between client and legal requirements, building performance, production and cost implications. Students will be assessed on their decision making to produce realistic solutions that are specific to a building and its site constraints. The limitations of their decisions, identifying risks, and recognizing potential conflicts with other work packages will also need to be appreciated.

The production presentation will normally be held during the semester 2 examination period, and last 20 minutes for a team of 3. Students will be assessed on their ability to critically reflect on their team's strategic production decisions and to explain in detail the production process of building a work package from site delivery of materials through to their transportation into final position in a realistic and safe manner. As this is a group presentation the resit will be the report elements of the assessment.

First Sit Components	Final Assessment	Element weighting	Description
Report - Component B		37 %	Report (semester 1) 1000 words
Report - Component B		38 %	Report (semester 2) 1000 words
Presentation - Component A	✓	25 %	Group production presentation (20 minutes for a team of three)
Resit Components	Final Assessment	Element weighting	Description
Report - Component B		75 %	Report 2000 words
Presentation - Component A	✓	25 %	Production presentation (20 minutes for a team of three)

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Part 4: Teaching and Learning Methods																			
Learning Outcomes	On successful completion of this module students will achieve the following learning outcomes:																		
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Evaluate innovations for potential success or failure and identify levels of risk for their introduction into construction projects</td> <td>MO1</td> </tr> <tr> <td>Evaluate project management practice for the successful formulation of strategic approaches to decision making for construction projects</td> <td>MO2</td> </tr> <tr> <td>Propose and critically analyse a work package for a complex building that takes account of life cycle cost, performance, innovation, maintenance, risk assessment and sustainability issues</td> <td>MO3</td> </tr> <tr> <td>Evaluate critical project information for a complex building to determine potential problems, opportunities and their impact when selecting an appropriate technology</td> <td>MO4</td> </tr> <tr> <td>Develop and analyse strategic technological decisions for a complex new building with respect to substructure, superstructure and external envelope during the life cycle, the production process and cost implications</td> <td>MO5</td> </tr> <tr> <td>Produce annotated sketches of main construction assembly details for a work package that take account of performance and life cycle issues, production and cost criteria</td> <td>MO6</td> </tr> <tr> <td>Propose and explain detailed decisions on methods of production for a work package with respect to site logistics, resource selection (human and plant), activity programme times and their build sequence, temporary works, health and safety measures in a suitable visual and oral presentation</td> <td>MO7</td> </tr> <tr> <td>Present an examination of a technological solution in a clearly communicated, well referenced report format</td> <td>MO8</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	Evaluate innovations for potential success or failure and identify levels of risk for their introduction into construction projects	MO1	Evaluate project management practice for the successful formulation of strategic approaches to decision making for construction projects	MO2	Propose and critically analyse a work package for a complex building that takes account of life cycle cost, performance, innovation, maintenance, risk assessment and sustainability issues	MO3	Evaluate critical project information for a complex building to determine potential problems, opportunities and their impact when selecting an appropriate technology	MO4	Develop and analyse strategic technological decisions for a complex new building with respect to substructure, superstructure and external envelope during the life cycle, the production process and cost implications	MO5	Produce annotated sketches of main construction assembly details for a work package that take account of performance and life cycle issues, production and cost criteria	MO6	Propose and explain detailed decisions on methods of production for a work package with respect to site logistics, resource selection (human and plant), activity programme times and their build sequence, temporary works, health and safety measures in a suitable visual and oral presentation	MO7	Present an examination of a technological solution in a clearly communicated, well referenced report format	MO8
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Contact Hours	Independent Study Hours:																		
	Independent study/self-guided study	228																	
	Total Independent Study Hours:	228																	
	Scheduled Learning and Teaching Hours:																		
	Face-to-face learning	72																	
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	Hours to be allocated	300																	
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	Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p>https://uwe.rl.talis.com/index.html</p>																	

Part 5: Contributes Towards
This module contributes towards the following programmes of study: