Module Specification

Technological Innovation and Life Cycles

Version: 2022-23, v2.0, 07 Jun 2022

Contents

Part 1: Information

Module title: Technological Innovation and Life Cycles

Module code: UBLMFQ-30-3

Level: Level 6

For implementation from: 2022-23

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Environment & Technology

Department: FET Dept of Architecture & Built Environ

Partner institutions: None

Delivery locations: Auston Institute of Management Singapore, Auston Institute of Management Sri Lanka, British Institute of Engineering and Technology Sri Lanka, Frenchay Campus

Field: Architecture and the Built Environment

Module type: Project

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

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.

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.

The content is indicative only since the building projects being investigated or developed will change.

Building failure and decay, consequences of inappropriate innovation, the risk and uncertainty of innovatory processes, their regulation, maintenance strategies.

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.

Part 3: Teaching and learning methods

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.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Evaluate innovations for potential success or failure and identify levels of risk for their introduction into construction projects

MO2 Evaluate project management practice for the successful formulation of strategic approaches to decision making for construction projects

MO3 Propose and critically analyse a work package for a complex building that takes account of life cycle cost, performance, digitisation in construction, maintenance, risk assessment and sustainability issues

MO4 Evaluate critical project information for a complex building to determine potential problems, opportunities and their impact when selecting an appropriate technology

MO5 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

MO6 Present an examination of a technological solution in a clearly communicated, well referenced report format

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

Reading list: The reading list for this module can be accessed at readinglists.uwe.ac.uk via the following link https://uwe.rl.talis.com/modules/ublmfq-30-3.html

Part 4: Assessment

Assessment strategy: The assessment strategy is Component A (40%) Group Presentation and Component B (60%) Portfolio. Component A will be assessed in Semester 1 and Component B will be assessed in Semester 2. industry. The project work will provide students with the opportunity to use their imagination and creativity, and apply knowledge and understanding.

Both components 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.

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.

The resit strategy mirrors the first sit save that the presentation is individual . Nevertheless the learning outcomes are still assessed in the tasks set.

Assessment components:

Presentation - Component A (First Sit)
Description: Group production presentation (20 mins)
Weighting: 40 %
Final assessment: No
Group work: Yes
Learning outcomes tested: MO1, MO2, MO3

Portfolio - Component B (First Sit)
Description: combined poster and report
Weighting: 60 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO4, MO5, MO6

Presentation - Component A (Resit)
Description: Recording of an individual piece of work (20 mins)
Weighting: 40 %
Final assessment: No
Group work: No
Learning outcomes tested: MO1, MO2, MO3

Portfolio - Component B (Resit)
Description: Report covering case study (2,000 words)
Weighting: 60 %
Final assessment: Yes
Group work: No
Learning outcomes tested: MO1, MO4, MO5, MO6

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Construction Project Management [Feb][FT][AustonSingapore][16months] BSc (Hons) 2021-22

Construction Project Management [Sep][FT][AustonSingapore][16months] BSc (Hons) 2021-22

Construction Project Management [May][FT][AustonSingapore][16months] BSc (Hons) 2021-22

Construction Project Management [May][FT][AustonSriLanka][2yrs] - Not Running BSc (Hons) 2021-22

Construction Project Management [Feb][FT][AustonSriLanka][2yrs] - Not Running BSc (Hons) 2021-22

Construction Project Management [Sep][FT][AustonSriLanka][2yrs] - Not Running BSc (Hons) 2021-22

Construction Project Management [Feb][FT][BIET][16months] BSc (Hons) 2021-22

Construction Project Management [Sep][FT][BIET][16months] BSc (Hons) 2021-22

Construction Project Management [May][FT][BIET][16months] BSc (Hons) 2021-22

Construction Project Management [Jun][FT][AustonSriLanka][2yrs] - Not Running BSc (Hons) 2021-22

Construction Project Management [Sep][PT][BIET][20months] BSc (Hons) 2020-21

Construction Project Management [May][PT][BIET][20months] BSc (Hons) 2020-21

Construction Project Management [Feb][PT][BIET[20months] BSc (Hons) 2020-21

Construction Project Management [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Construction Project Management [Sep][PT][AustonSingapore][20months] BSc (Hons) 2020-21

Construction Project Management [May][PT][AustonSingapore][20months] BSc (Hons) 2020-21

Construction Project Management [Feb][PT][AustonSingapore][20months] BSc (Hons) 2020-21

Construction Project Management [Feb][PT][AustonSriLanka][20months] BSc (Hons) 2020-21

Construction Project Management [May][PT][AustonSriLanka][20months] BSc (Hons) 2020-21

Construction Project Management [Sep][PT][AustonSriLanka][20months] BSc (Hons) 2020-21

Construction Project Management {Apprenticeship-UWE} [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Construction Project Management [Sep][SW][Frenchay][4yrs] BSc (Hons) 2019-20

Construction Project Management {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Architectural Technology and Design {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2019-20

Construction Project Management [Sep][PT][Frenchay][5yrs] BSc (Hons) 2018-19

Architectural Technology and Design [Sep][FT][Frenchay][3yrs] BSc (Hons) 2020-21

Architectural Technology and Design [Sep][SW][Frenchay][4yrs] BSc (Hons) 2019-20