

Design Economics and Cost Planning

Module Descriptor

Module Code: QSB5DEC

Version: 4.00

Status: Final

Date: 29/10/2020

Summary Module Details

Module details

Module Title: Design Economics and Cost Planning

Module Leader: Lesley Callander

Module Mode: Supported online learning

Semester: Spring (UK)

Level: 5

Credits: 20

Learning Hours: 200

Contact and Study Hours:

Directed Study Time: 90 hrs (45%)

Self-Directed Study Time: 50 hrs (25%)

Assessment Study Time: 60 hrs (30%)

Assessment Type:

Coursework: 100%

Computer Marked Assessment: 0%

Self-directed Research Project: 0%

Portfolio: 0%

Module Summary

This module aims to provide students with an appreciation of construction costs and their control from inception to completion of a project. It considers what affects the cost of a building, and how the costs of the development can be controlled at the pre-contract stage of the project.

The application of the Royal Institution of Chartered Surveyors (RICS) New Rules of Measurement (NRM) is considered when undertaking pre-contract cost control activities. Building Information Management (BIM) is introduced to allow an appreciation of how this can be used to create cost plans and help control costs. The importance of lifecycle costs and the maintenance management of a building are also considered.

Taken on which Programmes

BSc (Hons) Quantity Surveying (C)

Core (C) or Elective (E)

Module Aims

This module aims to:

- Provide an understanding of factors that can affect the cost of a building;
- Establish a theoretical and practical understanding of how the costs of construction can be controlled at the pre-contract stage;
- Provide an understanding of how alternative design solutions impact on lifecycle costs and the methods used to establish such costs;
- Provide insight into maintenance management and its relevance to lifecycle costs.

Module Learning Outcomes

- LO1. Examine key features of design economics, cost planning and the principles of pre-contract cost control.
- LO2. Analyse alternative construction design solutions using established methods and techniques and assess their impact on initial and lifecycle costs.
- LO3. Demonstrate knowledge and understanding of the processes and methods involved in preparing cost estimates, cost plans and lifecycle costs associated with the construction and lifecycle of new building.
- LO4. Demonstrate knowledge and understanding of development appraisals and their role in the construction project cost advice process.

Indicative Module Content

Module topics

- **Project inception**

Pre-contract roles of the project team, briefing process, role of building information modelling (BIM), need for value management.

- **Factors that affect the cost of construction and pre-contract cost control**

The factors that affect the cost of construction; pre-contract cost control. Identifies factors which affect the cost of buildings by considering three main areas.

1. Design factors such as shape of building, circulation space, height etc.
2. Site factors such as location, topography etc.
3. Economic factors such as amount of construction work available, availability of resources etc.

The impact of sustainability factors is considered within each of the above as applicable. Provides an insight into the need for pre-contract cost control and an overview of the techniques used at the various stages of the design process.

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- **Indices and preparing pre-contract cost advice**

Identifies various sources of cost information, explains suitability for individual building projects and methods of adjustments and updating that will be required to ensure appropriateness for use. UK and international indices are introduced highlighting importance of considering location when preparing pre-contract cost estimates and cost plans.

- **Pre-contract cost control: Application and analysis**

Practical application of the various techniques used during pre-contract cost control.

- **Pre-contract cost control: Practical application and the positives and the negatives**

Practical application of the various techniques used during pre-contract cost control.

- **BIM and comparative cost planning**

Practical application of the various techniques used during pre-contract cost control including comparative cost planning.

- **Life Cycle Costing**

Introduces the importance of considering not only initial costs of construction but also the future costs associated with owning and running a property after construction, identifying issues relating to sustainability as appropriate. Explains the calculation used to compare life cycle costs of alternative design options allowing recommendations to be made to a client.

- **Building maintenance management, LCC, VM/VE and BIM**

Explains the importance and implications of maintenance management. Considers the relationship between building maintenance management, life cycle costing (LCC), value management and value engineering (VM/VE), and BIM.

- **Financing a development and sustainability**

Considers how a development is financed and how sustainable developments can be achieved.

- **Valuation and the real estate development process**

Explains the processes involved in the property development process, the roles of the various parties involved in the development and the procedural aspects which have an impact on development.

- **Methods of valuation**

Provides an insight into the five methods of valuation.

- **The residual method and establishing appropriate data**

Explains initially the theory related to the appraisal of development properties using the residual method which subsequently enables execution of the method.

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- **Development appraisal methods**

Residual method - weaknesses of the method are identified and an understanding of how these weaknesses are catered for within an appraisal are covered.

- **Cash flow appraisals, assessing the risk and sensitivity analysis**

Provides an insight into the cash flow and discounted cash flow methods of valuation allowing calculations to be undertaken, together with an understanding of the appropriate use of the methods. Defines sensitivity analysis and explains its use within a development appraisal.

This content will be reviewed and updated regularly to reflect the legal, moral and financial changes in professional standards and practice.

Overview of Summative Assessment

Module learning outcomes	Assessment	Word count or equivalent	Weighting
LO1, LO2, LO3	Assessment 1 Coursework	1,600	40%
LO1, LO2, LO3, LO4	Assessment 2 Coursework	2,400	60%

Module Pass Mark (as a weighted average of all assessments): 40%

Key Module Learning Resources

Core Sources and Texts

The core reading resources within each module will be provided via the specific Virtual Learning Environment (VLE) module pages and within the e-Library. Additional reference material and supplementary resources to support your studies are available through the UCEM e-Library.

Module tools

Students will have access to study materials, dedicated academic support, student forums, and learning activities via an online learning platform (VLE).

The module page on the VLE is broken down into structured study weeks to help students plan their time, with each week containing a mixture of reading, case studies, videos/recordings and interactive activities to go through. Online webinars/seminars led by the Module Leader can be attended in real time and provide opportunities to consolidate knowledge, ask questions, discuss topics and work through learning activities together. These sessions are recorded to support students who cannot attend and to enable students to recap the session and work through it at their own pace. Module forums on the VLE provide further opportunities to discuss topics with other students, complete collaborative work and get extra help from the module team.

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Professional online resources

The e-Library provides access to trusted, quality online resources, selected by subject specialists, to support students' study. This includes journals, industry publications, magazines, academic books and a dissertation/work-based library. For a list of the key industry specific and education resources available please visit [the VLE e-Library](#).

Other relevant resources

Access is also provided to further information sources that include the British Library and Open University UK catalogues, as well as providing a monthly current awareness service entitled, **Knowledge Foundations** - a compendium of news, research and resources relating to the educational sector and the Built Environment.

The module resource list is available on the module website and is updated regularly to ensure materials are relevant and current.