Unit 11: Commercial Management in the Construction Industry

Unit code:	A/504/4355
QCF level:	6
Credit value:	15

Aim

This unit gives learners an understanding of the factors which determine the cost of a proposed construction project and enables them to apply techniques used to maximise value. Learners will develop an understanding of and be able to evaluate commercial management processes used during the various stages of project development and utilise cost modelling techniques and Building Information Modelling (BIM) to assist in decision making during project development.

Unit abstract

Accurate cost advice is vitally important for a client considering a construction project. Realistic budget figures should be produced initially to ensure that the project is viable. Design development should be then monitored closely to ensure that the proposed design remains within the budget so that the client and design team can progress with confidence. The proposed project should give the client value for money; not only in relation to the initial cost but also for the whole-life cost of the project throughout its operational life, including refurbishment, if required, and ultimate disposal.

A significant quantity of cost-related data is available to the cost adviser, but this must be assessed thoroughly and used appropriately to provide advice and help with decision making. Modelling techniques are available to assist in this process, particularly developments in Building Information Modelling (BIM) provide invaluable information to aid with budgetary and design decisions. Value management principles and processes can also help to ensure best value.

To provide appropriate cost advice to a client and/or design team concerning a proposed construction project, it is important to have a working knowledge of the factors that affect the economics of building design and the cost of buildings. Cost advisers will need accurate and reliable sources of data to be identified and analysed in order to provide appropriate advice to clients or designers, considering initial costs of a proposed project as well as ongoing running and operational costs. The cost adviser will also undertake various activities to maximise value for money for the client by defining the client's value drivers.

Learning outcomes

On successful completion of this unit a learner will:

1 Understand the factors that determine the cost of a proposed construction project during design development

2 Be able to use techniques to maximise value within a project proposal

3 Understand cost control processes used during the life of a construction project

4 Be able to use appropriate modelling techniques to inform project decisions.

Unit content

1 **Understand the factors that determine the cost of a proposed construction project during design development**

Factors: quality, e.g. of design, finish, materials; time, design, construction, overall project; land costs; location; soil type; building size; building shape; building height; building use; constructional form; aesthetic requirements; services; external works; innovation; anticipated lifetime; whole-life cost; market conditions; risk; type of development, e.g. profit development, social development, user development, mixed development; building methods and techniques

Sources of information: previous projects; cost analyses, e.g. Building Cost Information Service (BCIS); cost information; price books; in-house data; manufacturers' literature; trade periodicals; cost indices; professional judgement

Assessment criteria: accuracy; reliability; appropriateness; currency; location factors; market factors; sustainability

2 **Be able to use techniques to maximise value within a project proposal**

Value management techniques: value planning; value engineering; value analysis; whole-life costing; cost/benefit analysis; value drivers; value profiles; workshops (establishing business needs, information gathering, idea generation, idea evaluation, idea development, implementation); feedback and analysis

Value engineering: workshops; function statements; functional analysis techniques; strengths, weaknesses, opportunities, threats (SWOT) analysis; value analysis; cost/benefit analysis; alternative construction methods; alternative materials; buildability; Building Information Modelling (BIM)

3 **Understand cost control processes used during the life of a construction project**

Cost control processes: cost planning; cost control; cost analysis; cost targets; cost of significant elements; sensitivity analysis; cash flow forecasts, e.g. final cost; final project duration; value management, e.g. value engineering; Building Cost Information Service (BCIS); contingencies

Cost control during project stages: inception; feasibility; outline proposals; scheme design; detail design; construction phase; occupation; maintenance; renovation; demolition

4 **Be able to use appropriate modelling techniques to inform project decisions**

Cost modelling techniques: techniques, e.g. unit costing method, superficial costing method, elemental cost analysis, cost of significant elements, cost planning, spatial costing; approximate quantities; discounting (net present value [NPV]); elemental ratios; interdependence of elements; cash flow forecasts; whole-life costing; cost checking; cost reconciliation

Building Information Modelling (BIM): three-dimensional; dynamic building modelling; parametrics, e.g. building geometry, spatial relationships, geographic information, size, quantities, materials, components; information flows; procurement methods

BA034134 – Edexcel BTEC Level 6 Diploma in Construction (QCF) units –
Issue 1 – November 2012

Learning outcomes and assessment criteria

Learning outcomes On successful completion of this unit a learner will:	**Assessment criteria for pass** The learner can:
LO1 Understand the factors that determine the cost of a proposed construction project during design development	1.1 Categorise factors that determine the cost of a proposed construction project 1.2 Critically evaluate sources of information regarding factors affecting the cost of a defined proposed project 1.3 Justify the assessment criteria affecting the cost of a defined proposed project
LO2 Be able to use techniques to maximise value within a project proposal	2.1 Plan value management activities for a defined proposed project 2.2 Create a value engineering model for a defined project 2.3 Demonstrate how value management benefits the defined project proposal
LO3 Understand cost control processes used during the life of a construction project	3.1 Classify cost control processes used during a project development 3.2 Explain how cost control processes are used during the life of a construction project
LO4 Be able to use appropriate modelling techniques to inform project decisions	4.1 Apply cost modelling techniques to a defined project 4.2 Critically evaluate a building information model for a defined project under development 4.3 Justify a cost value appraisal for a defined project

Guidance

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

The learning outcomes associated with this unit are closely linked with:

Level 4	Level 5	Level 6
Unit 18: Measurement Processes for Construction (H/601/1277)	Unit 23: Advanced Measurement for Construction (T601/1283)	Unit 8: Construction Financial Management (K/504/4352)

Essential requirements

Learners will need access to libraries of building cost information, such as the Building Cost Information Service (BCIS), and software to evaluate a Building Information Model.

Delivery

This unit should be delivered using practical, workshop-based activities to enable learners to carry out costing activities, including producing cost plans and cost targets, whole-life costing exercises, value management and value engineering exercises, cash flow forecasts and Building Information Modelling (BIM).

Tutor input should be focused on explaining and discussing theoretical aspects of the unit, so that learners are able to undertake the practical activities and assessments.

Assessment

Assessment should be based on practical, scenario-based activities where learners need to undertake cost and value-related activities, justify the activities undertaken, evaluate the outcome of the exercises and make recommendations where appropriate.

Resources

Books

Association for Project Management (2006) – *AIB Body of Knowledge,* 5th Edition (APM, 2006) ISBN 978-1903494134

Ashworth A – *Cost Studies of Buildings,* 5th Edition (Prentice Hall, 2010) ISBN 978-0273728955

Ashworth A – *Pre-contract Studies,* 3rd Edition (Wiley-Blackwell, 2008) ISBN 978-1405177009

Ashworth A and Hogg K – *Willis's Practice and Procedure for the Quantity Surveyor,* 12th Edition (Blackwell, 2007) ISBN 978-1405145787

BCIS – *BCIS Comprehensive Building Price Book 2012: Major and Minor Works Dataset,* 29th Edition (BCIS, 2011) ISBN 978-1907196188

Cartlidge D – *Quantity Surveyor's Pocket Book* (Butterworth-Heinemann, 2009) ISBN 978-0750687461

Kirkham R – *Ferry and Brandon's Cost Planning of Buildings,* 8th Edition (Blackwell, 2007) ISBN 978-1405130707

Langdon D – *Spon's Architects and Builders Price Book 2012,* 137th Edition (RICS, 2011) ISBN 978-0415680639

NRM 1 – Order of Cost Estimating and Cost Planning for Capital Building Works (New Rules of Measurement), 2nd Edition (Royal Institution of Chartered Surveyors, 2012) ISBN 978-1842197684

Smith J and Jagger D – *Building Cost Planning for the Design Team,* 2nd Edition (Butterworth-Heinemann, 2006) ISBN 978-0750680165

Weygant R – *BIM Content Development: Standards, Strategies, and Best Practices* (Wiley, 2011) ISBN 978-0470583579

Other publication

BSI – *BS EN 12973:2000 Value Management* ISBN 0 580 35686 8

Website

www.bcis.co.uk/online	Online service providing construction price and cost information