

# THE EDUCATION FRAMEWORK FOR UNDERGRADUATE PROGRAMMES



# INDEX

REFERENCE	SUBJECT	PAGE REFERENCE
<b>Section 1</b>	<b>General Information about the CIOB</b>	Page 4
1.1	About the CIOB	Page 4
1.2	About the Education Framework	Page 4
1.3	About CIOB Accreditation	Page 4
1.4	The Definition of Construction Management	Page 4
1.5	Validation and Approval of Programmes	Page 4
1.6	CIOB Routes to Membership	Page 5
1.7	Accredited Qualifications and Routes to Membership	Page 5
<b>Section 2</b>	<b>General Information about the Education Framework</b>	Page 6
	About the Education Framework	Page 6
<b>Section 2</b>	<b>The Education Framework Learning Outcomes</b>	Page 6
2.1	Sustainability	Page 6
2.2	The Construction Environment	Page 7
2.3	Construction Management	Page 8
2.4	Construction Technology	Page 9
2.5	Health, Safety and Welfare	Page 9
2.6	Ethics & Professionalism	Page 10
2.7	Dissertation/Project	Page 10



### 1.1 About the CIOB

The Chartered Institute of Building (CIOB) was founded as The Builders Society in 1834 by such luminaries as Thomas Cubitt and Samuel Morton Peto. Since its inception the Institute has been working on behalf of the public to promote professionalism in the construction industry. Having a wide and inclusive view of the construction management discipline, the CIOB now represents the most diverse set of professionals in the construction industry across the world. The CIOB accredits academic awards from a range of built environment subjects that meet the academic and vocational standards of the Education Framework.

### 1.2 About the Education Framework

The Education Framework is the CIOB published standard in Construction Management Education. The CIOB accredits programmes from Qualifications and Credit Framework (QCF) Level 4 Higher National Diplomas (HND) to Level 7 Postgraduate Programmes. This framework is for programmes from Level 4 up to honour's degree programmes at level 6. For information on levels in the Qualifications and Credit Framework (QCF) please see the link below: <http://www2.ofqual.gov.uk/downloads/category/42-comparability?download=86%3Aqualification-can-cross-boundaries>

The Education Framework is of interest to teaching institutions reviewing existing programme content, as a reference document when designing a new programme and for the purposes of gaining CIOB accreditation. The Education Framework is based on external references such as the UK Quality Assurance Agency benchmarks and National Occupational Standards. QAA benchmarks can be accessed at <http://www.qaa.ac.uk> The CIOB represents a diverse range of professions in the built environment and the learning outcomes contained in the Education Framework are intended to provide guidance to teaching institutes and should not be viewed or used as a prescribed syllabus.

The references to construction management contained in the Education Framework are defined in the published document An Inclusive Definition of Construction Management (John Bale, 2010). It is recommended that this document is referred to when applying for CIOB accreditation or using the Education Framework to inform programme design or review. An Inclusive Definition of Construction Management can be accessed through the web at <http://ciobdownloads.co.uk/Redefining-CM.pdf> or a hard copy of this document can be obtained by email request to [educationadmin@ciob.org.uk](mailto:educationadmin@ciob.org.uk) or by telephoning (+44) 1344 630 808.

### 1.3 About CIOB Accreditation

CIOB Accreditation is a seal of approval for the teaching institute and for the programme, signifying that the highest standards of quality are met in the teaching institute and the learning outcomes of the programme. The CIOB accredits a wide range of courses from sub-degree programmes to degree and postgraduate awards in the built environment in the UK and across the world. For further information on the accreditation process please contact the Accreditation Officer at [educationadmin@ciob.org.uk](mailto:educationadmin@ciob.org.uk) or visit our web page at <http://www.ciob.org/content/teachers-higher-education>

### 1.4 The Definition of Construction Management

The CIOB membership criteria include a range of degree and sub-degree programmes from those which have a broad coverage to those with a specialised focus. The breadth of any single programme can be assessed by a comparison with the publication An Inclusive Definition of Construction Management and this has been used to underpin the content of the Education Framework undergraduate awards.

### 1.5 Validation and Approval of Programmes

The validation of programmes will be made through a detailed comparison with appropriate national requirements. The CIOB accreditation process fully acknowledges that there will be differences between national requirements for programmes and that these different requirements will be reflected in the course documentation. The alignment of the programme with national requirements is a routine part of the validation of programmes by the Higher Education Institution (HEI) and evidence of this validation will be provided as part of the application process to the CIOB.

For benchmarking purposes, institutions may wish to refer to the UK QAA benchmark statements for Construction, Property and Surveying.

<http://www.qaa.ac.uk>

## 1.6 CIOB Routes to Membership

Graduates of accredited honour's degree programmes are granted full exemption and may proceed to Chartered Membership through the Professional Development Programme or by demonstrating the competence requirements through their work experience.

All candidates for Chartered Membership are required to pass the Professional Review. For further information on the Professional Development Programme please visit our website at the link below <http://www.ciob.org/content/professional-development-programme>

## 1.7 Accredited Qualifications and Routes to Membership

NQF/QCF Level	Qualification	CIOB Qualifications	CIOB Experience Requirement	Membership Grade
8	PhD/Doctorate <sup>1</sup> in built environment subject <sup>2</sup>			<b>Member (MCIOB)</b>
7	Master's Degree MEng Postgraduate Diploma in built environment subject <sup>2</sup> Edexcel S/NVQ Level 7		3 years' management experience or Professional Development Programme (PDP) or Edexcel NVQ Level 6 (QCF)	
	Bachelor (Honours)	CIOB EPA / EPAR route	5 years' management experience or Professional Development Programme or Edexcel NVQ Level 6 (QCF)	
6	Non-Cognate (Honours) Degree			
	Bachelor (Ordinary) Degree Edexcel S/NVQ Level 6 in built environment subject <sup>2</sup>	2 units of CIOB EPA route Top-up for MCIOB		
5	Foundation Degree, Edexcel Higher National Diploma (HND) Edexcel S/NVQ Level 5 in built environment subject <sup>2</sup>		2 years' technical / supervisory / management experience	
		CIOB L4 Diploma in Site Management (QCF)		<b>Associate member (ACIOB)</b>
4	Edexcel Higher National Certificate (HNC) Edexcel S/NVQ Level 4 in built environment subject <sup>2</sup>	CIOB L4 Certificate in Site Management (QCF)	2 years' technical / supervisory / management experience	
	3	Edexcel S/NVQ Level 3 in built environment subject <sup>2</sup>	CIOB L3 Diploma in Site Supervisory Studies (QCF)	2 years' technical / supervisory experience

For information on UK national qualifications framework and levels, please see the link below.

<http://www2.ofqual.gov.uk/downloads/category/42-comparability?download=86%3Aqualifications-can-cross-boundaries>

1. The CIOB does not accredit doctorate awards.
2. Candidates applying for membership with non-accredited awards may undergo an individual assessment which, if successful, will allow the candidate membership of the CIOB. For further advice on cognate and non-cognate awards, please see the Definition of Construction Management at the following link <http://ciobdownloads.co.uk/Redefining-CM.pdf>

## SECTION 2 General Information about the Education Framework

### The Education Framework Learning Outcomes

The following sections of the Education Framework are themes which may be threaded through programme modules or may be used as individual modules. The CIOB does not prescribe how the themes are to be incorporated into the programme and there is not a requirement to

meet all of the outcomes of the framework in order to achieve accreditation.

The CIOB does not prescribe the level at which themes are to be taught and flexibility is deliberately built into the framework to allow institutions greater autonomy in curriculum design.

### 2.1 Sustainability

Theme	Level 4	Level 5	Level 6
<b>Global Issues</b>	Demonstrate an understanding of: <ul style="list-style-type: none"> <li>• social sustainability</li> <li>• economic sustainability</li> <li>• environmental sustainability</li> </ul> For example – Brundtland Report, environmental impact, low and zero carbon, energy generation.	Explain the scale of the Built Environment’s impact on the environment and describe the key legislative drivers which seek to minimise this impact.	Analyse the main sustainability impacts that a building has over the duration of its life cycle, from design through construction, use, refurbishment and adaptation to demolition and disposal.
<b>Legislation and Policy</b>	In relation to sustainable development demonstrate an understanding of: <ul style="list-style-type: none"> <li>• issues</li> <li>• terminology</li> <li>• policy</li> <li>• legislation</li> <li>• design</li> </ul>	Apply Key Environmental Performance Indicators. For example – Calculate Energy Performance	Examine the Construction Industry’s challenges, opportunities and responsibilities with regards to sustainability.
<b>New Build Design and Retrofit</b>	Recognise the impact on a building’s carbon emissions of providing a comfortable and healthy internal environment through the provision of: <ul style="list-style-type: none"> <li>• heating and cooling</li> <li>• air tightness and quality</li> <li>• lighting quality</li> </ul>	Apply appropriate environmental impact assessment techniques. Carry out an impact assessment of the provision of a comfortable and healthy internal environment on a building’s carbon emissions.	Undertake cost-benefit and feasibility analysis of carbon issues in relation to building design and operational management.
<b>Waste</b>	Demonstrate an understanding of the sources of waste in the built environment.	Develop and apply policies to eliminate waste within the lifecycle of a construction project.	Evaluate techniques available to reduce waste and enhance recycling.
<b>Construction Site specific Issues</b>	Understand how a construction site operates.	Identify and explain how construction sites and operations impact on the environment.	Identify and apply appropriate methods to mitigate negative sustainability impacts during the construction process.
<b>Clients</b>	Evaluate importance of sustainability with regards to Clients’ Corporate Social Responsibility, vision, image and Key Performance Indicators.		

## 2.2 The Construction Environment

Theme	Level 4	Level 5	Level 6
<b>The Construction Industry</b>	In relation to the national and international construction industry, understand and appreciate its: <ul style="list-style-type: none"> <li>• historical development</li> <li>• scale, structure and output</li> </ul>	Review threats and opportunities for the future development of the construction industry.	
<b>Social and Economic impact</b>	Describe the role of the construction industry in the economic and social welfare of a country.	Understand and appreciate the social and political issues which impact on planning, design and development of the built environment.	Appraise and evaluate the influence of current issues including, Sustainability, Health & Safety and Internationalisation on the social and economic aspects of construction activity worldwide.
<b>Legal Environment</b>	Understand and describe the principles of <ul style="list-style-type: none"> <li>• the legal system related to construction activity</li> <li>• the law of contract and tort</li> <li>• statutory control of construction activity</li> </ul>	Describe and characterise the legal obligations and procedures associated with: <ul style="list-style-type: none"> <li>• contracts</li> <li>• letting</li> <li>• employment</li> <li>• equality</li> <li>• design</li> <li>• development</li> </ul>	Examine the concepts and obligations set by construction law in relation to their impact on the construction management process.
<b>Economic Principles and Financial Management</b>	Understand and describe the principles of: <ul style="list-style-type: none"> <li>• macro and micro economics</li> <li>• supply and demand</li> <li>• market structure and operation</li> <li>• finance for construction activities</li> <li>• cash flow</li> <li>• price and cost estimation for construction activities</li> </ul>	Compare, appraise and select different procurement processes for construction activity. Produce examples of price and cost estimation for construction activities. Appraise the use of financial information as it relates to the management of construction projects: <ul style="list-style-type: none"> <li>• cash flow, cost and finance</li> <li>• value management /engineering</li> <li>• decision making</li> </ul>	Integrate the requirements of contract law and procurement processes. Implement procedures and practices associated with the settlement of final accounts, claims and dispute resolution.
<b>Design and Construction Process</b>	In relation to the development process, understand and appreciate: <ul style="list-style-type: none"> <li>• stages in the process</li> <li>• role of construction professionals within the process</li> </ul>	Demonstrate an appreciation of property and infrastructure development in relation to financial and legal aspects.	

## 2.3 Construction Management

Theme	Level 4	Level 5	Level 6
<b>Process Management</b>	<p>Understand the management of construction processes as they relate to:</p> <ul style="list-style-type: none"> <li>the project from inception to recycling</li> <li>understanding corporate organisations, industry, clients and society</li> </ul>	<p>Apply knowledge of the construction process to the examination and selection of procurement methodology.</p>	
<b>Human Resource Management</b>	<p>Understand the roles and responsibilities of people involved in the construction process.</p>	<p>Explain how human resource management methods affect the construction process.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>time management</li> <li>Considerate Constructors</li> <li>people, motivation and behaviour</li> <li>performance management and appraisal</li> <li>teams and integrated teams</li> <li>leadership and leadership styles</li> <li>discrimination</li> <li>training and development</li> </ul>	<p>Evaluate different leadership styles in relation to particular projects.</p>
<b>Planning and Scheduling of Projects</b>	<p>Understand the importance of time, cost and resource management to complete projects effectively.</p> <p>Be aware of external benchmarks such as CIOB Good Practice in Management of Time in Complex Projects and Codes of Practice.</p>	<p>Demonstrate the ability to use a range of planning tools, to apply them to construction processes including:</p> <ul style="list-style-type: none"> <li>project planning, including Gantt charts and network diagrams</li> </ul>	<p>Evaluate and apply different project management techniques to complex projects.</p> <ul style="list-style-type: none"> <li>management and decision processes</li> <li>critical path analysis, Project Evaluation and Review Technique (PERT)</li> <li>risk analysis</li> <li>Building Information Modelling (BIM)</li> </ul>
<b>Performance Management</b>	<p>Define performance management for process improvement, including:</p> <ul style="list-style-type: none"> <li>definition and use of Key Performance Indicators (KPIs)</li> </ul>	<p>Apply Key Performance Indicators (KPIs) to a construction project.</p>	<p>Evaluate and apply different performance management techniques to complex projects.</p> <p>For example:</p> <ul style="list-style-type: none"> <li>procurement and contract performance</li> <li>process improvement</li> <li>incentivisation</li> <li>best practices and feedback and reflection</li> <li>business development and market making / product development and research / innovation management</li> </ul>



## 2.4 Construction Technology

Theme	Level 4	Level 5	Level 6
<b>Building Performance and Technology</b>	Describe and illustrate the functional and performance requirements of simple buildings. Understand, describe, select and illustrate alternative options available for the construction of primary and secondary building elements of simple buildings.	Describe and illustrate the functional and performance requirements of framed and complex buildings. Understand, describe, select and illustrate alternative options available for the construction of primary and secondary building elements of framed and complex buildings including those with basements. Undertake design option appraisal to ensure adherence to current building legislation including the conservation of energy, carbon emissions and structural performance control.	Examine the potential and use of sustainable technologies applied to case-study buildings. Evaluate and challenge the use of proposed technologies against the need for contemporary and innovative solutions to achieve integration, buildability, speed, cost, health and safety, and quality criteria applied to case study buildings.
<b>Site Investigation</b>	Understand and apply site investigation techniques to a construction project. Explain the basic principles of, and demonstrate a satisfactory competence in land surveying.	Apply principles of site investigation to assess the suitability of sites for construction projects.	
<b>Materials</b>	Describe the properties of building materials and understand their performance characteristics with regard to the natural environment and their impact upon it.	Analyse the performance of materials in use, based upon their scientific properties and the environment and conditions in which they are used.	Apply principles of waste minimisation, recycling and responsible disposal to building projects to ensure a sustainable environment.
<b>Performance Management</b>	Understand and appreciate the function and design of building services for a simple building to ensure human comfort.	Understand and appreciate the function and design of building services for framed and complex buildings to ensure human comfort.	Examine potential options and select suitable solutions for building services in the context of a building project.
<b>Problems and Defects</b>	Demonstrate knowledge of common defects and refurbishment technologies to restore a building for contemporary use.		

## 2.5 Health, Safety and Welfare

Theme	Level 4	Level 5	Level 6
<b>Legislation and Practice</b>	Understand the legal environment, importance and consequence of construction health, safety and welfare.	In the context of a construction project, prepare a risk assessment, applying health and safety standards, such as CDM Regulations.	Demonstrate a professional attitude to health, safety and welfare and apply these principles to projects.
<b>Personal Responsibility</b>	Provide an overview of the duties of all persons involved in construction projects with regard to health, safety and welfare.	Critically examine statistical data, identify typical accidents and review causes and effects.	Examine how the promotion of safe working and ethical practices and the setting of standards may be achieved.
<b>Management</b>	Demonstrate an understanding of health and safety management tools, and recent developments in health, safety and welfare management and training.	Identify and manage health, safety and welfare hazards and risks.	Examine risk assessment processes and the duties placed on people undertaking and carrying out risk assessments.
<b>Enhancement</b>	Identify systems used for the management of wellbeing and safety culture in construction.	Critically assess systems with reference to standards (eg. ISO) an organisation's health, safety and welfare culture and practices.	Examine how the Construction Industry might move to enhance competence, behaviour and commitment to health, safety and welfare.

## 2.6 Ethics and Professionalism

Theme	Level 4	Level 5	Level 6
<b>CIOB Code of Conduct</b>	Demonstrate awareness of the Code of Conduct.	Apply the Code of Conduct to own practice.	
<b>Self-development and Reflection</b>	Identify personal strengths and areas for development.	Prepare forward plan with identified review and reflection times.	Demonstrate review of and reflection on self-development.
<b>Construction Team</b>	Demonstrate respect for fellow team members and their role within the construction industry.		
<b>Culture and Behaviour</b>	Demonstrate awareness of a range of ethnic diversity and cultures issues in the industry.	Give examples and prepare plans for the application of ethical practice in the built environment workplace, demonstrating consideration of people as clients, customers and consumers of built environment 'products'.	Analyse the role and value of openness and transparency versus confidentiality and commercial sensitivity.
<b>Equality, Diversity, Age, Gender, Sexual Orientation, Belief, Ethnicity</b>	Demonstrate respect for diversity and cultural values.		Examine industry or government policies for equality and their value to the construction industry.
<b>Governance and Corporate Social Responsibility</b>	Identify responsibilities in relation to Governance and Corporate Social Responsibility within public and private bodies and to individuals.		Compare the Governance and Corporate Social Responsibility of organisations and the wider society.
<b>Procurement and Tendering Practice</b>	Describe the principles of fair trade.	Apply professional standards of reporting and accountability. Demonstrate understanding of the need for honesty and accuracy in reporting.	Review and recommend national and international procedures to comply with professional obligations.
<b>Definitions of Construction Management</b>	Appreciate the role of the Construction Manager (e.g. Bale, 2010) in an international context, including <ul style="list-style-type: none"> <li>management, development, conservation and improvement of the built environment</li> <li>role of the professional builder</li> </ul>	Review current codes and practices.	Recommend improvements to practice to further enhance the image and efficiency of the construction industry.

## 2.7 Dissertation/Project

Subjects	Level 6
<b>Research</b>	Research a contemporary construction management issue. Demonstrate an ability to select and apply appropriate ethical research methodologies. Analyse, synthesise and evaluate key issues affecting construction management.





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