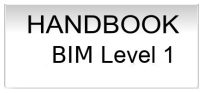
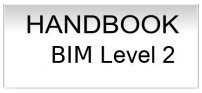
Designing Engineering and Constructing Qualification and Information



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Level 1

Level 1, Unit 1 - Defining a sustainable construction project (3 credits)

1. understand issues related to sustainability in construction projects.

1.1 define sustainability. [5]

1.2 identify ways in which sustainability affects the local community. [7]

1.3 identify the range and depth of knowledge in my local community related to sustainability. [9]

1.4 present sustainability issues to a relevant audience. [11]

1.5 identify and communicate ways of improving sustainability in my local community. [13]

2. understand issues related to the local community in construction projects.

2.1 use a range of methods to discover who lives in my local community and suggest ways to demonstrate results. [6]

2.2 engage my community in the design and planning processes of my building project in their role as ‘client’. [8]

2.3 respond to identified community needs with specific solutions. [10]

2.4 research the impact of a construction project on the local community. [12]

2.5 understand how a formal meeting should be structured, conducted and recorded. [14]

Level 1, Unit 2 - Roles in Construction Teams (7 credits)

1. understand the importance of teams in construc

2. understand the role of the architect

3. understand the role of the building services

4. understand the role of the landscape

5. understand the role of the site engineer

6. understand the role of the facilities manager

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tion projects.		**engineer**	**designer.**	**.**	**.**
1.1 relate successful construction projects to team effort. [16]	2.1 outline the role of an architect. [17]	3.1 outline the role of the building services engineer. [18]	4.1 outline the role of the landscape designer. [19]	5.1 outline the role of a site engineer. [20]	6.1 outline the role of a facilities manager in the context of a school building. [21]
1.2 identify the roles and respons ibilities of the key members in a construction team. [22]	2.2 explain how the architect works with a client on a building project. [23]	3.2 identify services associated with a familiar building. [24]	4.2 indicate how natural and manmade features impact the layout of a landscape design. [25]	5.2 use specific mat hematical solutions to inform site engineering problems. [26]	6.2 relate the behaviour of people within a building to the success of adoption and subsequent sustainabilit y. [27]
1.3 identify how each team member contributes to the sustainabilit y of the project. [28]	2.3 identify the key elements and structure of a design brief. [29]	3.3 relate the behaviour of end users to impact on the efficiency of a building. [30]	4.3 relate the path of the sun to the positioning of natural and manmade garden design features. [31]	5.3 follow practical procedures to correctly position and orientate a building. [32]	6.3 use empirical evidence to inform the sustainabilit y of a school. [33]
1.4 communicat e ideas between the team. [34]	2.4 use precedents to inform research. [35]	3.4 recognise the symbols that represent building services on a plan. [36]	4.4 make a water level to determine changes in height. [37]		6.4 gather information by interviewing school staff. [38]
1.5 identify and communicat e ways of improving sustainabilit y in the local community. [39]	2.5 explain that a design brief requires clear and effective co mmunicatio n with the client. [40]	3.5 apply learning to own sustainable building design. [41]	4.5 relate the outdoor learning environment to the sustainable building project. [42]		6.5 relate evidence to the developmen t of a building project. [43]

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2.6 respond to identified community needs with specific solutions. [44]

2.7 provide a concept model and sketch scheme. [47]

2.8 present a case for a specified construction project. [48]

4.6 use characteristics of the school landscape as a basis for a detailed landscape plan. [45]

6.6 establish resource efficiency guidelines to support the facilities management role. [46]

Level 1, Unit 3 - Producing a Technical Design for a Construction Project and Sharing Information (3 credits)

1. use building information management (BIM) to produce realistic buildings.

1.1 identify reasons why BIM is an essential process for the efficient development of a construction project. [50]

1.2 set up a 3D model using simple architectural and aesthetic elements. [52]

1.3 input, organise and combine information in a 3D environment. [54]

1.4 define and produce floor plans, elevations, sections and visualisations. [56]

1.5 create a drawing on a title sheet. [58]

2. be able to share information effectively.

2.1 demonstrate the value of professional collaboration and sharing information in a building project. [51]

2.2 use tools and techniques to present my building project in a 3D environment. [53]

2.3 demonstrate the impact of natural and artificial light on my building project. [55]

2.4 communicate detailed information about a building to a client and project team using BIM technology. [57]

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Level 1, Unit 4 - Planning, Costing and Presenting a Sustainable Building Project (3 credits)

1. understand issues associated with planning legislation and controls.	2. understand issues associated with procurement for a construction project.	3. be able to make effective presentations.
1.1 describe the importance of planning and planning protocols. [60]	2.1 identify the effects of local and global procurement on local and global communities. [61]	3.1 support a presentation with appropriate digital technologies. [62]
1.2 identify planning requirements related to the design and construction of an Eco Classroom. [63]	2.2 identify properties of sustainable building materials. [64]	3.2 design supporting media content to have impact and clarity. [65]
1.3 identify common problems that arise in planning applications. [66]	2.3 select sustainable goods and services from local sources where practicable. [67]	3.3 structure a presentation to prioritise the messages. [68]
1.4 develop a structured argument to support a given planning application scenario. [69]	2.4 produce a bill of quantities for a construction project. [70]	3.4 make effective use of the time available while making a presentation. [71]
1.5 agree appropriate measures to conclude a successful planning application. [72]	2.5 identify the range of industry specific skills available locally. [73]	3.5 identify strengths and weaknesses in my presentation. [74]

Level 2

Level 2, Unit 1 - Defining a Sustainable Construction Project (5 credits)

1. understand a client's needs.	2. be able to formulate project briefs.	3. understand the constraints on projects.	4. be able to draft plans.
1.1 identify the	2.1 outline the	3.1 identify	4.1 create a draft

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contextual needs of a client. [76]	functional requirements of the project. [77]	constraints associated with the site location and present solutions. [78]	project plan. [79]
1.2 record project requirements and client expectations. [80]	2.2 establish quality objectives for the project. [81]	3.2 test initial ideas against planning protocol. [82]	4.2 match project planning to the human resources of the team. [83]
1.3 understand the requirement to establish a budget in relation to the agreed client's needs. [84]	2.3 set the sustainability aspirations of the project. [85]	3.3 explain the principles of legislation relevant to the project. [86]	4.3 create an organogram for the project. [87]
		3.4 carry out a feasibility study and present the results. [88]	4.4 forecast the lifespan of the completed project. [89]
		3.5 make a judgement on project viability based on evidence. [90]	4.5 forecast facilities management costs. [91]
		3.6 explain how the building design helps minimise energy use. [92]	4.6 take account of environmental considerations in planning. [93]

Level 2, Unit 2 - Developing a Sustainable Construction Project (4 credits)

1. be able to develop feasible proposals from needs analysis.	2. produce technical support collateral for a project.	3. support development of a project concept.
1.1 prepare concept diagrams to demonstrate ideas. [95]	2.1 prepare 3D representations of outline information. [96]	3.1 explain the importance of compatibility between existing infrastructure and the project proposals. [97]
1.2 present the quality of the proposal to a client. [98]	2.2 utilise the 3D environment to test the design in virtual locations.	3.2 explain the environmental and climate change reduction

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	[99]	strategies. [100]
1.3 communicate the concept design to the project team. [101]	2.3 use quantitative methods to establish the energy requirements, and a lighting strategy. [102]	3.3 monitor the execution of the plan to ensure compliance with client requirements taking appropriate action where necessary. [103]
1.4 identify procurement options related to key elements of the project. [104]	2.4 prepare detailed, scaled drawings that can form the basis of a planning application. [105]	3.4 establish strategies for the proposed construction that support health and safety, occupancy, management and operation. [106]
	2.5 describe the project in writing to form the basis of a planning application. [107]	3.5 relate building design specification to energy efficiency. [108]
	2.6 produce a financial model of the budget that aggregates the elemental costs of the project. [109]	3.6 inform planning through collaborative working groups. [110]

Level 2, Unit 3 - Delivering a Sustainable Construction Project (4 credits)

1. be able to carry out a project.	2. be able to respond to technical issues.
1.1 coordinate a design proposal to ensure mistakes are avoided. [112]	2.1 use a 3D model to test a design. [113]
1.2 identify potential problems at an early stage and take appropriate action. [114]	2.2 validate the design against the brief using a technical investigation. [115]
1.3 identify needs that require specialists from outside the team. [116]	2.3 ensure that the project complies with building regulations as it progresses. [117]
1.4 monitor progress in consultation with peers. [118]	2.4 explain how the building works in practice using quantitative monitoring. [119]
1.5 ensure the project is developed on time and to budget. [120]	2.5 review progress and reflect on technical decisions. [121]
	2.6 consult and respond appropriately to peer review. [122]

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Level 2, Unit 4 - Evaluating a Sustainable Construction Project (3 credits)

1. be able to compare intentions with outcomes.

1.1 explain how the building works and what users need to do to optimise performance. [124]

1.2 explain how well final outcomes meet original intentions. [126]

1.3 evaluate feedback and use it as a basis for improvements in future projects. [128]

1.4 analyse data and use it as evidence to inform evaluation. [130]

1.5 use data to forecast long term performance of the building. [132]

2. transfer project evaluation to other contexts.

2.1 identify issues in existing familiar buildings. [125]

2.2 make recommendations to improve existing buildings. [127]

2.3 carry out a qualitative audit reporting on aesthetics and sensory experiences of users. [129]

2.4 present a building project to a professional audience. [131]

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