Level 3 - Designing, Engineering and Constructing a Sustainable Built Environment

Performance points for 2019

Will be on UCAS Tariff Table from May 2018 onwards.

For Certificate: 30 credits required. Recommend Units 1, 2 and 3.

For Diploma: All 5 units Mandatory

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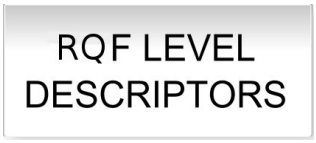

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Level 3

Level 3, Unit 1 - Defining a Sustainable Construction Project (12 credits)

1. Research and convey the project remit.	2. Set standards for sustainability in a construction project.	3. Define site information required at pre-design phase.
1.1 identify a significant construction project for in-depth study. [5]	2.1 define commitments to positively impact on the local community and the local environment. [6]	3.1 identify the importance of site analysis and the roles of professional consultants at pre-design phase. [7]
1.2 communicate the vision for the project. [8]	2.2 define and explain commitments to energy and water efficiency and carbon reduction. [9]	3.2 determine requirements for topographical information including ways to collect accurate data for the site. [10]
1.3 set the scene for the project in the context of the existing environment. [11]	2.3 define and explain commitments to minimise construction waste. [12]	3.3 identify information required to produce a geotechnical report related to the specified project. [13]
1.4 set the scene for the project in the context of end	2.4 define and explain commitments to ethical	3.4 identify information required to produce an

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users. [14]

sourcing and responsible procurement. [15]

ecological study related to the specified project. [16]

1.5 write a mission statement for the project. [17]

2.5 define and explain sustainability monitoring and reporting procedures for the lifecycle of the project. [18]

3.5 identify information required to produce a hydrology study and relate to the specified project. [19]

Level 3, Unit 2 - Developing a Sustainable Construction Project (10 credits)

1. Prepare a design brief and take steps to appoint an effective design team.

1.1 describe the role and responsibility of the client in a construction project. [21]

1.2 prepare a design brief for a specific construction project and receive critical feedback for client sign off. [24]

1.3 formalise the appointment of an integrated Project Team in contractual terms. [27]

1.4 produce an organogram outlining professionals and their roles at each phase of the project. [30]

1.5 devise an effective communication strategy to promote collaboration between all parties. [33]

2. Use building information modelling techniques for concept design.

2.1 create preliminary concept designs based on a design brief. [22]

2.2 assess concept designs for space requirements, circulation and accessibility. [25]

2.3 assess concept design to produce preliminary cost and lifecycle cost prediction. [28]

2.4 perform energy analysis relative to form, orientation, weather, surfaces and glazing. [31]

2.5 present information for whole project lifecycle providing validation for chosen model. [34]

3. Prepare information and resources needed to support a planning application.

3.1 explain the planning process for a specific construction project. [23]

3.2 make use of current legislation and guidance. [26]

3.3 prepare a planning feasibility study for a specific construction project. [29]

3.4 describe what is meant by the term ‘undesirable precedent’ in planning decisions and provide an example of such. [32]

3.5 formulate justification and present evidence for the approval of a specific project. [35]

Level 3, Unit 3 - Support Design, Structural and Services aspects of a Sustainable Construction Project

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(8 credits)

1. Use building information modelling techniques to develop the design	2. Use building information modelling techniques to develop structural elements of a building project	3. Use building information modelling techniques to develop building services elements of a building project
1.1 define design elements and operational practicalities to provide the basis of a building information model [37]	2.1 define and create data rich structural elements including foundations, structural walls, slabs, beams and columns [38]	3.1 define and create appropriate systems from prior research, concept analysis and operational practicalities and constraints [39]
1.2 create an architectural model using materials with properties relevant to a sustainable construction project. [40]	2.2 apply science and mathematics to structural specifications. [41]	3.2 apply science and mathematics to assess and calculate energy efficiency in a range of scenarios. [42]
1.3 validate sustainable design ideas through production of data rich detailed 3D information [43]	2.3 validate structural engineering methods through production of data rich detailed 3D information [44]	3.3 validate building services proposals through production of data rich detailed 3D information [45]
1.4 present the design model to critical design experts. [46]	2.4 present the structural model to critical structural experts. [47]	3.4 present the services model to critical services experts. [48]
1.5 resolve design errors, clashes and omissions making modifications as a result of feedback. [49]	2.5 resolve structural errors, clashes and omissions and making modifications as a result of feedback. [50]	3.5 resolve service related errors, clashes and omissions making modifications as a result of feedback. [51]

Level 3, Unit 4 - Lifecycle and Financial Planning for a Sustainable Construction Project (10 credits)

1. Use building information modelling techniques to	2. Understand cost analysis and financial control.	3. Produce a budget for a complex building project.

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support the operational management of a building.

1.1 explain the role of BIM in the operation, management and maintenance of a sustainable building project throughout its lifecycle. [53]

1.2 devise an appropriate handover process from the construction team to the end user. [56]

1.3 set targets for whole life energy performance, water consumption, waste reduction, operation and maintenance costs [59]

1.4 analyse the impact of post occupancy behaviour on the life cycle of a building. [62]

1.5 describe the benefits of early engagement of the Facilities Manager and the client/end user in the design process [65]

2.1 explain the role of BIM in the financial management of a building project. [54]

2.2 produce a cost model based on the project time line. [57]

2.3 identify points of accountability for keeping the project to budget. [60]

2.4 explain the consequences of weaknesses in financial control. [63]

2.5 devise policies for sustainable procurement to establish audit trails. [66]

3.1 compile an accurate list of capital costs. [55]

3.2 provide an annual projection for recurrent fixed costs. [58]

3.3 provide an annual projection for recurrent variable costs. [61]

3.4 provide a sensitivity analysis based on possible variations in costs. [64]

3.5 present and negotiate variations to the design within budget constraints. [67]

Level 3, Unit 5 - Evaluating and Documenting a Sustainable Construction Project (10 credits)

1. Make objective comparisons between construction methods.

1.1 compare construction methods on the basis of aesthetics and appropriateness to design intent. [69]

2. Communicate outcomes from professional perspectives.

2.1 explain the strengths and weaknesses of the design from a facilities management perspective. [70]

3. Make a presentation of a summary report to a critical audience.

3.1 support a presentation with appropriate digital technologies. [71]

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1.2 compare construction methods on the basis of cost. [72]	2.2 explain the strengths and weaknesses of the design from an architectural perspective. [73]	3.2 compare the client brief to the finished project and communicate to a professional audience. [74]
1.3 compare construction methods on the basis of sustainability. [75]	2.3 explain the strengths and weaknesses of the design from a structural engineering perspective. [76]	3.3 compare social, economic and environmental outcomes with planned intentions. [77]
1.4 compare construction methods on the basis of endurance and reliability. [78]	2.4 explain the strengths and weaknesses of the design from a building services engineering perspective. [79]	3.4 assess and validate the project's major strengths and weaknesses with supporting evidence. [80]
1.5 compare construction methods on the basis of reduction of operating costs. [81]	2.5 explain the strengths and weaknesses of the design from an end user perspective. [82]	3.5 make clear judgements about the success of the project and lessons learned for the future. [83]

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[2] http://register.ofqual.gov.uk/Detail/Index/31002?category=qualifications&query=TLM%20Level%203%20Certificate%20for%20Designing%2C%20Engineering%20and%20Constructing%20a%20Sustainable%20Built%20Environment%20(QCF)
[3] http://register.ofqual.gov.uk/Detail/Index/31004?category=qualifications&query=TLM%20Level%203%20Diploma%20for%20Designing%2C%20Engineering%20and%20Constructing%20a%20Sustainable%20Built%20Environment%20(QCF)
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