



Unit Title	Design principles and application for water industry construction projects (F/506/1626)	
Level	4	
Credit Value	12	
Learning Outcomes – the learner will be able to:	Assessment Criteria – the learner can:	
1. Understand the planning and design phases of the construction process	<ol style="list-style-type: none"> 1. discuss the planning phase of construction projects. 2. discuss the design phase of construction projects. 3. evaluate how the planning and design phases are co-ordinated and managed. 	
2. Understand the factors that affect the specification of materials and building services	<ol style="list-style-type: none"> 1. examine the factors that affect the specification of materials. 2. examine the factors that affect the specification of building services. 3. explain the financial implications of specifying materials and building services. 	
3. Understand how environmental factors affect the planning and design phases of the construction process	<ol style="list-style-type: none"> 1. discuss the environmental factors that affect construction projects. 2. evaluate environmentally responsible methods for disposing of waste materials. 3. evaluate environmentally responsible methods for promoting environmental efficiency. 	
4. Understand the roles and responsibilities of all parties involved in construction projects	<ol style="list-style-type: none"> 1. explain the roles and responsibilities of all parties involved in the planning and design phases. 2. explain the roles and responsibilities of all parties involved in the production phase. 3. evaluate the corporate and personal responsibilities of all parties involved in construction projects. 4. evaluate the impact of construction on the environment. 	
5. Understand how technology affects the design and production phases of construction projects	<ol style="list-style-type: none"> 1. discuss the modern technology available to designers, planners and builders. 2. evaluate the effect of technological advances on the various phases of construction projects. 	

Additional information about the unit	
Unit purpose and aims	<p>This unit provides learners with the opportunity to develop an understanding of the design process for water industry construction projects, and how the planning and design phases are coordinated and managed.</p> <p>On completion of the unit the learner will:</p> <ul style="list-style-type: none"> • understand the planning and design phases of the construction process • understand the factors that affect the specification of materials and building services



	<ul style="list-style-type: none">• understand how environmental factors affect the planning and design phases of the construction process• understand the roles and responsibilities of all parties involved in construction projects• understand how technology affects the design and production phases of construction projects.
Unit expiry date	31/03/2019
Assessment requirements or guidance specified by a sector or regulatory body (if appropriate)	<p>In the assessment of this unit, the learner must ensure that the evidence that they produce covers the following:</p> <ol style="list-style-type: none">1. The planning phase of construction projects must include:<ol style="list-style-type: none">(a) legal and planning constraints(b) building regulations and building control(c) disabled access legislation.2. The design phase of construction projects must include:<ol style="list-style-type: none">(a) intended use or change of use(b) relevant legislation(c) influence of shape, size, proportion, position and location(d) structural considerations of building (e.g. engineering project or plant installation)(e) effects of green, brown and reclaimed land on planning and design(f) financial implications of design(g) lifecycle cost planning (costs of commissioning; costs in use; lifecycle costing; cost modeling; facilities management).3. The factors that affect the specification of materials must include:<ol style="list-style-type: none">(a) performance in use(b) energy efficiencies (e.g. production and processing of materials)(c) environmental impact.4. The factors that affect the specification of building service must include:<ol style="list-style-type: none">(a) requirements for temporary and permanent service installations(b) disposal of waste materials during the construction process(c) disposal of waste materials during life of the building(d) sustainable urban drainage systems (SUDS)(e) renewable energy sources(f) integration of services into overall design.



	<p>5. The financial implications of specifying materials and services must cover:</p> <ul style="list-style-type: none">(a) sourcing(b) funding(c) planning(d) maintenance. <p>6. The environmental factors that affect construction projects must cover:</p> <ul style="list-style-type: none">(a) specification of sustainable materials(b) different forms of construction(c) new and renewable resources(d) use of recycled materials. <p>7. The roles and responsibilities of all parties involved in the planning, design and production phases of construction projects must cover:</p> <ul style="list-style-type: none">(a) corporate and personal roles and responsibilities(b) responsibilities associated with the current legislation that applies to the stage of the project in which they are involved. <p>8. The modern technology available to designers, planners and builders must include coverage of:</p> <ul style="list-style-type: none">(a) design methods(b) planning methods(c) modern methods of construction(d) the effect of design on construction methods. <p>9. The effect of technological advances on the various phases of construction projects must include the development of new materials, and its impact on the various stages of construction.</p> <p>The assessment of this unit will be via a combination of centre-devised assignments and tests, and will be conducted in supervised conditions. The assessment strategy for the unit has been agreed with industry stakeholders.</p>
Location of the unit within the subject/sector classification system	4.1 Engineering
Name of the organisation submitting the unit	CABWI Awarding Body
Availability for use	Shared
Unit guided learning hours	48