

This is a preview document. For the full booklet please visit
<https://hnglobal.highernationals.com/>



Pearson

Higher Nationals in

Construction/ Construction and the Built Environment

SCHEME OF WORK

UNIT: 1 Individual Project (Pearson-set)

For use with the Higher National Certificate and
Higher National Diploma in Construction

First teaching from September 2017

Issue 1



Edexcel, BTEC and LCCI qualifications

Edexcel, BTEC and LCCI qualifications are awarded by Pearson, the UK's largest awarding body offering academic and vocational qualifications that are globally recognised and benchmarked. For further information, please visit our qualification websites at www.edexcel.com, www.btec.co.uk or www.lcci.org.uk. Alternatively, you can get in touch with us using the details on our contact us page at qualifications.pearson.com/contactus

About Pearson

Pearson is the world's leading learning company, with 40,000 employees in more than 70 countries working to help people of all ages to make measurable progress in their lives through learning. We put the learner at the centre of everything we do, because wherever learning flourishes, so do people. Find out more about how we can help you and your learners at qualifications.pearson.com

References to third-party material made in this specification are made in good faith. We do not endorse, approve or accept responsibility for the content of materials, which may be subject to change, or any opinions expressed therein. (Material may include textbooks, journals, magazines and other publications and websites.) All information in this document is correct at time of publication. All the material in this publication is copyright © Pearson Education Limited 2016



Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.

All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

SCHEME OF WORK

Programme Title:	Higher Nationals in Construction	Level:	4
-------------------------	----------------------------------	---------------	---

Unit Title:	Individual Project	Tutor:	
--------------------	--------------------	---------------	--

Unit Number:	1	Academic Year:	
---------------------	---	-----------------------	--

Learning Outcomes (LO)	Assessment 1	Assessment 2	Assessment 3	Assessment 4
LO1 Formulate a project that will provide a solution to an identified problem.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO2 Manage a project within agreed timescales and specification, documenting the process throughout.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO3 Use a range of critical analysis and evaluation techniques to explore potential solutions.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LO4 Produce a project report and deliver a presentation of the final project outcomes.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.

All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

Sessions	Learning Outcome(s)	Session Activities
Session 1	All	<p>Topic: Introduction to Unit 1</p> <p>Sample activities:</p> <p>Presentation and discussion of the unit brief, Pearson-set theme and topics for student selection.</p> <p>Students review exemplar projects and discuss the different approaches to the project.</p> <p>Seminar and discussion of unit Learning Outcomes and Assessment Criteria.</p>
Session 2	LO1	<p>Topic: Project formulation and identification</p> <p>Sample activities:</p> <p>Presentation on identifying a 'problem' based on a Pearson-set theme and topics.</p> <p>Students, working in groups, identify initial 'problems' based on Pearson-set theme and topics.</p> <p>Seminar on research methods.</p>
Session 3	LO1	<p>Topic: Feasibility studies</p> <p>Sample activities:</p> <p>Presentation of examples of feasibility studies.</p> <p>Students examine and discuss exemplars of feasibility studies.</p>
Session 4	LO1	<p>Topic: Defining a brief and specification</p> <p>Sample activities:</p> <p>Student-led discussion – 'What is a brief?'</p> <p>Student-led discussion – 'What is a specification?'</p> <p>Working in groups, students develop a brief and specification for their project proposals, based on work from Session 2.</p>
Session 5	LO2	<p>Topic: Project management</p> <p>Sample activities:</p> <p>Presentation on 'Resources and Resource Planning'.</p> <p>Students, working individually, begin to identify resources required in relation to their proposed project. Outcomes are shared with the group for discussion.</p>
Session 6	LO2	<p>Topic: Project management</p> <p>Sample activities:</p> <p>Presentation on 'Costs and Cost Planning'.</p> <p>Students, working individually, begin to identify costs associated with the resources (physical and human) that are required for their proposed project. Outcomes are shared with the group for discussion.</p>



Sessions	Learning Outcome(s)	Session Activities
Session 7	LO2	<p>Topic: Project management</p> <p>Sample activities:</p> <p>Presentation on 'Work Plans'. Gantt Charts Project Evaluation and Review Technique (PERT) Charts Critical Path Method (CPM)</p> <p>Working in groups, students explore different strategies for developing a 'Work Plan.' During the session, students are encouraged to try different techniques for mapping their plan.</p>
Session 8	LO2	<p>Topic: Project management</p> <p>Sample activities:</p> <p>Student-led discussion on project tracking. Students should bring examples of their work plans (developed in Session 7). Milestones Time adjustments based on progress Constraints and predecessors</p> <p>Following discussion, students (working in groups) begin to looking at updating plans based on progress, identifying milestones, predecessors, etc.</p>
Session 9	All	<p>Topic: Assessment workshop</p> <p>Sample activities:</p> <p>Discussion and workshop on assessment. Students are introduced to the assessment process for the unit, revisit learning outcomes and criteria. Discussion of submission requirements for the unit.</p> <p>Working in groups, students will undertake a 'mock' assessment of exemplar projects. Exemplars are chosen from the range of pass, merit, distinction. Students will use the same assessment/feedback forms that will be used when their work is assessed.</p> <p>Following 'mock' assessments, student-led discussion of the experience of assessing, highlighting challenges and how the session has informed their understanding of how they will approach their work for submission.</p>
Session 10	All	<p>Topic: Interim project review (1)</p> <p>Sample activities:</p> <p>Each student to present a ten-minute overview of their project, showing work-to-date, project plan and how they plan to proceed. Verbal feedback on presentations from students and tutors. Written feedback notes to be taken by students working in pairs.</p>
Session 11	All	<p>Topic: Project review feedback</p> <p>Sample activities:</p> <p>Tutor presentation on current state of student projects, following Session 10. Student-led discussion about 'next steps' challenges and opportunities.</p>



Sessions	Learning Outcome(s)	Session Activities
Session 12	LO4	<p>Topic: Project reports</p> <p>Sample activities:</p> <p>Tutor presentation of report formats, standards, examples.</p> <p>Collaborative workshop for students to develop outline for their project report.</p>
Session 13	LO3	<p>Topic: Analysis and evaluation techniques</p> <p>Sample activities:</p> <p>Presentation on types of analysis and evaluation.</p> <p>Discussion of how to define criteria for evaluation</p> <p>Analysis using PERT</p> <p>Analysis using CPM</p> <p>Other forms of analysis</p> <p>Working in groups, students share project information and discuss with peers the criteria that they will use to evaluate their project.</p>
Session 14	LO3	<p>Topic: Analysis and evaluation</p> <p>Sample activities:</p> <p>Working in groups, students review a range of reports to identify:</p> <p>Criteria for evaluation</p> <p>Evaluation technique</p> <p>Project success/failure</p> <p>Discussion of group findings.</p>
Session 15	All	<p>Topic: Project surgery</p> <p>Sample activities:</p> <p>Students may meet with tutor, individually or in groups, to discuss their projects and receive advice in support of developing final outcomes, report and presentation.</p>
Session 16	LO4	<p>Topic: Presenting reports</p> <p>Sample activities:</p> <p>Tutor presents a project report (modelling what will be expected from student presentations).</p> <p>Students critique the tutor presentation, highlighting areas of good practice and things to improve.</p> <p>Discussion of effective presentation techniques.</p>
Session 17	All	<p>Topic: Project surgery</p> <p>Sample activities:</p> <p>Students may meet with tutor, individually or in groups, to discuss their projects and receive advice in support of developing final outcomes, report and presentation.</p>
Session 18	All	<p>Topic: Report submission and presentation</p> <p>Sample activities:</p> <p>Students will submit their report and give a 20-minute presentation of their work.</p>



Sessions	Learning Outcome(s)	Session Activities
Session 19	All	Topic: Report submission and presentation Sample activities: Students will submit their report and give a 20-minute presentation of their work.
Session 20		Topic: Unit Review Sample activities: Student-led discussion of the unit and projects. Tutor general feedback and discussion of how this unit will support other areas of study.



Pearson Higher Nationals in Construction

SCHEME OF WORK

UNIT: 2 Construction Technology

For use with the Higher National Certificate and
Higher National Diploma in Construction

First teaching from September 2017

Issue 1



Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.
All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

Edexcel, BTEC and LCCI qualifications

Edexcel, BTEC and LCCI qualifications are awarded by Pearson, the UK's largest awarding body offering academic and vocational qualifications that are globally recognised and benchmarked. For further information, please visit our qualification websites at www.edexcel.com, www.btec.co.uk or www.lcci.org.uk. Alternatively, you can get in touch with us using the details on our contact us page at qualifications.pearson.com/contactus

About Pearson

Pearson is the world's leading learning company, with 40,000 employees in more than 70 countries working to help people of all ages to make measurable progress in their lives through learning. We put the learner at the centre of everything we do, because wherever learning flourishes, so do people. Find out more about how we can help you and your learners at qualifications.pearson.com

References to third-party material made in this specification are made in good faith. We do not endorse, approve or accept responsibility for the content of materials, which may be subject to change, or any opinions expressed therein. (Material may include textbooks, journals, magazines and other publications and websites.) All information in this document is correct at time of publication. All the material in this publication is copyright © Pearson Education Limited 2016



Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.
All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

SCHEME OF WORK

Programme Title:	Higher Nationals in Construction	Level:	4
-------------------------	----------------------------------	---------------	---

Unit Title:	Construction Technology	Tutor:	
--------------------	-------------------------	---------------	--

Unit Number:	2	Academic Year:	
---------------------	---	-----------------------	--

Learning Outcomes (LO)	Assessment 1	Assessment 2	Assessment 3	Assessment 4
Assess individual and group skills in order to allocate roles within a collaborative team	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plan a construction project, in collaboration with others, to ensure good practice in resource management, staffing and project scheduling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prepare tender documentation, in response to a tutor-set scenario; undertaking work appropriate to a defined role within a team	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Critically evaluate your own work, and the work of others, in a collaborative team	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Please note that Schemes of Work are for guidance and support only.

They can be customised and amended according to localised needs and requirements.

All schemes of work can be adapted to suit specific establishment time frames in line with GLH delivery.

Sessions	Learning Outcome(s)	Session Activities
Session 1	LO1	<p>Topic: Introduction to construction technology</p> <ul style="list-style-type: none">Private and public sector.Low, medium and high rise buildings.Domestic buildings.Dwellings, flats and other buildings of multi-occupancy. <p>Sample activities:</p> <ul style="list-style-type: none">Students to discuss and compile a list of the functional requirements of residential buildings.Identify client's requirements.
Session 2	LO1	<p>Topic: Commercial buildings</p> <ul style="list-style-type: none">Office/administration blocks.Warehouses/light industrial.Shops and commercial premises. <p>Sample activities:</p> <ul style="list-style-type: none">Students to discuss and compile a list of the functional requirements of commercial buildings.Identify client's requirements.
Session 3	LO1	<p>Topic: Construction technology terminology</p> <ul style="list-style-type: none">Loadbearing and non-loadbearing elements.Structural pathways.Movement and structural behaviour.Settlement and subsidence. <p>Sample activities:</p> <ul style="list-style-type: none">Students will identify and list the elements of a building which are load- and non-loadbearing and identify the types of loads to which they are exposed.
Session 4	LO1	<p>Topic: Construction technology terminology</p> <ul style="list-style-type: none">Durability.Thermal expansion.Resistance to heat loss and thermal transmission.Weather and moisture resistance. <p>Sample activities:</p> <ul style="list-style-type: none">Students will describe the characteristics of materials and appraise them for durability, thermal expansion, resistance to heat loss and thermal transmission, and weather and moisture resistance.



Sessions	Learning Outcome(s)	Session Activities
Session 5	LO1	<p>Topic: Construction technology terminology Buildability. Standardisation and dimensional co-ordination. Sustainability and scarcity. On-site and off-site construction. Legal requirements.</p> <p>Sample activities: Students will list and describe materials used in construction which promote buildability including standardisation and off-site construction. The students will list the benefits of this in relation to quality and health and safety. Students will research one building material in terms of scarcity and sustainability and propose alternatives to overcome this problem.</p>
Session 6	LO2	<p>Topic: Substructures – pre-design studies Desk-top study. Walkover or reconnaissance survey. Direct soil investigation.</p> <p>Sample activities: Students will compile a checklist for use with the pre-design studies and discuss the types of information to be collate.</p>
Session 7	LO2	<p>Topic: Substructures – factors influencing the design of substructures Disturbed and undisturbed samples. Characteristics of different soils including water and chemical content. Legal requirements including the position of trees. Health and safety. Economic and plant requirements.</p> <p>Sample activities: Students will research the impact of the subjects in the sub-topic and compile a report on how they influence the design of foundations.</p>
Session 8	LO2	<p>Topic: Substructures – foundation types Shallow foundations – strip and deep strip. Raft foundations. Materials. Plant requirements.</p> <p>Sample activities: Students will describe the construction process of different shallow foundations. Students will appraise shallow foundations against different types of buildings. Students will design a shallow foundation using a tutor-led scenario.</p>



Sessions	Learning Outcome(s)	Session Activities
Session 9	LO2	<p>Topic: Substructures – foundation types Deep foundations – pad and pile. Replacement and Displacement piles. Plant requirements. Materials. Sample activities: Students will describe the construction process of different type of deep foundations. Students will appraise deep foundations against different types of buildings. Students will design a deep foundation using a tutor-led scenario.</p>
Session 10	LO2	<p>Topic: Superstructure – elements Primary and Secondary elements. Finishes. Building Services. Sample activities: Students will describe the difference between the elements listed above. Students will research two examples from each of the elements.</p>
Session 11	LO2	<p>Topic: Superstructure – functional requirements and design selection criteria External walls. Traditional and framed construction. Cladding systems – panel systems. Infill systems, composite panel systems. Internal partition walls. Window and door opening details. Sample activities: Students will describe the construction techniques for the range of walls listed in the sub-topics. Students will evaluate the use of the range of walls for different building types.</p>
Session 12	LO2	<p>Topic: Superstructure – functional requirements and design selection criteria Roof construction. Pitched roofs. Flat roofs. Space frame roofs. Roof coverings. Sample activities: Students will describe the construction techniques for the range of roof structures listed in the sub-topics. Students will evaluate the use of the range of roofs for different building types.</p>
Session 13	LO2	<p>Topic: Superstructure – functional requirements and design selection criteria Floors – ground and intermediate. Timber. Beam and block. Pre-cast concrete plank. Steel profile decking. Sample activities: Students will describe the construction techniques for the range of floor structures listed in the sub-topics. Students will evaluate the use of the range of floors for different building types.</p>



Sessions	Learning Outcome(s)	Session Activities
Session 14	LO2	<p>Topic: Superstructure – functional requirements and design selection criteria</p> <p>Staircases. Precast concrete stairs. Steel staircases. Timber staircases. Means of escape.</p> <p>Sample activities: Students will describe the construction techniques for the range staircases listed in the sub-topics. Students will evaluate the use of the range of staircases for different building types.</p>
Session 15	LO2	<p>Topic: Superstructure – functional requirements and design selection criteria</p> <p>Ceiling finishes: suspended ceilings, jointless ceilings, jointed ceilings, open ceilings, fire resistance. Wall finishes: partition walls, demountable and permanent, sound insulation, fire resistance. Floor finishes: screeds, timber, floating floors, raised access flooring, fire resistance.</p> <p>Sample activities: Students will produce illustrations showing how the finishes are fixed to the primary elements. Students will research one proprietary finish for ceiling wall and floor and evaluate them for their functional criteria.</p>
Session 16	LO3	<p>Topic: Building services supply</p> <p>Cold and hot water supply. Gas supply: gas-fired boilers, flues to gas-burning appliances. Domestic and commercial electrical supply: single phase and three phase supply.</p> <p>Sample activities: Students will produce illustrations showing common arrangements for the supply of the services in the range. Students will research the common legislation and regulations surrounding the supply of services.</p>
Session 17	LO3	<p>Topic: Building services distribution</p> <p>Cold water distribution: cistern feed and cold water supply, mains pressure supply and recycled water systems. Hot water distribution: central and local hot water supply, unvented and expansion vessels, indirect and heat exchanger systems. Gas supply distribution: gas flues and room sealed appliances. Electrical supply: electrical circuits, earth systems, overcurrent protective devices, final circuits, loop-in systems. Services interface: raised access flooring, rising ducts, suspended ceilings, ductwork.</p> <p>Sample activities: Students will describe how the primary services are circulated throughout the building including the identification of any legal or regulatory requirements. Students will identify the provisions made within the elements of the building to facilitate services supply and distribution.</p>



Sessions	Learning Outcome(s)	Session Activities
Session 18	LO4	<p>Topic: Site remediation and de-watering Contamination: cut-off techniques, encapsulation. Soil remediation: stone piling, vibro-compaction. De-watering: sheet piling, secant piling, grout injection, pumping wells, electro-osmosis. Legal requirements. Sample activities: Students will explore the techniques in the range and use illustrations to explain how they are constructed and used. Identify any legal or regulatory requirements relating to these techniques.</p>
Session 19	LO4	<p>Topic: Substructure works Basement construction. Sheet piling. Concrete diaphragm walls. Coffer dams and caissons. Culverts. Sample activities: Students will explore the techniques in the range and use illustrations to explain how they are used. Students will discuss the Health and Safety requirements surrounding works in permanent excavations.</p>
Session 20	LO4	<p>Topic: Superstructure – structural frames Concrete frames: composite cast-insitu, pre-cast, pre-stressed. Concrete frame construction: formwork, reinforcement fabrication, placing and compaction of concrete. Steel frames: welded and bolted connections, base plate, beam to column connections, column to column connections, wind bracing, fire protection. Sample activities: Students will explore the techniques in the range and use illustrations to explain how they are used. Students will discuss the Health and Safety requirements surrounding works in permanent excavations.</p>

