



Arrangements for: HNCs and HNDs in Built Environment

G877 15 — HNC Construction
G875 15 — HNC Architectural Technology
G878 15 — HNC Construction Management
G876 15 — HNC Building Surveying
G879 15 — HNC Quantity Surveying
G87D 16 — HND Architectural Technology
G87F 16 — HND Construction Management
G87E 16 — HND Building Surveying
G87A 16 — HND Quantity Surveying
G87C 16 — HND Facilities Management

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History of changes

It is anticipated that changes will take place during the life of the qualification, and this section will record these changes. This document is the latest version and incorporates the changes summarised below.

Version number	Description	Date	Authorised by

1 Introduction

This is the Arrangements document for the new Group Award in the Built Environment, which was/were validated in July 2006. This document includes: background information on the development of the Group Award, its aims, guidance on access, details of the Group Award structure, and guidance on delivery.

The Built Environment embraces Construction, Architectural Technology, Construction Management, Building Surveying, Quantity Surveying and Facilities Management.

The Group Award includes:

Construction	HNC
Architectural Technology	HNC and HND
Construction Management	HNC and HND
Building Surveying	HNC and HND
Quantity Surveying	HNC and HND
Facilities Management	HND

A review of the Built Environment and Civil Engineering awards commenced in the autumn of 2003. Separate Steering and Working Groups, involving employers, Professional Institutions and HE/FE were created.

The current review and modernisation of Higher National provision for technicians in the built environment sector is the first major review of the suite of qualifications validated in 1999.

The Built Environment is closely linked with Civil Engineering. In order to maximise the potential for commonality of objective, structure and delivery, the two development processes have been very closely linked.

‘FutureSkills Scotland’, a Scottish Sector Skill Profile 2005, was published by the Construction Industry Training Board, Highlands and Islands Enterprise and Scottish Enterprise. The FutureSkills report embraces the Built Environment disciplines within the category of Construction. The data available at www.futureskillsscotland.org.uk provides a broad skill analysis indicating generally that:

*There are around 17,300 **construction** sector workplaces in Scotland, employing 137,900 people — about 6% of all Scottish jobs.*

2 Rationale for the development of the Group Award

Since the previous implementation of SQA awards in The Built Environment there have been many changes in technology and practice arising from socio-economic, environmental and cultural factors.

Consultations have evidenced a need for the following qualifications to satisfy the requirements of employers, full and part-time college markets and articulation to Higher Education:

Construction	HNC
Architectural Technology	HNC and HND
Construction Management	HNC and HND
Building Surveying	HNC and HND
Quantity Surveying	HNC and HND
Facilities Management	HND

The Higher National Certificates and Diplomas in the Built Environment have been designed to provide:

- ◆ national qualifications, with detailed common standards, learning Outcomes and Unit grading recognisable to centres, candidates, employers and professional bodies
- ◆ a common core of study
- ◆ a choice of optional Units appropriate to the main career disciplines of the Built Environment sector
- ◆ flexible approach within a national framework
- ◆ the opportunity to preserve and build upon existing good practice
- ◆ compatibility with feeder qualifications
- ◆ a response to changing training and educational needs
- ◆ a preparation for employment
- ◆ a contribution to the skills, knowledge and understanding required to underpin relevant occupational standards and SVQs
- ◆ progression to various points of entry to degree programmes

In the design of the programmes, employer needs are balanced with the necessity to provide candidates with the opportunity to maximise their potential, to achieve widely recognised qualifications and to progress within the industry.

The need for technician awards to be enabling, relevant, and to add value is recognised in the recent industry reports. The proposed suite of awards offers this and in addition presents maximum flexibility for learners, employers, and educational establishments. This should increase the attractiveness and availability of the proposed qualifications.

The HNC Construction is the ‘generalist’ course providing the essential skills and knowledge for the variety of construction technician roles. Such technicians and senior technicians might progress, in the light of changing job roles, to additional specialist HNCs or in the case of full time students, to the second year of a specialist HND. The qualification also provides certain transferable Core Skills. Candidates with appropriate qualifications and vocational orientation would enter the specialist HNDs.

Conditions of the Group Award

Candidates must satisfy the following SQA design criteria for HNC and HND awards:

Design criteria	HNC	HND
SCQF level	7	8
Min credits	12	30
Min total credit points	96 * (12 Credits)	240 * (30 Credits)
Min points by level	48 at level 7	64 at level 8
Min mandatory credit points	48 *	96 *
Graded Unit	8 points at 7	8 points at 7 + 16 points at 8
*Including Graded Units		

Note:

1 HN Credit =8 SCQF points at the appropriate level.

Each SQA single credit Unit carries a notional contact time allocation of 40 hours, with additional candidate self-directed study time of 40 hours. Hence the minimum contact time for an HNC is 480 hours and for an HND is 1,200.

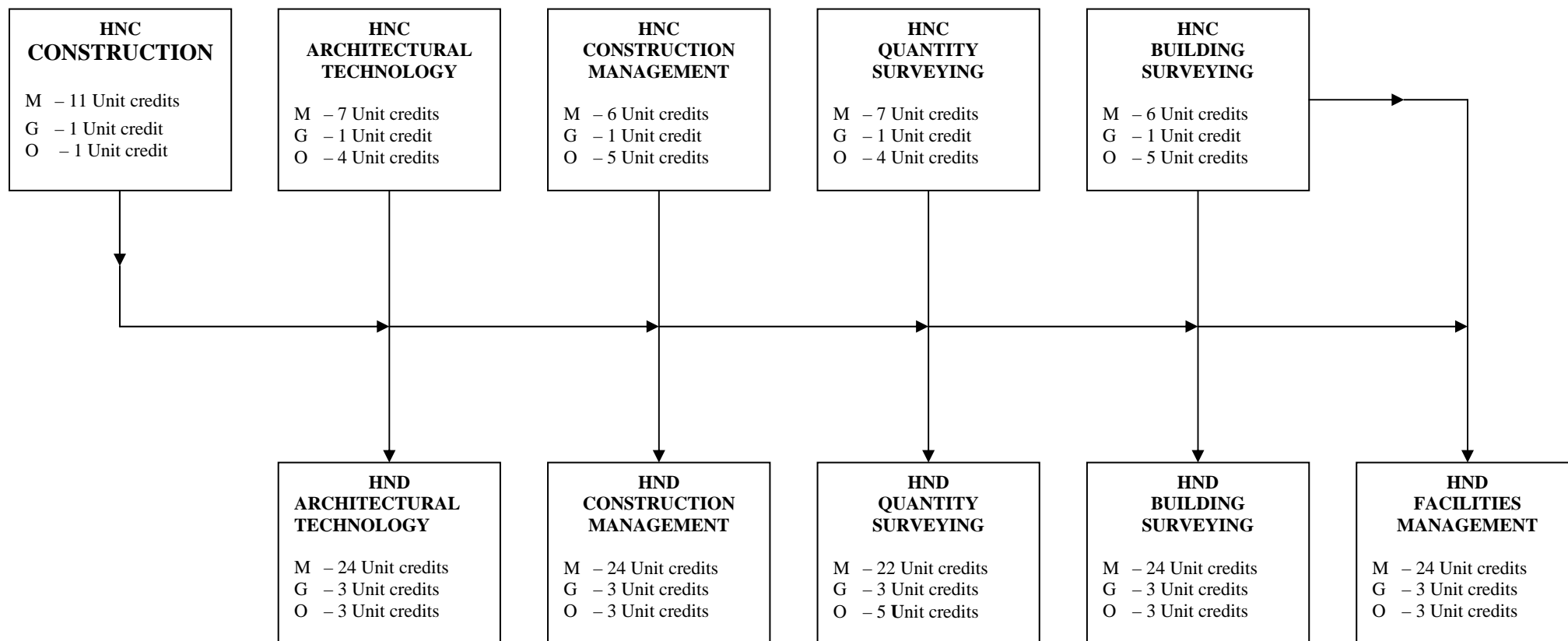
HNC

Candidates will therefore be awarded an HNC on successful completion of 96 SCQF credit points including successful achievement of all mandatory Units and the Graded Unit.

HND

Candidates will be awarded an HNC on successful completion of 240 SCQF credit points including successful achievement of all mandatory Units and the Graded Unit.

Structure of the proposed Group Award Framework



Note:

1 credit Unit = 8 SCQF credit points

M — Mandatory Unit credits (excluding Graded Unit credits)

G — Mandatory Graded Unit credits

O — Optional Unit credit

Unit title	Unit code	SCQF credit points	SQA credit	SCQF credit level
Architectural Design Sketching and Drawing	DW3R 34	8	1	7
Architectural Procedures and Design	DW3P 34	8	1	7
Building Inspection	DW50 34	8	1	7
Building Maintenance Management	DW51 34	8	1	7
Building Maintenance Technology	DW52 34	8	1	7
Building Measurement and Cost Studies	DW3X 34	8	1	7
Building Science	DW4H 34	8	1	7
Building Services - Introduction	DW4P 33	8	1	6
Building Services in Large Buildings	DW4R 35	8	1	8
Building Services: Heating, Lighting & Acoustics	DW4M 35	8	1	8
Building Services: Ventilation, Air-conditioning & Refrigeration	DW4N 35	8	1	8
CAD 2-D 1	DW1E 34	8	1	7
CAD: 3-D Modelling	DW13 34	16	2	7
CAD: Architectural 1	DW1D 34	8	1	7
Construction Industry: An Introduction	DW41 34	8	1	7
Construction Materials and Specifications	DW53 34	8	1	7
Construction Planning	DW4J 35	8	1	8
Construction Site Surveying A	DW5H 34	8	1	7
Construction Site Surveying B	DW5J 34	8	1	7
Construction Technical Communication Skills	DW4D 34	8	1	7
Construction Technology: Domestic Construction	DW54 33	8	1	6
Construction Technology: Indust/Comm Superstructure	DW55 34	8	1	7
Construction Technology: Specialist Systems	DW56 35	8	1	8
Construction Technology: Substructure	DW57 34	8	1	7
Conversion and Adaptation of Buildings	DW3T 35	8	1	8
Data and Telecommunications Infrastructure	DW4T 35	8	1	8
Design of Building Structures	DW3V 34	8	1	7
Economics and the Built Environment	DW3G 35	8	1	8
Estimating	DW3H 34	8	1	7
Facilities Management: Operational and Support Services	DW4V 35	8	1	8
Facilities Management: Property Services	DW4W 35	8	1	8
Facilities Resource Planning and Contract Management	DW4Y 35	8	1	8
Financial Studies for the Construction Industry	DW3J 35	8	1	8
Fire Safety in Buildings	DW4X 35	8	1	8
Health and Safety in Construction	DW4E 34	8	1	7
HNC Architectural Technology Graded Unit 1	DX1X 34	8	1	7
HNC Building Surveying Graded Unit 1	DX1Y 34	8	1	7
HNC Construction Graded Unit 1	DX20 34	8	1	7
HNC Construction Management Graded Unit 1	DX21 34	8	1	7
HNC Quantity Surveying Graded Unit 1	DX22 34	8	1	7
HND Architectural Technology Graded Unit 2	DX25 35	16	2	8
HND Building Surveying Graded Unit 2	DX26 35	16	2	8
HND Construction Management Graded Unit 2	DX27 35	16	2	8
HND Facilities Management Graded Unit 2	DX24 35	16	2	8
HND Quantity Surveying Graded Unit 2	DX23 35	16	2	8
Human Resource Management in Construction	DW4K 35	8	1	8
Managing Construction Organisations	DW43 35	8	1	8

Unit title	Unit code	SCQF credit points	SQA credit	SCQF credit level
Mathematics for Construction	DW4F 33	8	1	6
Personal Development and Planning (DE3R 34)	DE3R 34	8	1	7
Quality in Construction	DW4G 34	8	1	7
Quantitative Building Studies: Building Services	DW3K 34	8	1	7
Quantitative Building Studies: Floors and Roofs	DW3L 34	8	1	7
Quantitative Building Studies: Substructure and Drainage	DW3M 34	8	1	7
Quantity Surveying Practice	DW3Y 35	8	1	8
Scottish Law for Construction	DW42 35	8	1	8
Site Administration	DW4L 34	8	1	7
Standard Forms of Construction Contract	DW3N 35	8	1	8
Statutory Control of Buildings	DW3W 34	8	1	7
Structural Mechanics	DW35 34	8	1	7
Surveying Historic Buildings	DW40 35	8	1	8
Work Role Effectiveness (DG6E 34)	DG6E 34	8	3	7

3 HNC Construction

3.1 Rationale

Recent research has highlighted the need for qualified competent practitioners in the construction industries. This need includes the requirement for technician skills as the construction industry changes its emphasis from a predominately craft to a technical/assembly form, utilising all the modern equipment and techniques available for surveying, setting out and construction drawing. Potential employers range from Architects, Contractors and Building Control to Housing Associations and other Property functions.

In education, the Scottish Credit and Qualifications Framework have stressed the need for clarification of the relationships between qualifications, and for making routes for progression easier.

The HNC Construction therefore is the 'generalist' course providing the essential skills and knowledge for the construction technician/senior technician who may in the context of changed work responsibilities, add units to achieve specialist HNCs or in the case of the full time student situation, to progress to the second year of a specialist HND. The HNC qualification also provides certain transferable Core Skills which enhances the employability of successful candidates.

The HNC Construction, representing 12 Units of the 15 Unit HNDs in the Built Environment specialisms, allows the full time candidate to exit at the end of year 1 of an HND Programme, with an HNC. This is in accordance with the need for acknowledged exit points for candidates who may obtain appropriate employment and transfer from full time to part time/flexible training.

3.2 Aims of the Qualification

Target candidate group

The HNC programme is suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from a lower level award in construction or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

General aims — to develop:

- ◆ skills of study, research and analysis
- ◆ ability to define and solve problems
- ◆ transferable skills
- ◆ ability to be flexible and work cooperatively with others
- ◆ responsibility for own learning
- ◆ planning, organisational and review/evaluation skills
- ◆ technical skills — broadening and deepening
- ◆ oral, written and pictorial communication skills
- ◆ numerical and ICT skills
- ◆ resource management ability
- ◆ flexibility, knowledge, skills and motivation as a basis for progression to graduate and postgraduate studies

Specific aims are to:

- ◆ Prepare candidates for employment as technicians, senior technicians and supervisors in the mainstream construction industry with a range of employers range including Architects, Contractors, Building Control, Housing Associations and other property responsibilities.
- ◆ Provide candidates with a range of contemporary vocational skills utilising modern equipment and techniques available for surveying, setting out, construction drawing and correct use of building materials thus enabling candidates to make an immediate contribution in employment in the built environment sector
- ◆ Provide a choice of optional Units that will allow candidates to develop in other areas relevant to future employment or progression via an HND in one of the Built Environment disciplines or Higher Education.
- ◆ Enable candidates to achieve appropriate professional body recognition, in particular but not exclusively, the Chartered Institute of Building and the Institute of Clerks of Works.

3.3 Recommended access

As with all SQA qualifications, access to the awards will be at the discretion of the centre. The following recommendations are for guidance only.

Access to HNC Construction

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC or NC in a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include science and/or technology
- ◆ an SVQ in Civil Engineering or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success
- ◆ a craft qualification combined with appropriate further study, prior to, or in parallel with, the HNC programme

Work Experience

Mature candidates with suitable relevant work experience may be accepted for entry, or advanced entry; provided the enrolling centre believes that the candidate is likely to benefit from undertaking the awards. Centres may wish to use Core Skills profiling to assist them in this process.

Accreditation of Prior Experiential Learning (APEL)

Candidates may be granted Accreditation of Prior Experiential Learning (APEL) in respect of underpinning knowledge previously gained or skills developed in relevant employment. Such APEL might allow a candidate entry to, or advanced entry in, an HNC or HND. All such decisions should be referred to a Moderator.

Access during transition between current and new awards

During the period of transition from existing qualifications to the new HNCs and HND candidates might be eligible for credit transfer. Such eligibility is discussed further in Appendix 1.

3.4 Structure of the Award

Mandatory and Optional Units — HNC Construction

Unit title	Unit code	SCQF credit points	SQA credit	SCQF level	Unit status
Architectural Design Sketching and Drawing	DW3R 34	8	1	7	M
Building Measurement and Cost Studies	DW3X 34	8	1	7	M
Building Science	DW4H 34	8	1	7	M
Building Services: Introduction	DW4P 33	8	1	6	M
CAD 2-D 1	DW1E 34	8	1	7	M
Construction Industry: An Introduction	DW41 34	8	1	7	M
Construction Materials and Specifications	DW53 34	8	1	7	M
Construction Site Surveying A	DW5H 34	8	1	7	M
Construction Technical Communication Skills	DW4D 34	8	1	7	M
Construction Technology: Domestic Construction	DW54 33	8	1	6	M
Construction Technology: Substructure	DW57 34	8	1	7	M
Health and Safety in Construction	DW4E 34	8	1	7	O
HNC Construction Graded Unit 1	DW20 34	8	1	7	M
Required Credits					12

3.5 Guidance for Candidates

The HNCs in Construction is designed to equip you with the knowledge, understanding and skills to allow you to gain employment in the construction sector or to progress to an HND in another built environment discipline and/or to higher education or professional body qualification.

The HNC comprises 12 mandatory credits, including the Graded Unit, all of which you will need to complete successfully.

For each Unit, except the Graded Unit, you will need to perform sufficiently well to achieve a Pass. The Graded Units are designed to assess your ability to retain and integrate the knowledge and skills gained in the award and also to grade your overall achievement. There are three grades — ‘A’ if you achieve 70% or over; ‘B’ if you achieve between 60% and 69% and ‘C’ if you achieve between 50% and 59%. The Graded Unit task at HNC and HND will be a Project which might take the form of a Case Study or Investigation.

4 HNC and HND Architectural Technology

4.1 Rationale

Architectural Technicians are employed in private practice and work with Architects, Surveyors, Interior Designers and Architectural Technologists. They can also be employed by specialist design/build contractors, local authorities and larger organisations to provide in-house design/drafting services.

The HND in Architectural Technology should allow progression with advanced entry to appropriate degree courses in Architectural Technology. In Scotland this would be articulation into level 3 of the programmes offered at Bell College (with Strathclyde University), Napier University and Robert Gordon University.

CIAT, the recognised professional body representing Architectural Technicians, states 'The Architectural Technician will be able to establish the purpose, methods and techniques for preparing detailed design solutions' this activity in the context of the design of new buildings and adaptation of existing buildings. The required level of academic qualification for the function of the architectural technician as defined above is an HNC with appropriate experiential learning or the full-time HND followed by structured and evidenced experiential learning. The mechanism for verifying the experiential learning is the Professional and Occupational Performance Record required as part of the process of attaining Technician membership of the Chartered Institute of Architectural Technologists (TCIAT).

CIAT states that the Architectural Technician function includes 'the preparation, co-ordination and communication of technical information including drawings, graphical information, reports and schedules, contributing to meeting relevant statutory regulations and controlling projects by monitoring agreed quality standards and obtaining, recording and organising information.'¹

Specific Skills include:

- ◆ preparing design proposals using CAD and traditional methods
- ◆ contributing to the detailed design process and co-ordinating detailed design information
- ◆ preparing specifications for construction work
- ◆ preparing drawings, plans and documents for statutory approvals
- ◆ contribute to design stage risk assessment
- ◆ collating and organising technical information
- ◆ contributing to meetings and document preparation

Investigating technical information and factors that affect developments, including:

- ◆ user needs
- ◆ site and building surveys
- ◆ regulatory requirements
- ◆ preparing regulatory applications

4.2 Aims of the Qualification

Target candidate group

The HNC programme is suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from a lower level award in Architectural Technology or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

The HND programme is suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from an HNC in Construction or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

General aims — to develop:

- ◆ skills of study, research and analysis
- ◆ ability to define and solve problems
- ◆ transferable skills
- ◆ ability to be flexible and work cooperatively with others
- ◆ responsibility for own learning
- ◆ planning, organisational and review/evaluation skills
- ◆ technical skills- broadening and deepening
- ◆ oral, written and pictorial communication skills
- ◆ numerical and ICT skills
- ◆ resource management ability
- ◆ flexibility, knowledge, skills and motivation as a basis for progression to graduate and postgraduate studies

Specific aims are to:

- ◆ Prepare candidates for employment as Architectural Technicians in private practice working with Architects, Surveyors, Interior Designers and Architectural Technologists in specialist design/build contractors, local authorities and larger organisations with in-house design/drafting services.
- ◆ Provide candidates with a range of contemporary vocational skills including the preparation, co-ordination and communication of technical information including drawings, graphical information, reports and schedules, contributing to meeting relevant statutory regulations and controlling projects by monitoring agreed quality standards and obtaining, recording and organising information.
- ◆ Provide a choice of optional Units that will allow candidates to develop in other areas relevant to future employment or progression via an HND in one of the Built Environment disciplines or Higher Education.
- ◆ Enable candidates to achieve appropriate professional body recognition, in particular but not exclusively, the Chartered Institute of Architectural Technology, as 'TCIAT'.

4.3 Recommended Access

As with all SQA qualifications, access to the awards will be at the discretion of the centre. The following recommendations are for guidance only.

Access to HNC in Architectural Technology

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC or NC in a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include science and/or technology.
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success
- ◆ a craft qualification combined with appropriate further study, prior to, or in parallel with, the HNC programme

Access to HND in Architectural Technology

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC in Construction, Architectural Technology or a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include mathematics and science and/or technology
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success

Work Experience

Mature candidates with suitable relevant work experience may be accepted for entry, or advanced entry; provided the enrolling centre believes that the candidate is likely to benefit from undertaking the awards. Centres may wish to use Core Skills profiling to assist them in this process.

Accreditation of Prior Experiential Learning (APEL)

Candidates may be granted Accreditation of Prior Experiential Learning (APEL) in respect of underpinning knowledge previously gained or skills developed in relevant employment. Such APEL might allow a candidate entry to, or advanced entry in, an HNC or HND. All such decisions should be referred to a Moderator.

Access during transition between current and new awards

During the period of transition from existing qualifications to the new HNCs and HND candidates might be eligible for credit transfer. Such eligibility is discussed further in Appendix 1.

4.4 Structure of the Award Architectural Technology

Unit title	Unit code	SCQF credit points	SQA credit	SCQF level	HNC AT	HND AT
Architectural Design Sketching and Drawing	DW3R 34	8	1	7	M	M
Architectural Procedures and Design	DW3P 34	8	1	7	M	M
Building Maintenance Technology	DW52 34	8	1	7		O
Building Measurement and Cost Studies	DW3X 34	8	1	7	O	M
Building Science	DW4H 34	8	1	7		M
Building Services - Introduction	DW4P 33	8	1	6	O	M
Building Services in Large Buildings	DW4R 35	8	1	8	O	M
Building Services: Heating, Lighting & Acoustics	DW4M 35	8	1	8	O	M
Building Services: Ventilation, Air-conditioning & Refrigeration	DW4N 35	8	1	8		O
CAD 2-D 1	DW1E 34	8	1	7	M	M
CAD 3-D Modelling	DW13 34	16	2	7		O
CAD: Architecture 1	DW1D 34	8	1	7		M
Construction Industry: An Introduction	DW41 34	8	1	7		M
Construction Materials and Specifications	DW53 34	8	1	7	M	M
Construction Planning	DW4J 35	8	1	8		O
Construction Site Surveying A	DW5H 34	8	1	7		M
Construction Technical Communication Skills	DW4D 34	8	1	7	O	M
Construction Technology: Domestic Construction	DW54 33	8	1	6	O	M
Construction Technology: Indust/Comm Superstructure	DW55 34	8	1	7	M	M
Construction Technology: Specialist Systems	DW56 35	8	1	8		M
Construction Technology: Substructure	DW57 34	8	1	7	M	M
Conversion and Adaptation of Buildings	DW3T 35	8	1	8		M
Design of Building Structures	DW3V 34	8	1	7	M	M
Fire Safety in Buildings	DW4X 35	8	1	8		M
Health and Safety in Construction	DW4E 34	8	1	7	O	O
HNC Architectural Technology Graded Unit 1	DX1X 34	8	1	7	M*	M*
HND Architectural Technology Graded Unit 2	DX25 35	16	2	8		M
Mathematics for Construction	DW4F 33	8	1	6		M
Personal Development and Planning	DE3R 34	8	1	7	O	M
Quality in Construction	DW4G 34	8	1	7	O	O
Scottish Law for Construction	DW42 35	8	1	8	O	O
Site Administration	DW4L 34	8	1	7	O	
Standard Forms of Construction Contract	DW3N 35	8	1	8	O	M
Statutory Control of Buildings	DW3W 34	8	1	7		O
Structural Mechanics	DW45 34	8	1	7	O	M
Work Role Effectiveness	DG6E 34	24	3	7		O
Required Credits					12	30

M* = or HNC Construction Graded Unit 1

4.5 Guidance for Candidates

The HNC and HND in Architectural Technology are designed to equip you with the knowledge, understanding and skills to allow you to gain employment in the built environment sector or to progress to a higher education or professional body qualification.

The HNC comprises 12 credits, of which 8, including the Graded Unit, are mandatory. You will also need to successfully complete 4 Units from a range of optional Units.

The HND comprises 30 credits, of which 27, including the Graded Unit/s, are mandatory,. You will also need to successfully complete three Units from a range of optional Units.

For each Unit, except the Graded Unit, you will need to perform sufficiently well to achieve a Pass. The Graded Units are designed to assess your ability to retain and integrate the knowledge and skills gained in the award and also to grade your overall achievement. There are three grades — ‘A’ if you achieve 70% or over; ‘B’ if you achieve between 60% and 69% and ‘C’ if you achieve between 50% and 59%. The Graded Unit task at HNC and HND will be a Project which might take the form of a Case Study or Investigation.

5 HNC and HND Construction Management

5.1 Rationale

Construction carried out under modern procurement systems must of necessity bring many different types of organisation together, perhaps from different countries, in constructing buildings of ever increasing complexity. Effective participation in, and management of, this process requires an understanding of group dynamics and the effect of different management styles and organisation structures on the planning and execution of construction projects.

Because of the wide diversity in both scale and output of companies working within the industry the Units chosen for inclusion in the new framework focus on those key knowledge and skills required by a technician employed in a construction management role. The HNC/HND framework covers management principles, includes a specialist core embracing the management of construction organisations and human resources, together with basic construction planning and elements of site administration.

A mixture of technology, contracts, law, financial and information technology supports the four generic management Units. These awards aim to produce desirable qualifications with graduates capable of employment within and across the whole spectrum of organisations engaged in construction.

The programmes have been updated to meet the needs of current practice and give a good grounding in the basics of general management necessary for a satisfying career in Construction Management, irrespective of the size or technical orientation of the company.

The HND course will normally be undertaken by candidates on a full-time course and together with the HNC allow progression to degree provision in Construction Management.

5.2 Aims of the Qualification

Target candidate group

The HNC programmes are suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from a lower level award in Construction or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

The HND programme is suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from an HNC in Construction, Construction Management or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

General aims — to develop:

- ◆ skills of study, research and analysis
- ◆ ability to define and solve problems
- ◆ transferable skills
- ◆ ability to be flexible and work cooperatively with others
- ◆ responsibility for own learning
- ◆ planning, organisational and review/evaluation skills
- ◆ technical skills- broadening and deepening
- ◆ oral, written and pictorial communication skills
- ◆ numerical and ICT skills
- ◆ resource management ability
- ◆ flexibility, knowledge, skills and motivation as a basis for progression to graduate and postgraduate studies

Specific aims are to:

- ◆ Prepare candidates for employment in the management of construction projects involving coordination of many different types of organisation, perhaps from different countries, in constructing buildings of ever increasing complexity under modern procurement systems.
- ◆ Provide candidates with a range of contemporary vocational skills embracing the management of construction organisations and human resources, together with construction, technology, contracts, law, financial and information technology, planning and elements of site administration.
- ◆ Provide a choice of optional Units that will allow candidates to develop in other areas relevant to future employment or progression via an HND in one of the Built Environment disciplines or Higher Education.
- ◆ Enable candidates to achieve appropriate professional body recognition, in particular but not exclusively, the Chartered Institute of Building.

5.3 Recommended Access

As with all SQA qualifications, access to the awards will be at the discretion of the centre. The following recommendations are for guidance only.

Access to HNC in Construction Management

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC or NC in a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include science and/or technology
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success
- ◆ a craft qualification combined with appropriate further study, prior to, or in parallel with, the HNC programme

Access to HND in Construction Management

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC in Construction, Construction Management or a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include mathematics and science and/or technology.
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success

Work Experience

Mature candidates with suitable relevant work experience may be accepted for entry, or advanced entry; provided the enrolling centre believes that the candidate is likely to benefit from undertaking the awards. Centres may wish to use Core Skills profiling to assist them in this process.

Accreditation of Prior Experiential Learning (APEL)

Candidates may be granted Accreditation of Prior Experiential Learning (APEL) in respect of underpinning knowledge previously gained or skills developed in relevant employment. Such APEL might allow a candidate entry to, or advanced entry in, an HNC or HND. All such decisions should be referred to a Moderator.

Access during transition between current and new awards

During the period of transition from existing qualifications to the new HNCs and HND candidates might be eligible for credit transfer. Such eligibility is discussed further in Appendix 1.

5.4 Structure of the Award — Construction Management

Unit title	Unit code	SCQF credit points	SQA credit	SCQF level	HNC CM	HND CM
Architectural Design Sketching and Drawing	DW3R 34	8	1	7	O	M
Building Inspection	DW50 34	8	1	7		O
Building Measurement and Cost Studies	DW3X 34	8	1	7	O	M
Building Science	DW4H 34	8	1	7		M
Building Services - Introduction	DW4P 33	8	1	6	O	M
Building Services in Large Buildings	DW4R 35	8	1	8	O	O
CAD 2-D 1	DW1E 34	8	1	7	O	M
Construction Industry: An Introduction	DW41 34	8	1	7		M
Construction Materials and Specifications	DW53 34	8	1	7	M	M
Construction Planning	DW4J 35	8	1	8	O	M
Construction Site Surveying A	DW5H 34	8	1	7	M	M
Construction Site Surveying B	DW5J 34	8	1	7		M
Construction Technical Communication Skills	DW4D 34	8	1	7	O	M
Construction Technology: Domestic Construction	DW54 33	8	1	6	O	M
Construction Technology: Indust/Comm Superstructure	DW55 34	8	1	7	M	M
Construction Technology: Specialist Systems	DW56 35	8	1	8		M
Construction Technology: Substructure	DW57 34	8	1	7	M	M
Design of Building Structures	DW3V 34	8	1	7		O
Economics and the Built Environment	DW3G 35	8	1	8		M
Estimating	DW3H 34	8	1	7	O	O
Financial Studies for the Construction Industry	DW3J 35	8	1	8	O	O
Health and Safety in Construction	DW4E 34	8	1	7	O	O
HNC Construction Management Graded Unit 1	DX21 34	8	1	7	M*	M*
HND Construction Management Graded Unit 2	DX27 35	16	2	8		M
Human Resource Management in Construction	DW4K 35	8	1	8	O	M
Managing Construction Organisations	DW43 35	8	1	8	O	M
Mathematics for Construction	DW4F 33	8	1	6		M
Personal Development and Planning (DE3R 34)	DE3R 34	8	1	7	O	M
Quality in Construction	DW4G 34	8	1	7	O	M
Quantitative Building Studies: Substruct and Drainage	DW3M 34	8	1	7	O	O
Scottish Law for Construction	DW42 35	8	1	8	O	O
Site Administration	DW4L 34	8	1	7	M	M
Standard Forms of Construction Contract	DW3N 35	8	1	8	M	M
Statutory Control of Buildings	DW3W 34	8	1	7		O
Structural Mechanics	DW45 34	8	1	7	O	M
Work Role Effectiveness (DG6E 34)	DG6E 34	24	3	7		O
Required Credits					12	30

M* = or HNC Construction Graded Unit 1

5.5 Guidance for Candidates

The HNC and HND in Construction Management are designed to equip you with the knowledge, understanding and skills to allow you to gain employment in the built environment sector or to progress to a higher education or professional body qualification.

The HNC comprises 12 credits, of which 7, including the Graded Unit, are mandatory. You will also need to successfully complete five Units from a range of optional Units.

The HND comprises 30 credits, of which 27, including the Graded Unit/s, are mandatory. You will also need to successfully complete three Units from a range of optional Units.

For each Unit, except the Graded Unit, you will need to perform sufficiently well to achieve a Pass. The Graded Units are designed to assess your ability to retain and integrate the knowledge and skills gained in the award and also to grade your overall achievement. There are three grades — ‘A’ if you achieve 70% or over; ‘B’ if you achieve between 60% and 69% and ‘C’ if you achieve between 50% and 59%. The Graded Unit task at HNC and HND will be a Project which might take the form of a Case Study or Investigation.

6 HNC and HND Quantity Surveying

6.1 Rationale

The HND and HNC in Quantity Surveying are well-established routes towards the Tech RICS award and as part of a Degree route to RICS membership or as qualifications in their own right. Quantity Surveying firms and Construction companies have used these routes to train their technicians in technology, estimating cost planning, financial studies and measurement and the new awards will continue to serve these ever expanding groups.

These awards have been based on the existing HNC and HND Quantity Surveying Awards, updated to meet the current and future needs of the construction industry and are part of the Built Environment suite of awards.

The Higher National Certificate and Higher National Diploma have long been recognised as providing a broad spectrum of knowledge necessary for a diverse range of future employment opportunities.

The awards also provide a means of progression to courses of instruction at degree level.

6.2 Aims of the Qualification

Target candidate group

The HNC programmes are suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from a lower level award in Construction or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

The HND programme is suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from an HNC in Construction, Quantity Surveying or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

General aims — to develop:

- ◆ skills of study, research and analysis
- ◆ ability to define and solve problems
- ◆ transferable skills
- ◆ ability to be flexible and work cooperatively with others
- ◆ responsibility for own learning
- ◆ planning, organisational and review/evaluation skills
- ◆ technical skills- broadening and deepening
- ◆ oral, written and pictorial communication skills
- ◆ numerical and ICT skills
- ◆ resource management ability
- ◆ flexibility, knowledge, skills and motivation as a basis for progression to graduate and postgraduate studies

Specific aims are to:

- ◆ Prepare candidates for employment as technicians in private quantity surveying practices and construction organisations.
- ◆ Provide candidates with a range of contemporary vocational skills embracing technology, estimating cost planning, financial studies and measurement.
- ◆ Provide a choice of optional Units that will allow candidates to develop in other areas relevant to future employment or progression via an HND in one of the Built Environment disciplines or Higher Education.
- ◆ Enable candidates to achieve appropriate professional body recognition, in particular but not exclusively, the Royal Institute of Chartered Surveyors, as 'Tech RICS'.

6.3 Recommended Access

As with all SQA qualifications, access to the awards will be at the discretion of the centre. The following recommendations are for guidance only.

Access to HNC in Quantity Surveying

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC or NC in a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include science and/or technology.
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success

- ◆ a craft qualification combined with appropriate further study, prior to, or in parallel with, the HNC programme

Access to HND in Quantity Surveying

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC in Construction, Quantity Surveying or a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include mathematics and science and/or technology
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success

Work Experience

Mature candidates with suitable relevant work experience may be accepted for entry, or advanced entry; provided the enrolling centre believes that the candidate is likely to benefit from undertaking the awards. Centres may wish to use Core Skills profiling to assist them in this process.

Accreditation of Prior Experiential Learning (APEL)

Candidates may be granted Accreditation of Prior Experiential Learning (APEL) in respect of underpinning knowledge previously gained or skills developed in relevant employment. Such APEL might allow a candidate entry to, or advanced entry in, an HNC or HND. All such decisions should be referred to a Moderator.

Access during transition between current and new awards

During the period of transition from existing qualifications to the new HNCs and HND candidates might be eligible for credit transfer. Such eligibility is discussed further in Appendix 1.

6.4 Mandatory and Optional Units - Quantity Surveying

Unit title	Unit code	SCQF credit points	SQA credit	SCQF level	HNC QS	HND QS
Architectural Design Sketching and Drawing	DW3R 34	8	1	7		M
Building Measurement and Cost Studies	DW3X 34	8	1	7		M
Building Science	DW4H 34	8	1	7		M
Building Services - Introduction	DW4P 33	8	1	6	O	M
Building Services in Large Buildings	DW4R 35	8	1	8	O	M
CAD 2-D 1	DW1E 34	8	1	7	O	M
Construction Materials and Specifications	DW53 34	8	1	7	M	M
Construction Planning	DW4J 35	8	1	8		O
Construction Site Surveying A	DW5H 34	8	1	7		M
Construction Technical Communication Skills	DW4D 34	8	1	7	O	O
Construction Technology: Domestic Construction	DW54 33	8	1	6	O	M
Construction Technology: Indust/Comm Superstructure	DW55 34	8	1	7	M	M
Construction Technology: Specialist Systems	DW56 35	8	1	8		M
Construction Technology: Substructure	DW57 34	8	1	7	M	M
Economics and the Built Environment	DW3G 35	8	1	8		M
Estimating	DW3H 34	8	1	7	M	M
Financial Studies for the Construction Industry	DW3J 35	8	1	8	O	M
Health and Safety in Construction	DW4E 34	8	1	7	O	O
HNC Quantity Surveying Graded Unit 1	DX22 34	8	1	7	M*	M*
HND Quantity Surveying Graded Unit 2	DX23 35	16	2	8		M
Human Resource Management in Construction	DW4K 35	8	1	8		O
Construction Industry: An Introduction	DW41 34	8	1	7		M
Mathematics for Construction	DW4F 33	8	1	6		M
Personal Development and Planning	DE3R 34	8	1	7	O	O
Quality in Construction	DW4G 34	8	1	7		O
Quantitative Building Studies: Building Services	DW3K 34	8	1	7		O
Quantitative Building Studies: Floors and Roofs	DW3L 34	8	1	7	M	M
Quantitative Building Studies: Substruct and Drainage	DW3M 34	8	1	7	M	M
Quantity Surveying Practice	DW3Y 35	8	1	8	O	M
Scottish Law for Construction	DW42 35	8	1	8	O	O
Site Administration	DW4L 34	8	1	7	O	O
Standard Forms of Construction Contract	DW3N 35	8	1	8	M	M
Structural Mechanics	DW45 34	8	1	7		M
Work Role Effectiveness	DG6E 34	24	3	7		O
Required Credits					12	30

M* = or HNC Construction Graded Unit 1

6.5 Guidance for Candidates

The HNC and HND in Quantity Surveying are designed to equip you with the knowledge, understanding and skills to allow you to gain employment in the built environment sector or to progress to a higher education or professional body qualification.

The HNC comprises 12 credits, of which 8, including the Graded Unit, are mandatory. You will also need to successfully complete four Units from a range of optional Units.

The HND comprises 30 credits, of which 25, including the Graded Unit/s, are mandatory. You will also need to successfully complete five Units from a range of optional Units.

For each Unit, except the Graded Unit, you will need to perform sufficiently well to achieve a Pass. The Graded Units are designed to assess your ability to retain and integrate the knowledge and skills gained in the award and also to grade your overall achievement. There are three grades — ‘A’ if you achieve 70% or over; ‘B’ if you achieve between 60% and 69% and ‘C’ if you achieve between 50% and 59%. The Graded Unit task at HNC and HND will be a Project which might take the form of a Case Study or Investigation.

7 HNC and HND Building Surveying

7.1 Rationale

Building surveyors provide professional advice on property and construction for commercial companies and consultants, central and local government, and private individuals.

The Royal Institution of Chartered Surveyors (RICS) is the leading professional body for building surveying with over 25,000 of the total membership enrolled in the building surveying faculty. Members are highly trained professionals, offering expert advice on all aspects of land, property and construction.

Technical surveyors (Surveying technicians) support chartered surveyors by carrying out a range of practical tasks and may achieve the internationally recognised RICS qualification for Technical Surveyors — TechRICS.

The HND course is suitable for candidates who aim for a career in the construction industry as surveying technicians and on completion of this course candidates who enter employment may apply for entry to the RICS Assessment of Technical Competence which, combined with a minimum period of structured training may lead to the qualification TechRICS. It should attract those who enjoy working as part of a team and who seek variety in their work.

The HND course will normally be undertaken by candidates on a full-time course with the HNC course being undertaken on a part-time mode of attendance. Candidates may use this qualification to progress to further study at Degree level.

Chartered Surveyors work in many areas of property and construction and no description of services provided can be exhaustive, however, this HND course seeks to provide candidates with an underpinning knowledge necessary to carry out many of the tasks undertaken by surveying technicians, including preparation of drawings, specification writing, land surveying, surveying historic buildings, maintenance schedules etc.

The HNC and HND contribute significantly to candidates’ education and personal development in promoting core and transferable skills important for future employment within the construction and other industries. The development of competencies in this vocational context will improve generic skills in communication, presentation of technical information and working with others.

7.2 Aims of the Qualification

Target candidate group

The HNC programmes are suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from a lower level award in Construction or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

The HND programme is suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from an HNC in Construction, Building Surveying or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

General aims — to develop:

- ◆ skills of study, research and analysis
- ◆ ability to define and solve problems
- ◆ transferable skills
- ◆ ability to be flexible and work cooperatively with others
- ◆ responsibility for own learning
- ◆ planning, organisational and review/evaluation skills
- ◆ technical skills- broadening and deepening
- ◆ oral, written and pictorial communication skills
- ◆ numerical and ICT skills
- ◆ resource management ability
- ◆ flexibility, knowledge, skills and motivation as a basis for progression to graduate and postgraduate studies

Specific aims are to:

- ◆ Prepare candidates for employment as technical surveyors providing professional advice on property and construction for commercial companies and consultants, central and local government, and private individuals.
- ◆ Provide candidates with a range of contemporary vocational skills including preparation of drawings, specification writing, land surveying, surveying historic buildings, maintenance schedules etc ,contributing significantly to candidates' education and personal development in promoting core and transferable skills important for future employment within the construction and other industries.
- ◆ Provide a choice of optional Units that will allow candidates to develop in other areas relevant to future employment or progression via an HND in one of the Built Environment disciplines or Higher Education.
- ◆ Enable candidates to achieve appropriate professional body recognition, in particular but not exclusively, the Royal Institute of Chartered Surveyors.

7.3 Recommended access

As with all SQA qualifications, access to the awards will be at the discretion of the centre. The following recommendations are for guidance only.

Access to HNC in Building Surveying

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC or NC in a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include science and/or technology
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success
- ◆ a craft qualification combined with appropriate further study, prior to, or in parallel with, the HNC programme

Access to HND in Building Surveying

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC in Construction, Building Surveying or a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include mathematics and science and/or technology
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success

Work Experience

Mature candidates with suitable relevant work experience may be accepted for entry, or advanced entry; provided the enrolling centre believes that the candidate is likely to benefit from undertaking the awards. Centres may wish to use Core Skills profiling to assist them in this process.

Accreditation of Prior Experiential Learning (APEL)

Candidates may be granted Accreditation of Prior Experiential Learning (APEL) in respect of underpinning knowledge previously gained or skills developed in relevant employment. Such APEL might allow a candidate entry to, or advanced entry in, an HNC or HND. All such decisions should be referred to a Moderator.

Access during transition between current and new awards

During the period of transition from existing qualifications to the new HNCs and HND candidates might be eligible for credit transfer. Such eligibility is discussed further in Appendix 1.

7.4 Mandatory and Optional Units — Building Surveying

Unit title	Unit code	SCQF credit points	credit	SQA level	HNC BS	HND BS	
Architectural Design Sketching and Drawing	DW3R 34	8	1	7		M	
Architectural Procedures and Design	DW3P 34	8	1	7		O	
Building Inspection	DW50 34	8	1	7	O	M	
Building Maintenance Management	DW51 34	8	1	7	O	O	
Building Maintenance Technology	DW52 34	8	1	7	M	M	
Building Measurement and Cost Studies	DW3X 34	8	1	7		M	
Building Science	DW4H 34	8	1	7		M	
Building Services - Introduction	DW4P 33	8	1	6	O	M	
Building Services in Large Buildings	DW4R 35	8	1	8	M	M	
Building Services: Heating, Lighting & Acoustics	DW4M 35	8	1	8		M	
Building Services: Ventilation, Air-conditioning & Refrigeration	DW4N 35	8	1	8		O	
CAD 2-D 1	DW1E 34	8	1	7	O	M	
CAD 3-D Modelling	DW13 34	16	2	7		O	
CAD: Architectural 1	DW1D 34	8	1	7		O	
Construction Industry: An Introduction	DW41 34	8	1	7		M	
Construction Materials and Specifications	DW53 34	8	1	7	M	M	
Construction Site Surveying A	DW5H 34	8	1	7	O	M	
Construction Technical Communication Skills	DW4D 34	8	1	7	O	O	
Construction Technology: Domestic Construction	DW54 33	8	1	6	O	M	
Construction Technology: Indust/Comm Superstructure	DW55 34	8	1	7	M	M	
Construction Technology: Specialist Systems	DW56 35	8	1	8	O	M	
Construction Technology: Substructure	DW57 34	8	1	7	M	M	
Conversion and Adaptation of Buildings	DW3T 35	8	1	8	O	M	
Design of Building Structures	DW3V 34	8	1	7		M	
Estimating	DW3H 34	8	1	7		O	
Facilities Management: Operational and Support Services	DW4V 35	8	1	8	O	M	
Fire Safety in Buildings	DW4X 35	8	1	8		O	
Health and Safety in Construction	DW4E 34	8	1	7	O	O	
HNC Building Surveying Graded Unit 1	DX1Y 34	8	1	7	M*	M*	
HND Building Surveying Graded Unit 2	DX26 35	16	2	8		M	
Mathematics for Construction	DW4F 33	8	1	6		M	
Personal Development and Planning	DE3R 34	8	1	7	O	O	
Quantitative Building Studies: Floors and Roofs	DW3L 34	8	1	7	O	M	
Quantitative Building Studies: Substruct and Drainage	DW3M 34	8	1	7	M		
Standard Forms of Construction Contract	DW3N 35	8	1	8		O	
Statutory Control of Buildings	DW3W 34	8	1	7	O	M	
Structural Mechanics	DW45 34	8	1	7	O	M	
Surveying Historic Buildings	DW40 35	8	1	8		M	
Work Role Effectiveness	DG6E 34	24	3	7		O	
Required Credits						12	30

M* = or HNC Construction Graded Unit 1

7.5 Guidance for Candidates

The HNC and HND in Building Surveying are designed to equip you with the knowledge, understanding and skills to allow you to gain employment in the built environment sector or to progress to a higher education or professional body qualification.

The HNC comprises 12 credits, of which 7, including the Graded Unit, are mandatory. You will also need to successfully complete five Units from a range of optional Units.

The HND comprises 30 credits, of which 27, including the Graded Unit/s, are mandatory. You will also need to successfully complete three Units from a range of optional Units.

For each Unit, except the Graded Unit, you will need to perform sufficiently well to achieve a Pass. The Graded Units are designed to assess your ability to retain and integrate the knowledge and skills gained in the award and also to grade your overall achievement. There are three grades — ‘A’ if you achieve 70% or over; ‘B’ if you achieve between 60% and 69% and ‘C’ if you achieve between 50% and 59%. The Graded Unit task at HNC and HND will be a Project which might take the form of a Case Study or Investigation.

8 HND Facilities Management

8.1 Rationale

Recent years has seen a growing change in the attitude of industry and commerce towards the built environment, both economically and environmentally.

Global competition, shorter business cycles and environmental factors together with increasing complexity in buildings and their services are the main catalysts forcing change in how we manage our buildings today. Many businesses are beginning to realise the dual benefits in organisational effectiveness and building efficiency made possible by professional facilities management.

The contribution of facilities management to the business can best be seen where facilities are often the largest fixed asset on the balance sheet and expenditure on the profit and loss account.

The role of the facilities manager therefore requires a broad range of business and technical skills eg interpersonal, organisational and communications skills. As a business manager he requires to understand how people interact with buildings and how service delivery can add value to the business. As a custodian of the built environment he requires to have a thorough understanding of building technology embracing fabric and finishes, utilities and building services. In managing property acquisition and disposals together with building operational and support services, the facilities manager has become an essential ‘single point of contact’ in many forward thinking organisations.

Where further education has tended to focus on new build, insufficient attention has been paid to the management of existing buildings in use. The present condition of industrial and commercial stock is the legacy, where high proportions of buildings in both the private and public sectors are under-maintained and liable to result in premature failure.

Both from an economic and environmental point of view this cannot continue and further education has a clear role to play in supporting the development of facilities management.

The Units chosen for inclusion in the new syllabus focus on the key knowledge and skills required in maintenance and asset management, operational and support services, information technology infrastructure and contract and resource management.

8.2 Aims of the Qualification

Target candidate group

The HND programme is suitable for a wide range of candidates including:

- ◆ school leavers
- ◆ candidates progressing from an HNC in Construction, Construction Management or a closely related discipline
- ◆ adult returners to education
- ◆ candidates in employment who wish to enhance their career prospects

General aims — to develop:

- ◆ skills of study, research and analysis
- ◆ ability to define and solve problems
- ◆ transferable skills
- ◆ ability to be flexible and work cooperatively with others
- ◆ responsibility for own learning
- ◆ planning, organisational and review/evaluation skills
- ◆ technical skills- broadening and deepening
- ◆ oral, written and pictorial communication skills
- ◆ numerical and ICT skills
- ◆ resource management ability
- ◆ flexibility, knowledge, skills and motivation as a basis for progression to graduate and postgraduate studies

Specific aims are to:

- ◆ Prepare candidates for employment as a 'single point of contact' and custodian of the built environment in managing in-house and (or) out sourced facilities services for an organisation.
- ◆ Provide candidates with a range of contemporary vocational skills required in maintenance and asset management, operational and support services, information technology infrastructure and contract and resource management.
- ◆ Provide a choice of optional Units that will allow candidates to develop in other areas relevant to future employment or progression in one of the Built Environment disciplines or Higher Education.
- ◆ Enable candidates to achieve appropriate professional body recognition, in particular but not exclusively, the British Institute of Facilities Management.

8.3 Recommended access

As with all SQA qualifications, access to the awards will be at the discretion of the centre. The following recommendations are for guidance only.

Access to HND in Facilities Management

Higher National programmes are intended primarily for people who are in, or plan to enter employment. Candidates who enter with at least one of the following qualifications are likely to benefit more readily from the programme:

- ◆ an HNC in Construction, Construction Management or a related discipline
- ◆ at least one Higher level pass, with appropriate supporting passes at Standard Grade Credit in appropriate subjects, which should include mathematics and science and/or technology
- ◆ a SVQ in Construction or a related discipline
- ◆ those with other entry qualifications who demonstrate a realistic chance of success

Work Experience

Mature candidates with suitable relevant work experience may be accepted for entry, or advanced entry; provided the enrolling centre believes that the candidate is likely to benefit from undertaking the awards. Centres may wish to use Core Skills profiling to assist them in this process.

Accreditation of Prior Experiential Learning (APEL)

Candidates may be granted Accreditation of Prior Experiential Learning (APEL) in respect of underpinning knowledge previously gained or skills developed in relevant employment. Such APEL might allow a candidate entry to, or advanced entry in, an HNC or HND. All such decisions should be referred to a Moderator.

Access during transition between current and new awards

During the period of transition from existing qualifications to the new HNCs and HND candidates might be eligible for credit transfer. Such eligibility is discussed further in Appendix 1.

8.4 Structure of the Award — Facilities Management

Unit titles	Unit code	SCQF credit points	SQA credit	SCQF level	HND FM
Architectural Design Sketching and Drawing	DW3R 34	8	1	7	M
Building Inspection	DW50 34	8	1	7	O
Building Maintenance Management	DW51 34	8	1	7	M
Building Maintenance Technology	DW52 34	8	1	7	O
Building Measurement and Cost Studies	DW3X 34	8	1	7	M
Building Science	DW4H 34	8	1	7	M
Building Services - Introduction	DW3P 33	8	1	6	M
Building Services in Large Buildings	DW4R 35	8	1	8	M
Building Services: Heating, Lighting & Acoustics	DW4M 35	8	1	8	O
Building Services: Ventilation, Air-conditioning & Refrigeration	DW4N 35	8	1	8	O
CAD 2-D 1	DW1E 34	8	1	7	M
Construction Industry: An Introduction	DW41 34	8	1	7	M
Construction Materials and Specifications	DW53 34	8	1	7	M
Construction Planning	DW4J 35	8	1	8	O
Construction Site Surveying A	DW5H 34	8	1	7	M
Construction Technical Communication Skills	DW4D 34	8	1	7	M
Construction Technology: Domestic Construction	DW54 33	8	1	6	M
Construction Technology: Indust/Comm Superstructure	DW55 34	8	1	7	M
Construction Technology: Specialist Systems	DW56 35	8	1	8	O
Construction Technology: Substructure	DW57 34	8	1	7	M
Conversion and Adaptation of Buildings	DW3T 35	8	1	8	M
Data and Telecommunications Infrastructure	DW4T 35	8	1	8	M
Economics and the Built Environment	DW3G 35	8	1	8	M
Estimating	DW3H 34	8	1	7	O
Facilities Management: Operational and Support Services	DW4V 35	8	1	8	M
Facilities Management: Property Services	DW4W 35	8	1	8	M
Facilities Resource Planning and Contract Management	DW4Y 35	8	1	8	M
Financial Studies for the Construction Industry	DW3J 35	8	1	8	M
Fire Safety in Buildings	DW4X 35	8	1	8	M
Health and Safety in Construction	DW4E 34	8	1	7	O
HNC Construction Management Graded Unit 1	DX21 34	8	1	7	M*
HND Facilities Management Graded Unit 2	DX24 35	16	2	8	M
Human Resource Management in Construction	DW4K 35	8	1	8	O
Managing Construction Organisations	DW43 35	8	1	8	O
Mathematics for Construction	DW4F 33	8	1	6	M
Personal Development and Planning	DE3R 34	8	1	7	M
Quality in Construction	DW4G 34	8	1	7	O
Quantitative Building Studies: Building Services	DW3K 34	8	1	7	O
Quantitative Building Studies: Substruct and Drainage	DW3M 34	8	1	7	O
Statutory Control of Buildings	DW3W 34	8	1	7	O
Structural Mechanics	DW45 34	8	1	7	O
Work Role Effectiveness	DE3R 34	24	3	7	O
Required Credits					30

M* = or Graded Unit 1 from HNC Construction, HNC Architectural Technology, HNC Building Surveying or HNC Quantity Surveying

8.5 Guidance for Candidates

The HND in Facilities Management are designed to equip you with the knowledge, understanding and skills to allow you to gain employment in the built environment sector or to progress to a higher education or professional body qualification.

The HND comprises 30 credits, of which 27, including the Graded Unit/s, are mandatory. You will also need to successfully complete three Units from a range of optional Units.

For each Unit, except the Graded Unit, you will need to perform sufficiently well to achieve a Pass. The Graded Units are designed to assess your ability to retain and integrate the knowledge and skills gained in the award and also to grade your overall achievement. There are three grades — ‘A’ if you achieve 70% or over; ‘B’ if you achieve between 60% and 69% and ‘C’ if you achieve between 50% and 59%. The Graded Unit task at HNC and HND will be a Project which might take the form of a Case Study or Investigation.

9 Graded Units

There are 10 Graded Units in the framework:

HNC Construction	1 credit Unit of	8 points at SCQF level 7
HNC Architectural Technology	1 credit Unit of	8 points at SCQF level 7
HNC Construction Management	1 credit Unit of	8 points at SCQF level 7
HNC Quantity Surveying	1 credit Unit of	8 points at SCQF level 7
HNC Building Surveying	1 credit Unit of	8 points at SCQF level 7
HND Architectural Technology	2 credit Units of	16 points at SCQF level 8
HND Construction Management	2 credit Units of	16 points at SCQF level 8
HND Quantity Surveying	2 credit Units of	16 points at SCQF level 8
HND Building Surveying	2 credit Units of	16 points at SCQF level 8
HND Facilities Management	2 credit Units of	16 points at SCQF level 8

The HNC Construction Graded Unit 1 is interchangeable with the Graded Unit 1 for the HNCs in Architectural Technology, Construction Management, Quantity Surveying, Building Surveying or Facilities Management.

The Graded Unit 1 from the HNCs in Construction, Architectural Technology, Construction Management, Quantity Surveying or Building Surveying are interchangeable with the Graded Unit 1 of the HND in Facilities Management.

The Graded Units are designed to test knowledge and skills across the Units of the award in the context of a typical work related activity.

Where candidates are progressing from a HNC to a HND the HND Graded Unit 2 might be an extension, in depth or breadth, of the HNC Graded Unit 1.

10 Approaches to delivery and assessment

10.1 Content and context

The HN qualifications in Built Environment are designed to equip students with the knowledge, understanding and skills required for success in current and future employment as technicians, design engineers or project managers in Built Environment disciplines.

10.2 Delivery

The structure of the qualifications allows for a high degree of flexibility in the delivery mode. The awards could be offered on full-time, block-release, day release or evening modes. A distance learning delivery mode is possible providing adequate materials, tutorial support and assessment facilities exist. Combination of delivery modes is also a possibility. Such combined mode study may enable candidates to complete the awards within a shorter time period.

There are many opportunities for integrative delivery of Units within each of the awards. Teaching and learning for mathematics and science Units could be integrated with technology Units, and assessment should be encouraged to be within the application of technology Units. Graded Units provide the opportunity for integration of knowledge and skills across the Units in an award. Supporting Notes with each Unit identify specific opportunities for integration with other Units.

Centres will define which order Units are undertaken based on candidate recruitment patterns, mode of delivery, resource issues and logical progression dictated by topic and Unit content.

Provided that adequate material and tutorial expertise existed these awards could be delivered by Open/Distance learning as well as on an online basis. Centre devised supervision agreements should detail controlled conditions to ensure authenticity of evidence.

Throughout these awards emphasis will be placed where appropriate on the application of Health and Safety and Sustainability. Safe working practices should be looked at in accordance with current safety codes of practice and regulations. Sustainability should include reference to criteria affecting sustainability, impact of not implementing sustainability on the environment and the legislation promoting sustainability. Mapping of opportunities for explicit and/or implicit inclusion of health, safety and sustainability are provided in Appendices 3 and 4.

The awards lend themselves to a wide range of delivery mechanisms including case studies, formal teaching, tutorial, group work, laboratory/practical work and, where appropriate, work based learning. Centres should develop clear delivery and assessment strategies taking into account the efficacy of teaching, learning, and the use of resources, modes of attendance and the need for a rigorous but not excessively demanding assessment regime.

10.3 Assessment

The assessment strategy is designed to ensure an appropriate level of rigour whilst not imposing excessive demands on centres or candidates.

The new design principles for HN awards encourage a more holistic approach to assessment and this has been adopted in this award. The new HN specification places the emphasis on assessing the whole Outcome or a combination of Outcomes rather than on individual Performance Criteria. There is also the intention to reduce the assessment loading for both candidates and centres and Unit definitions allows the use of 'sampling' of knowledge and/or skills where appropriate.

Each Unit Descriptor includes guidance on delivery and assessment and, where appropriate, any relationship with delivery and assessment of other Units. Requirements for knowledge, skills, sampling, evidence and conduct of assessments is provided for each Outcome in the Unit. Opportunities for integrative assessment across Units is provided and it is generally recommended that topics such as mathematics and fluid mechanics are assessed within Units which apply fundamental theory to practical applications. Assessment guidance includes a variety of conditions including open/closed-book, case study etc.

Exemplar assessment instruments are available for all mandatory Units and optional Units. The Exemplar provides guidance on content, conduct, evidence required and marking and grading. Centres are expected to use these exemplars as templates when producing further assessment instruments.

An analysis of assessment modes included in the Unit descriptors is shown in Table 10.3:

Table 10.3 Legend		
OCs = Number of Outcomes	P = Practical work	S = Short answer questions
O = Open-book	G = Group work	
C = Closed-book	CS = Case Study	

NOTE: The 'Time' stated is the recommended total time for summative assessment. In certain cases no time is recommended particularly where practical work eg surveying is required.

Table 10.3	Unit title	Credit	Level	OCs	O	C	S	P	G	CS	Time
	3-D Modelling	1	7	5	Y			Y			15
	Architectural CAD: An Introduction	1	7	4	Y			Y			8
	Architectural Design Sketching and Drawing	1	7	4	Y			Y			5
	Architectural Procedures and Design	1	7	4	Y	Y	Y				2
	Building Inspection	1	7	3	Y	Y	Y				6
	Building Maintenance Management	1	7	4	Y	Y		Y			4
	Building Maintenance Technology	1	7	2	Y	Y		Y			4.5
	Building Measurement and Cost Studies	1	7	3	Y					Y	4
	Building Science	1	7	4	Y		Y				2
	Building Services - Introduction	1	6	5	Y		Y				2
	Building Services in Large Buildings	1	8	5	Y		Y				3
	Building Services: Heating, Lighting & Acoustics	1	8	3		Y	Y				2
	Building Services: Ventilation, Air-conditioning & Refrigeration	1	8	4		Y	Y				2
	CAD 2-D 1	1	7	4	Y			Y			5
	Construction Materials and Specifications	1	7	3	Y			Y			5
	Construction Planning	1	8	3	Y					Y	3
	Construction Site Surveying A	1	7	4	Y		Y	Y	Y		
	Construction Site Surveying B	1	7	3	Y			Y	Y		
	Construction Technical Communication Skills	1	7	4	Y		Y	Y		Y	2
	Construction Technology: Domestic Construction	1	6	4		Y	Y				3
	Construction Technology: Indust/Comm Superstructure	1	7	5		Y	Y				4
	Construction Technology: Specialist Systems	1	8	4		Y	Y				5
	Construction Technology: Substructure	1	7	4		Y	Y				3
	Conversion and Adaptation of Buildings	1	8	4	Y			Y			
	Data and Telecommunications Infrastructure	1	8	4		Y	Y				2
	Design of Building Structures	1	7	3	Y	Y		Y			
	Economics and the Built Environment	1	8	5		Y	Y				2
	Estimating	1	7	4	Y					Y	3
	Facilities Management: Operational and Support Services	1	8	4		Y	Y				2
	Facilities Management: Property Services	1	8	4		Y	Y				2
	Facilities Resource Planning and Contract Management	1	8	4		Y	Y				2
	Financial Studies for the Construction Industry	1	8	4	Y	Y	Y				2
	Fire Safety in Buildings	1	8	4		Y	Y				3
	Health and Safety in the Construction Industry	1	7	3	Y		Y	Y	Y	Y	2
	Human Resource Management in Construction	1	8	3				Y	Y	Y	
	Introduction to the Construction Industry	1	7	4		Y	Y	Y			
	Managing Construction Organisations	1	8	3		Y	Y				2
	Mathematics for Construction	1	6	3		Y	Y				2
	Personal Development and Planning	1	7	3	Y			Y			
	Quality in Construction	1	7	3	Y		Y		Y	Y	2
	Quantitative Building Studies: Building Services	1	7	3	Y		Y				4
	Quantitative Building Studies: Floors and Roofs	1	7	3	Y			Y			
	Quantitative Building Studies: Substruct and Drainage	1	7	3	Y			Y			
	Quantity Surveying Practice	1	8	4		Y	Y				3
	Scottish Law for Construction	1	8	4	Y	Y	Y				3
	Site Administration	1	7	4	Y				Y	Y	
	Standard Forms of Construction Contract	1	8	4	Y		Y				3
	Statutory Control of Buildings	1	7	3	Y		Y				2
	Structural Mechanics	1	7	4	Y		Y				2
	Surveying Historic Buildings	1	8	2	Y			Y			
	Work Role Effectiveness	3	7	3	Y		Y				

Re-assessment strategy

Process

The way that centres re-assess candidates is integral to the way that they manage assessment as a whole and as such, will be subject to internal moderation. In order to ensure that the assessment process is as holistic as possible and that assessors are able to effectively judge candidates' performance in the Outcome or Unit as a whole, it may not always be possible to re-assess only those parts of the performance in which candidates have not satisfactorily demonstrated competence. Scenarios where candidates may require to re-do the whole assessment include:

- ◆ assessments which test knowledge and other cognitive skills and where it may not be possible to extract some of the items for re-assessment
- ◆ where parts of several Outcomes are involved
- ◆ where a project has been designed as an integrated assessment and where there is a requirement to complete the project as a single complex task

Candidates may be required to do only part of an assessment, where their evidence has been generated over a period of time and/or a discrete part of the Unit, such as an Outcome, has been assessed originally. This is particularly relevant in the case of Project, Case Study and Investigative assessment activities.

Re-assessment opportunities

SQA advises that there should normally be one, or in exceptional circumstances two, re-assessment opportunities. (Please refer to *SQA's Guide to Assessment and Quality Assurance for Colleges of Further Education*, for details).

Eligibility

Candidates who have not satisfactorily demonstrated their attainment of knowledge and/or skills and/or competence in the whole or only part of an assessment may be considered for re-assessment.

Developing alternative assessments

The design of the original assessments inform the re-assessment process to a large extent, as these determine the type of assessment instruments used and the purpose of the assessment. Normally, centres build up banks of assessments that can be used in whole or part for re-assessment purposes.

Assessment writers should refer to the Unit specification when developing an alternative assessment and ensure that it is of equal demand to the original assessment and that it covers all necessary criteria — for example Core Skill achievement. Where candidates have not provided satisfactory evidence for knowledge and/or skill items which have been sampled, they would normally be re-assessed on a different sample.

HN Graded Units

Applying the above general policy to re-assessing HN Graded Units means that reassessing an examination-based Group Award Graded Unit would normally be based on an alternative examination and re-assessment of a project-based Graded Unit would normally be based on an alternative assessment task. For the latter, centres would be encouraged to set the parameters at the start of the project class giving details of the draft (one only) submission date and final submission date. Candidates must pass each section of the project/investigation. The overall grade is derived from the total number of marks across all the sections. The Conditions of Assessment section on the Graded Unit specification gives additional guidance.

11 Core Skills

11.1 The Core Skills recognised by SQA are at SCQF levels 3 to 6 in:

- ◆ Communication
- ◆ Information Technology
- ◆ Numeracy
- ◆ Working with Others
- ◆ Problem Solving

Applied problem solving, including creative thinking and on-going evaluation of proposed and actual design solutions are essential elements in all Built Environment activities. There are also ample opportunities within the award to develop key numerical and graphical competencies in the context of applied knowledge and skills. The focus in the award on technology as a current industry tool in the design process ensures sound competence and understanding of its applications and uses. Access to technology, with appropriate support systems, is available at all centres for reference, research and the production and presentation of accurate written and graphic materials. As candidates undertake the award, formative activities will replicate group problem solving approaches using the communication techniques required in the industry today.

Awareness and development of Core Skills is also incorporated into the award by the fact that candidates, supported by assessors, have to take responsibility for their own learning programmes and produce and present a project.

The Qualifications Design Team has agreed, therefore, that the delivery of mandatory and optional Units should provide many opportunities for tailoring relevant elements of the Core Skills to the specific demands of the vocational area.

11.2 Recommended exemplar Core Skill entry profile for HNC and HND:

Note: SCQF level = ()

Core Skill	Construction	Architectural Technician	Quantity Surveying	Building Surveying	Construction Management	Facilities Management
Communication	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)
IT	Int 1 (4)	Int 1 (4)	Int 1 (4)	Int 1 (4)	Int 1 (4)	Int 1 (4)
Numeracy	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)
Problem Solving	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)
Working with Others	Int 1 (4)	Int 1 (4)	Int 1 (4)	Int 1 (4)	Int 1 (4)	Int 1 (4)

11.3 Recommended exemplar Core Skill output profiles

Candidates who achieve the award will have opportunities to develop relevant aspects of Core Skills to the following levels as a **minimum**.

HNCs

Core Skill	Construction	Architectural Technician	Quantity Surveying	Building Surveying	Construction Management
Communication	Higher (6)	Higher (6)	Higher (6)	Higher (6)	Higher (6)
IT	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)
Numeracy	Higher (6)	Higher (6)	Higher (6)	Higher (6)	Higher (6)
Problem Solving	Higher (6)	Higher (6)	Higher (6)	Higher (6)	Higher (6)
Working with Others	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)

HNDs

Core Skill		Architectural Technician	Quantity Surveying	Building Surveying	Construction Management	Facilities Management
Communication		Higher (6)	Higher (6)	Higher (6)	Higher (6)	Higher (6)
IT		Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)
Numeracy		Higher (6)	Higher (6)	Higher (6)	Higher (6)	Higher (6)
Problem Solving		Higher (6)	Higher (6)	Higher (6)	Higher (6)	Higher (6)
Working with Others		Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)	Int 2 (5)

11.4 Opportunity for development of Core Skills

Given the various access routes available to candidates it is possible that some candidates in each cohort will not meet the exemplar entry profile. It will be for centres to enable these candidates to take maximum advantage of opportunities within the programme to raise their Core Skill achievement levels.

The general aims of the Higher National awards in the Built Environment include developing a range of personal and key skills that will improve ability, confidence and employability. All practical teaching and learning activities of the HNC/HND programs provide a context for developing and enhancing the five Core Skills to a significant level beyond those recommended at entry. Many discrete Core Skill elements are included within the context of assessments. The use of technology as a tool to research, analyse and present complex reports and to synthesize statistical information is essential to the course. Planning, organising and evaluating work and listening and talking with a wide range of people is critical.

Each Unit Descriptor indicates the Core Skills likely to be able to be developed within that Unit. Appendix 2 provides a Core Skills Sign Posting Guide and a Mapping of Opportunities for the Development of Core Skills guide. Both these guides identify opportunities for Core Skill development through the learning, teaching and assessment process.

The signposting guide focuses on indicating specific Outcomes that offer opportunities for Core Skills development to the Output level of the award in selected Units.. This guidance is not intended to be exhaustive, particular learning and teaching programs, and the remaining Mandatory Units of an award, together with the Optional Units, may well provide additional opportunities.

The Mapping of Core Skill development opportunities provide a broader guide to possibilities for development of Core Skills.

Additional skills recognised as critical by employers and Higher Education, such as meeting deadlines, attention to detail, personal target setting, enterprise and effective dealing with clients are not precisely reflected in the SQA Core Skill specifications. Awareness and opportunity for development of these skills exists within this award. The Graded Units integrates knowledge and skills developed, and provides further opportunities for candidates to demonstrate transferable skills and a high level of achievement.

12 Credit Transfer Transition Arrangements

In principle candidates can be given credit transfer between current HNC Units, or Units from other appropriate qualifications, and the Units of the new award.

Specific credit transfers for Mandatory and Optional Units are listed in Appendix 1.

Centres will have access to the SQA Moderator in order to validate Credit Transfer applications other than those listed in Appendix 1.

Candidates who are given credit transfer between current HNC/HND Units and the new HN Units must still satisfy all other conditions of the award of the new principles HNC/D including the mandatory Units and the correct number of credits at the correct SCQF level.

13 Opportunities for Progression

These awards, in accordance with the Aims, have been designed to enable candidates to gain admission to degree programmes at Higher Education Institutions (HEIs). Advanced entry standing to degree programmes is possible, the degree of recognition depending on the particular HEI. Some HEIs will admit HNC holders to the first year of degree programmes and those possessing a HND to second or third year.

14 Links with Professional Institutions

The Higher National qualifications in the Built Environment have been developed with both career progression and professional development in mind. It is essential that students gain the maximum benefit from their programme of study.

The major professional bodies related to the range of built environment disciplines covered by these awards are:

Construction	Chartered Institute of Building (CIOB)
Architectural Technology	Chartered Institute of Architectural Technologists (CIAT)
Construction Management	Chartered Institute of Building (CIOB)
Quantity Surveying	Royal Institution of Chartered Surveyors (RICS)
Building Surveying	Royal Institution of Chartered Surveyors (RICS)
Facilities Management	British Institute of Facilities Management (BIFM)

Most professional bodies provide broad recognition of HNC and HND awards against their educational requirements for membership. Some professional bodies accredit individual courses at colleges and university's. Professional body membership requires a combination of the educational base and verification of professional experience.

CIOB has a wide ranging membership portfolio. In addition to Construction and Construction Management candidates, those working in other construction disciplines, including those above, are eligible to apply for CIOB membership. Consultation with CIOB has produced a supporting statement from Richard Larcombe (Consultant to CIOB), endorsed by Nick Marsh (CIOB) which is contained in Appendix 7. The statement provides that, having reviewed the award framework with some sample Units, CIOB will grant the same recognition to SQA HNC and HND holders as it would to the equivalent Edexcel HNCs and HNDs. CIOB will complete a detailed mapping of the awards against their education requirements once the awards and Units have been finally validated. Such mapping will provide detailed information to guide applicants to the most appropriate membership grade.

BIFM has provided similar consultation response to that of CIOB. Correspondence confirming that achievement of the Facilities Management built awards will attract exemptions from BIFM membership requirements is contained in Appendix 7. BIFM will examine the validated award structure and Unit descriptors in order to establish exact compensation conditions for candidates.

The required level of academic qualification for the function of the Architectural Technician is an HNC with appropriate experiential learning or the full-time HND followed by structured and evidenced experiential learning. CIAT has confirmed that the framework appears to meet the needs of aspiring members and they will evaluate the validated award against their specific requirements and provide detailed guidance to candidates. Correspondence from Elizabeth Brookfield BSc (Hons) PhD MED, at CIAT, is included in Appendix 7.

The HND and HNC in Quantity Surveying are well-established routes towards the Tech RICS award and as part of a Degree route to RICS membership or as qualifications in their own right. There is no reason to believe that these awards will not receive continuing recognition from RICS as an educational base.

The awards should also be recognised as underpinning knowledge to appropriate S/NVQ Level 4 qualifications.

15 Mapping against Occupational Standards

Given the range of qualifications within this Group Award mapping against Occupational Standards is a major project. It is the intention to map the award content, against appropriate Professional Institution Competence Criteria and/or appropriate SVQ/NVQs, both of which are derived from appropriate Occupational Standards, subsequent to Award Validation.

16 General information for centres

Candidates with disabilities and/or additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering alternative Outcomes for Units. Further advice can be found in the SQA document *Guidance on Assessment Arrangements for Candidates with Disabilities and/or Additional Support Needs* (www.sqa.org.uk).

Internal and external verification

All instruments of assessment used within this/these Group Award(s) should be internally verified, using the appropriate policy within the centre and the guidelines set by SQA.

External verification will be carried out by SQA to ensure that internal assessment is within the national guidelines for these qualifications.

Further information on internal and external verification can be found in *SQA's Guide to Assessment and Quality Assurance for Colleges of Further Education* (www.sqa.org.uk).

17 Glossary of terms

SCQF: This stands for the Scottish Credit and Qualification Framework, which is a new way of speaking about qualifications and how they inter-relate. We use SCQF terminology throughout this guide to refer to credits and levels. For further information on the SCQF visit the SCQF website at www.scqf.org.uk

SCQF credit points: One HN credit is equivalent to 8 SCQF credit points. This applies to all HN Units, irrespective of their level.

SCQF levels: The SCQF covers 12 levels of learning. HN Units will normally be at levels 6–9. Graded Units will be at level 7 and 8.

Subject Unit: Subject Units contain vocational/subject content and are designed to test a specific set of knowledge and skills.

Graded Unit: Graded Units assess candidates' ability to integrate what they have learned while working towards the Units of the Group Award. Their purpose is to add value to the Group Award, making it more than the sum of its parts, and to encourage candidates to retain and adapt their skills and knowledge.

Dedicated Core Skill Unit: This is a Unit that is written to cover one or more particular Core Skills, eg HN Units in Information Technology or Communications.

Embedded Core Skills: This is where the development of a Core Skill is incorporated into the Unit and where the Unit assessment also covers the requirements of Core Skill assessment at a particular level.

Signposted Core Skills: This refers to the opportunities to develop a particular Core Skill at a specified level that lie outwith automatic certification.

Qualification Design Team: The QDT works in conjunction with a Qualification Manager/Development Manager to steer the development of the HNC/D from its inception/revision through to validation. The group is made up of key stakeholders representing the interests of centres, employers, universities and other relevant organisations.

Consortium-devised HNCs and HNDs are those developments or revisions undertaken by a group of centres in partnership with SQA.

Specialist single centre and specialist collaborative devised HNCs and HNDs are those developments or revisions led by a single centre or small group of centres who provide knowledge and skills in a specialist area. Like consortium-devised HNCs and HNDs, these developments or revisions will also be supported by SQA.

18 Appendices

Appendix 1: Credit Transfer Transition Arrangements

Appendix 2: Core Skill Signposting Guide

Appendix 3: Mapping of Opportunities for Inclusion of Health and Safety

Appendix 4: Mapping of Opportunities for Inclusion of Sustainability

See the following pages for appendices.

Credit Transfer Transition Arrangements

Compared with existing awards, some Units in the new awards might contain new or updated content, whilst for others the distribution of content between similar Units might have been changed.

In principle candidates can be given credit transfer between current HNC Units, or Units from other appropriate qualifications, and the Units of the new award.

Specific credit transfers for Mandatory and Optional Units are listed in the following table.

Centre/s may consider that there are opportunities for partial credit transfer within some, or all, of the remaining Units in the award. Centres will have access to the SQA Moderator in order to validate Credit Transfer applications for such partial credit transfer claims.

Candidates who are given credit transfer between current HNC Units and the new HN Units must still satisfy all other conditions of the award of the new principles HNC including the mandatory Units and the correct number of credits at the correct SCQF level.

Unit title	Credit	Level	Credit available
3-D Modelling	1	7	
Architectural CAD: An Introduction	1	7	
Architectural Design Sketching and Drawing	1	7	D603 04 Drawing and Design
Architectural Procedures and Design	1	7	D69T 04 Architectural Procedures
Building Inspection	1	7	D69X 04 Building Inspection
Building Maintenance Management	1	7	D69Y 04 Building Maintenance Management
Building Maintenance Technology	1	7	D6AO 04 Building Maintenance Technology
Building Measurement and Cost Studies	1	7	D6O7 04 Quantitative Building Studies: Introduction
Building Science	1	7	D6A2 04 Building Physics
Building Services - Introduction	1	6	D601 04 Building Services in Domestic Buildings
Building Services in Large Buildings	1	8	D6A5 04 Building Services Design 1
Building Services: Heating, Lighting & Acoustics	1	8	D6A4 04 Building Services Design 2
Building Services: Ventilation, Air-conditioning & Refrigeration	1	8	
CAD 2-D 1	1	7	D60B 04 Introduction to CAD for Construction
Construction Materials and Specifications	1	7	D605 04 Construction Materials Performance Studies
Construction Planning	1	8	
Construction Site Surveying A	1	7	D6O2 04 Construction Site Surveying
Construction Site Surveying B	1	7	
Construction Technical Communication Skills	1	7	
Construction Technology: Domestic Construction	1	6	D5YX 04 Construction Technology 1: Domestic Construction
Construction Technology: Indust/Comm Superstructure	1	7	D600 04 Construction Technology 3: Indust/Comm Superstructure
Construction Technology: Specialist Systems	1	8	
Construction Technology: Substructure	1	7	D5YY 04 Construction Technology: Substructure and Remedial Works
Conversion and Adaptation of Buildings	1	8	D6A9 04 Conversion and Adaptation of Buildings
Data and Telecommunications Infrastructure	1	8	
Design of Building Structures	1	7	
Economics and the Built Environment	1	8	

Unit title	Credit	Level	Credit available
Estimating	1	7	D6AC 04 Estimating
Facilities Management: Operational and Support Services	1	8	
Facilities Management: Property Services	1	8	
Facilities Resource Planning and Contract Management	1	8	
Financial Studies for the Construction Industry	1	8	
Fire Safety in Buildings	1	8	D6AF 04 Fire Studies Related to Buildings
Human Resource Management in Construction	1	8	
Introduction to the Construction Industry	1	7	D604 04 Introduction to the Construction Industry
Managing Construction Organisations	1	8	
Mathematics for Construction	1	6	A75Y 04 Mathematics for the Built Environment: Algebra and Trig
Personal Development and Planning (DDE3R34)	1	7	
Quality in Construction	1	7	
Quantitative Building Studies: Building Services	1	7	
Quantitative Building Studies: Floors and Roofs	1	7	D6AL 04 Quantitative Building Studies: Floors and Roofs
Quantitative Building Studies: Substruct and Drainage	1	7	D6AN 04 Quantitative Building Studies: Substructures and Drainage
Quantity Surveying Practice	1	8	
Scottish Law for Construction	1	8	
Site Administration	1	7	
Standard Forms of Construction Contract	1	8	D6AS 04 Standard Forms of Construction Contracts
Statutory Control of Buildings	1	7	
Structural Mechanics	1	7	D6OA 04 Mechanics and Structures
Surveying Historic Buildings	1	8	
Work Role Effectiveness (DG6E34)	3	7	

Appendix 2

Core Skills Sign Posting Guide

This Appendix contains two separate guides for the development of Core Skills in these awards.

- A The Core Skills Sign Post Guide identifies opportunities for the development of Core Skills through the learning, teaching and assessment process. The guide focuses on specific areas that offer opportunities for Core Skills development in the mandatory Units of the HNCs, at the levels shown in the output profiles. The Units identified in the guide are therefore Mandatory for those candidates taking the HND.
- B Mapping of Opportunities for the Development of Core Skills.
This guidance identifies general opportunities for Core Skill development across the Units of the award/s and not restricted to mandatory Units nor output levels.

These guides are neither exclusive nor exhaustive, the remaining Mandatory and Optional Units may well provide additional opportunities for Core Skill development at the levels indicated in the guide or at other levels.

Additional skills recognised as critical by employers and Higher Education, such as meeting deadlines, attention to detail, personal target setting, enterprise and effective dealing with clients are not precisely reflected in the SQA Core Skill specifications. Awareness and opportunity for development of these skills exists within this award. The Graded Units integrate knowledge and skills developed, and provides further opportunities for candidates to demonstrate transferable skills and a high level of achievement.

A Core Skill Signposting Guide

Contents

Communication (SCQF level 6)

Using Information Technology (SCQF level 5)

Numeracy (SCQF level 6)

Using Graphical Information (SCQF level 6)

Problem Solving (SCQF level 6)

Working with Others (SCQF level 5)

Communication (SCQF level 6)

Skill component Written Communication (Reading)

- a Identify and summarise significant information, ideas and supporting detail.
- b Evaluate effectiveness in meeting purpose and needs of readership.

Core Units	Knowledge and Skills/Evidence	a	b
Construction Technical Communication Skills	Identify the purpose and method of a particular communication.	✓	
	Select the most appropriate medium for a particular communication.		✓
Site Surveying A	Carry out information gathering from Ordnance Survey plans.	✓	
Architectural Design Sketching and Drawing	Interpret construction drawings.	✓	✓
HNC Graded Unit 1	Reading and interpreting graphical and written communication defining the assessment tasks	✓	✓
Standard Forms of Construction Contracts	Describe the rights and obligations of interested parties with reference to the latest JCT standard form of building contract incorporating the Scottish supplement.	✓	
<p>Identifying, interpreting and applying information from a range of specifications and plans is an essential skill in the majority of Units. Understanding and applying terminology across a range of built environment Units will develop industry skills. Candidates will also refer to a range of sources to research and reference underpinning complex background information on vocational issues.</p>			

Written Communication (Writing)

Produce well-structured Written Communication

- a Present essential ideas/information in a logical order.
- b Use a structure which takes account of purpose/links points for clarity and impact.
- c Use conventions which are effective for audience.
- d Use accurate spelling, punctuation, sentence structures.
- e Vary sentence structure, paragraphing, vocabulary to suit purpose and target audience.

Unit	Knowledge/Skills/Evidence	a	b	c	d	e
Construction Technical Communication Skills	Prepare accurate written site instructions and records of site activities	✓	✓	✓	✓	✓
	Produce written records of construction activities	✓	✓	✓	✓	✓
Construction Materials and Specifications	Prepare sample specifications for construction materials	✓	✓	✓	✓	
Construction Technology: Substructure	Describe the process of site investigation	✓	✓	✓	✓	✓
HNC Graded Unit1	Preparation of portfolio, report etc	✓	✓	✓	✓	
<p>All Units require the ability to select the most appropriate medium and format for conveying textual and/or graphic information effectively. Skills developed during the course will include production and presentation of accurate, coherent written and graphic data to industry standards.</p>						

Oral Communication

Produce and respond to oral Communication

- a Use vocabulary and a range of spoken language structures consistently and effectively with appropriate formality.
- b Convey all essential ideas/information/opinions accurately and coherently with appropriate varied emphasis.
- c Structure to take account of purpose and audience.
- d Take account of situation and audience during delivery.
- e Respond to others taking account of their contribution.

Unit	Knowledge/Skills/Evidence	a	b	c	d	e
Construction Technical Communication Skills	Satisfactorily communicate in one-to-one and group situations	✓	✓	✓	✓	✓
Site Surveying A	Communication with members of the group during survey activities	✓	✓	✓	✓	✓
Construction Technical Communication Skills	Report on construction site activities	✓	✓	✓	✓	✓
HNC Graded Unit 1	Presentation of portfolio, report, oral examination	✓	✓	✓	✓	✓
	Interaction with supervisor and other candidates	✓	✓	✓	✓	✓
Site Administration	Prepare the agenda for and participate in a site meeting	✓	✓	✓	✓	✓
<p>Planning for and undertaking discussions with colleagues and interviews with supervisor and/or assessor. Coursework will emphasise and require listening skills and the ability to maintain tone and language which is appropriate for purpose and audience.</p>						

Using Information Technology (SCQF level 5)

Use an IT system effectively and responsibly to process a range of types of data

- a Make effective and responsible use of IT equipment.
- b Apply a range of skills from more than one software application.
- c Integrate different types of data using three types of software.
- d Carry out two searches to find and present information from electronic sources.

Unit	Knowledge/Skills/Evidence	a	b	c	d
Construction Technical Communication Skills	Non paper-based forms of recording written site instructions and activities	✓		✓	✓
CAD 2D 1	Use a CAD package to set up a 2D CAD drawing environment	✓	✓		✓
	Perform a range of file management operations to a given specification	✓			✓

Most technology Units offer the opportunity for the use of IT to solve numerical/graphical problems. Internet research on current built environment information and practice will provide essential underpinning knowledge for the award. Professional presentation of business materials will involve access to and use of technology. Security, consideration and the managing of any technical problems will be a routine aspect of good practice.

Numeracy (SCQF level 6)

Skill component -Using Number

Apply a wide range of numerical, statistical and other skills to process complex information

- (a) Work confidently with a numerical or statistical concept.
- (b) Decide on steps and operations to be carried out.
- (c) carry out a number of sustained complex calculations.

Unit	Knowledge/ Skills/ Evidence	a	b	c
Mathematics for Construction	Apply algebraic techniques to manipulate expressions and solve equations	✓	✓	✓
	Solve common surveying problems			
Building Measurement and Cost Studies	Produce quantified items for superstructure walls	✓	✓	✓
Construction Site Surveying A	Carry out the measurement of angles and distances for survey purposes.	✓	✓	✓
Estimating	Apply approximate estimating techniques	✓	✓	
	Build an hourly rate	✓	✓	
	Perform pro rata rate calculations.	✓	✓	
HNC Graded Unit 1	Analysis of task criteria and development of proposed solution	✓	✓	✓
<p>Accuracy and confidence in work with a range of numerical concepts and the ability to apply numerical information to practical solutions is integral to many Units and achievement across the award.</p>				

Using Graphical Information (SCQF level 6)

Apply a wide range of graphical skills in everyday and generalised contexts

- a analyse and interpret significant features of graphical information in relation to underlying variables
- b select appropriate forms –tables, graphs, diagrams or qualitative form to communicate information

Unit	Knowledge/Skills/Evidence	a	b
Mathematics for Construction	Create and interpret graphs and charts	✓	✓
Site Surveying A	Carry out a levelling survey	✓	✓
	Carry out the measurement of angles and distances for survey purposes	✓	✓
Construction Technical Communication Skills	Use freehand sketching to communicate	✓	✓
Architectural Procedures and Design	Production of design drawings	✓	✓
Building Services : Introduction	Sketch and describe arrangements for service cable entry, control, earth and safety systems, power circuits and lighting circuits	✓	✓
CAD 2D 1	Produce a 2D CAD drawing using the CAD package and plot the drawing to an appropriate scale.	✓	
Architectural Design Sketching and Drawing	Illustrate basic architectural concepts.	✓	✓
<p>The ability to analyse, interpret, apply and present graphical information in a range of situations relating to built environment disciplines applies in most Units and is integral to achievement across the award.</p>			

Problem Solving (SCQF level 6)

Skill components

- a Critical Thinking — analyse a situation or issue
- b Planning and Organising
- c Reviewing and Evaluating

Unit	Knowledge/Skills/Evidence	CT	PO	RE
Construction Technology: Substructure	Select and describe appropriate forms of foundation construction	✓		✓
Building Services An Introduction	Interpret building requirements, select and propose practical systems and equipment to satisfy the requirements for a space heating system	✓		✓
Construction Technology: Substructure	Select and describe appropriate forms of foundation construction	✓		✓
Architectural Procedures and Design	Apply basic ergonomic and anthropometric data	✓	✓	✓
	Budget control and cost planning	✓	✓	✓
HNC Graded Unit 1	Analysis of task, planning and organising development activity, review and evaluation	✓	✓	✓
Building Maintenance Technology	Survey a building		✓	✓
<p>All elements of this Core Skill will be integral to the award. All Units require an analytical and evaluative approach to practical problem solving. Critical thinking, review and evaluation are integral to all technology Units. Planning and implementation involving communication, co-operation and negotiation with others, and evaluative activities are fundamental to many Units.</p>				

Working with Others (SCQF level 5)

Work with Others in a group to analyse, plan and complete an activity

- a Analyse the activity and identify the component tasks and roles.
- b Agree allocation of responsibilities taking account of strengths and weaknesses.
- c Support co-operative working.
- d Evaluate and draw conclusions on own contribution to group activity.

Unit	Knowledge/Skills/Evidence	a	b	c	d
Site Surveying A	Carry out a levelling survey	✓		✓	✓
Construction Materials and Specifications	Carry out laboratory tests on construction materials and prepare reports	✓	✓	✓	✓
HNC Graded Unit 1	Analysis of task, planning and organising development activity, review and evaluation	✓		✓	
Site Administration	Prepare the agenda for and participate in a site meeting	✓	✓	✓	✓

Teaching and learning activities will involve group discussion of practical and theoretical issues and problems. Evaluation of individual contribution to design solutions will be considered as an aspect of personal development with assessor support and guidance, particularly in relation to Graded Unit assessments.

B Mapping of Opportunities for Core Skill Development

Contents

- 1 Skill Elements of Core Skills related to award evidence.**
- 2 Mapping of opportunities in core Units of:**
 - ◆ HNC Construction
 - ◆ HNC/D Architectural Technology
 - ◆ HNC/D Construction Management
 - ◆ HNC/D Quantity Surveying
 - ◆ HNC/D Building Surveying
 - ◆ HND Facilities Management
- 3 Approaches to Development.**
- 4 Sample self assessment checklists — Communication Core Skills.**

1 Outline of Core Skills elements related to Built Environment activities

Level	Communication — Written — reading	
6	Analyse, summarise and evaluate complex written communication	
<i>Critical reading of background information, technical specifications, investigative research</i>		
Level	Communication — Written — writing	
6	Produce well-structured, accurate written communication on complex topics	
<i>Collation/presentation of complex data in structured reports, technical specifications, papers to industry standard</i>		
Level	Communication — Oral	
6	Produce and respond to oral communication on a complex topic	
<i>Formal technical discussions, presentations to clients and colleagues, meetings</i>		
Level	Numeracy — Using Number	
6	Apply in combination a wide range of numerical, statistical and other mathematical skills to process complex information in generalised contexts	
<i>Interpreting, calculating and presenting detailed complex technical, safety or financial data</i>		
Level	Numeracy — Using Graphical Information	
6	Apply a wide range of graphical skills to interpret and present complex information in generalised contexts.	
<i>Interpreting, producing and presenting detailed, complex data in graphic formats to industry standard</i>		
Level	Information Technology	
5	Use an IT system effectively and responsibly to process a range of information	
<i>Website reference for underpinning information and research; collation and presentation of written and graphic materials to industry standard</i>		
Level	Problem Solving-Planning and Organising	
6	Plan, organise and complete a task	
<i>Strategic planning for all aspects of complex practical tasks, on-going critical evaluation and completion within given resources and timescales</i>		
Level	Problem Solving — Reviewing and Evaluating	
6	Review and evaluate a complex problem solving activity	
<i>Reviewing and modifying solutions as appropriate</i>		
Level	Working with Others	
5	Work with others in a group to analyse, plan and complete an activity	
<i>Group and interpersonal technical discussions, negotiations and problem solving activities related to professional issues</i>		

2 Mapping — opportunities for Core Skills development

There are many ways for centres to develop and enhance the Core Skills of candidates. The mapping which follows indicates the most evident opportunities across the HNC/HND awards referring to Units which are mandatory and offer a common experience. Relevant elements of Core Skills may be tailored to identified needs and resources, and further chances to enhance skills may be available in optional Units.

HNC CONSTRUCTION Units	Communication		IT	Numeracy		Problem Solving	WWO
	<i>written</i>	<i>oral</i>		<i>number</i>	<i>graphics</i>		
Architectural Design Sketching and Drawing				✓	✓	✓	✓
Building Measurement and Cost Studies				✓	✓	✓	
Building Science				✓	✓	✓	
Building Services				✓	✓	✓	
CAD2-D 1			✓	✓	✓	✓	
Construction Materials and Specifications			✓	✓	✓	✓	
Construction Site Surveying A	✓		✓	✓	✓	✓	
Construction Technical Communication Skills	✓	✓					✓
Construction Technology: Domestic Constr.			✓	✓	✓	✓	✓
Construction Technology: Substructure			✓	✓	✓	✓	
Introduction to the Construction Industry	✓		✓			✓	
Graded Unit	✓	✓	✓	✓	✓	✓	✓

HNC/D Architectural Technology Mandatory/Optional Units	Communication		IT	Numeracy		Problem Solving	WWO
	written	oral		number	graphics		
Architectural CAD; An Introduction*			✓	✓	✓	✓	✓
Architectural Design Sketching and Drawing*				✓	✓	✓	
Architectural Procedures and Design				✓	✓	✓	
Building Measurement and Cost Studies				✓	✓	✓	
Building Science				✓	✓		
Building Services: An Introduction				✓	✓	✓	
Building Services: Large Buildings				✓	✓	✓	
Building Services: Heating Lighting Acoustics				✓	✓	✓	
CAD2-D 1*			✓	✓	✓	✓	
Construction Materials and Specifications*	✓			✓		✓	
Construction Site Surveying A	✓		✓	✓	✓	✓	
Construction Technical Communication Skills	✓	✓					✓
Construction Technology: I/C Superstructure				✓	✓	✓	✓
Construction Technology: Domestic				✓	✓	✓	
Construction Technology: Ind/Commercial				✓	✓	✓	
Construction Technology: Specialist				✓	✓	✓	
Construction Technology: Substructure*				✓	✓	✓	
Conversion and Adaptation of Buildings				✓	✓	✓	
Design of Buildings Structures*				✓	✓	✓	
Fire Safety	✓			✓	✓	✓	✓
Human Resource Management	✓	✓		✓		✓	✓
Introduction to the Construction Industry	✓		✓	✓	✓		
Mathematics for Construction				✓	✓	✓	
Personal Development Planning		✓				✓	✓
Structural Mechanics				✓	✓	✓	
Standard Forms of Construction Contract	✓	✓	✓	✓	✓		
HNC Graded Unit 1*	✓	✓	✓	✓	✓	✓	✓
HND Graded Unit 2	✓	✓	✓	✓	✓	✓	✓

*HNC Mandatory Unit — other Units are optional in HNC, mandatory in HND

HNC/D Construction Management Mandatory/Optional Units	Communication		IT	Numeracy		Problem Solving	WWO
	written	oral		number	graphics		
Architectural Design Sketching and Drawing				✓	✓	✓	
Building Measurement and Cost Studies				✓	✓	✓	
Building Science				✓	✓		
Building Services: An Introduction				✓	✓	✓	
CAD2-D 1			✓	✓	✓	✓	
Construction Materials and Specifications*	✓			✓		✓	
Construction Planning	✓		✓	✓	✓	✓	
Construction Site Surveying A*				✓	✓	✓	
Construction Site Surveying B				✓	✓	✓	
Construction Technical Communication Skills	✓	✓					✓
Construction Technology: I/C Superstructure*				✓	✓	✓	✓
Construction Technology: Domestic				✓	✓	✓	
Construction Technology: Specialist				✓	✓	✓	
Construction Technology: Substructure*				✓	✓	✓	
Economics and the Built Environment				✓	✓	✓	
Human Resource Management	✓	✓		✓		✓	✓
Introduction to the Construction Industry	✓		✓	✓	✓		
Managing Construction Organisations	✓	✓	✓	✓			✓
Mathematics for Construction				✓	✓	✓	
Personal Development Planning		✓				✓	✓
Quality in Construction				✓	✓	✓	
Scottish Law for Construction*	✓					✓	
Site Administration*			✓	✓			✓
Structural Mechanics				✓	✓	✓	
Standard Forms of Construction Contract	✓	✓	✓	✓	✓		
HNC Graded Unit 1*	✓	✓	✓	✓	✓	✓	
HND Graded Unit 2	✓	✓	✓	✓	✓	✓	✓

*HNC Mandatory Unit — other Units are optional in HNC, mandatory in HND

HNC/D Quantity Surveying Mandatory/Optional Units	Communication		IT	Numeracy		Problem Solving	WWO
	written	oral		number	graphics		
Architectural Design Sketching and Drawing				✓	✓	✓	
Building Measurement and Cost Studies			✓	✓	✓	✓	
Building Science				✓	✓		
Building Services: An Introduction				✓	✓	✓	
Building Services: Large Buildings				✓	✓	✓	
CAD2-D 1			✓	✓	✓	✓	
Construction Materials and Specifications*	✓			✓		✓	
Construction Site Surveying	✓		✓	✓	✓	✓	✓
Construction Technology: I/C Superstructure				✓	✓	✓	✓
Construction Technology: Domestic				✓	✓	✓	
Construction Technology: Ind/Commercial				✓	✓	✓	
Construction Technology: Specialist*				✓	✓	✓	
Construction Technology: Substructure*				✓	✓	✓	
Estimating*				✓	✓	✓	
Financial Studies			✓	✓	✓	✓	
Human Resource Management	✓	✓	✓	✓		✓	✓
Introduction to the Construction Industry	✓		✓	✓	✓		
Mathematics for Construction				✓	✓	✓	
QBS Floors and Roofs*		✓		✓	✓	✓	✓
QBS Substructure and Drainage*				✓	✓	✓	
Quantity Surveying Contract	✓	✓		✓	✓	✓	
Structural Mechanics				✓	✓	✓	
Standard Forms of Construction Contract*	✓	✓	✓	✓	✓	✓	
HNC Graded Unit 1*	✓	✓	✓	✓	✓	✓	✓
HND Graded Unit 2	✓	✓	✓	✓	✓	✓	✓

*HNC Mandatory Unit — other Units are optional in HNC, mandatory in HND

HNC/D Building Surveying Mandatory/Optional Units	Communication		IT	Numeracy		Problem Solving	WWO
	written	oral		number	graphics		
Architectural Design Sketching and Drawing				✓	✓	✓	
Building Inspection							✓
Building Maintenance Technology*				✓	✓	✓	
Building Measurement and Cost Studies			✓	✓	✓	✓	
Building Science				✓	✓		
Building Services: An Introduction				✓	✓	✓	
Building Services: Large Buildings*				✓	✓	✓	
Building Services: Heat Light Acoustics							
CAD2-D 1			✓	✓	✓	✓	
Construction Materials and Specifications*	✓		✓	✓	✓	✓	✓
Construction Site Surveying A	✓			✓	✓	✓	
Construction Technology: I/C Superstructure*				✓	✓	✓	✓
Construction Technology: Domestic				✓	✓	✓	
Construction Technology: Ind/Commercial				✓	✓	✓	
Construction Technology: Specialist				✓	✓	✓	
Construction Technology: Substructure*				✓	✓	✓	
Conversion and Adaptation of Buildings	✓			✓	✓	✓	
Design of Building Structures							
FM Operational and Support Services		✓	✓	✓	✓	✓	✓
Introduction to the Construction Industry	✓		✓	✓	✓		
Mathematics for Construction				✓	✓	✓	
QBS Floors and Roofs		✓		✓	✓	✓	✓
QBS Substructure and Drainage*				✓	✓	✓	
Quantity Surveying Contract	✓	✓		✓	✓	✓	
Structural Mechanics				✓	✓	✓	
Statutory Control of Buildings	✓			✓	✓	✓	
Standard Forms of Construction Contract	✓	✓	✓	✓	✓	✓	
HNC Graded Unit 1*	✓	✓	✓	✓	✓	✓	✓
HND Graded Unit 2	✓	✓	✓	✓	✓	✓	✓

*HNC Mandatory Unit — other Units are optional in HNC, mandatory in HND

HNCD Facilities Management Mandatory/Optional Units	Communication		IT	Numeracy		Problem Solving	WWO
	written	oral		number	graphics		
Architectural Design Sketching and Drawing				✓	✓	✓	
Building Inspection				✓	✓	✓	
Building Maintenance Management							
Building Measurement and Cost Studies				✓	✓	✓	
Building Science				✓	✓		
Building Services: Introduction				✓	✓	✓	
Building Services: Large Buildings				✓	✓	✓	
CAD2-D 1			✓	✓	✓	✓	
Construction Materials and Specifications	✓			✓		✓	
Construction Site Surveying A							
Construction Technical Communication Skills	✓	✓					✓
Construction Technology: I/C Superstructure				✓	✓	✓	✓
Construction Technology: Domestic				✓	✓	✓	
Construction Technology: Substructure				✓	✓	✓	
Conversion and Adaptation of Buildings				✓	✓	✓	
Data and Telecommunications	✓		✓				
Economics and the Built Environment			✓	✓	✓	✓	
FM Operational and Support Services			✓	✓	✓	✓	
FM Property Services				✓	✓	✓	
FM Resource Planning and Contract Mgmt	✓		✓	✓		✓	✓
Financial Studies			✓	✓		✓	
Fire Safety	✓			✓	✓	✓	✓
Introduction to the Construction Industry	✓		✓	✓	✓		
Managing Construction Organisations	✓		✓	✓	✓	✓	✓
Mathematics for Construction				✓	✓	✓	
Personal Development Planning		✓				✓	✓
Graded Units 1 and 2	✓	✓	✓	✓	✓	✓	✓

3 Approaches to Development

Candidates undertaking the awards will need significant Core Skill profiles, either formally certificated or based on relevant industry experience, on entry to courses. The practical applications of Numeracy and Problem Solving as tools in a working environment will underpin all activities. Skills with using Number and Graphics to provide practical solutions are intrinsic to all the HNC/HND awards. Accuracy in interpreting complex construction information and the ability to calculate, apply and present numerical and graphic data underpins competencies developed. *Candidates could additionally be provided with formative opportunities to enhance skills in the interpretation of numerical, statistical and graphic data in practical workplace contexts, with a focus on Numeracy as a tool to be used and applied efficiently and critically in building services and construction design solutions. Calculations and effective presentation of data could be supported and enhanced by the use of appropriate technology. Access to and additional training in the use of professional software packages could be particularly useful as candidates learn to apply numerical and graphical information in contexts relevant to the Built Environment.*

All elements of the Core Skill of Problem Solving, that is, planning and organising, critical thinking, and reviewing and evaluating, should also provide naturally occurring evidence of skills developed and enhanced across all Units as candidates plan, undertake and evaluate the many complex practical tasks required to provide evidence of competence. Detailed efficient preparation for technical work is critical to achievement and all factors potentially affecting practical applications have to be identified and considered in depth and in detail. Reviewing the potential value and limitations of all available resources, planning their efficient use in order to maximise effectiveness of solutions proposed and proposing approaches to overcome any potential difficulties further assures a high level of critical thinking. Adopting effective strategies which reflect and apply current theory and practice to maintain safe practice allows on-going opportunities for review and potential adjustment. *As well as encouraging group discussion and analysis of technical situations and problems assessors could provide industry exemplar support materials, self assessment checklists, and case studies. Personal interviews with candidates in order to reinforce analytical approaches and influence strategies for progression pathways is likely to be routine good practice. In some centres the optional Unit Personal Development Planning will be used to provide a formal framework for evidence gathering throughout the course. The Graded Units will apply the Knowledge and Skills gained and formally require that candidates provide comprehensive evidence of each stage in Planning, Undertaking and Evaluating a practical assignment.*

There will be opportunities in the course to encourage candidates to explore different ways of enhancing skills in co-operative working with others. Elements of discussion and negotiation are intrinsic to all stages of formative and professional technical work. *Centre designed self assessment skills checklists might support practice in developing a range of approaches to negotiation with different groups, including colleagues and clients. Candidates could, for example, be supported in demonstrating, explaining and adapting ideas on technical issues to maximise communication in formative group discussions.*

A significant level of verbal and non verbal communication skills will be used to present complex information in a style and format to industry standard. Skills in accessing and evaluating text and electronic sources which provide an effective source of current complex data on professional concerns, issues and ideas should be developed to ensure that candidates read in depth and in detail current reference materials including those from a range of Internet sites and DVD/CD based databases. ***Checklists to support analytical evaluation and presentation of information accessed could include criteria to ensure a check on the currency, authority, accuracy, and balance of all information to be used.*** Candidates should learn computerised record keeping and the importance of saving materials and performing back up. They should be advised on the effective and responsible use of equipment and software applications, and learn methods for keeping all data gathered secure and well organised. ***There should be formative opportunities to create documents, designs, compositions or models from different types of data appropriate to context with appropriate use of presentation styles, to output information in a format to meet a given specification and to effectively present information in both numerical and graphical, form.***

4 Exemplar self assessment checklists

Self Assessment Checklist — Oral Communication Skills			
Name		Date	
Topic			
Communication skills	(✓)	Comments/development points	
Information prepared, presented and recorded accurately/effectively			
Consider: <ul style="list-style-type: none"> ◆ selection of accurate relevant data ◆ sound conclusions on information ◆ structure and sequencing of contribution ◆ signposting ◆ effective presentation and use of any support materials ◆ formal record keeping 			
Appropriate use of verbal and non verbal communication			
Consider: <ul style="list-style-type: none"> ◆ tone and pace adjusted for purpose ◆ clear and audible ◆ eye contact ◆ positive, interested expression ◆ confident open posture 			
Responding to others to progress communication			
Consider: <ul style="list-style-type: none"> ◆ giving and receiving information ◆ listening and attending ◆ use of open questions ◆ responding constructively to others ◆ giving and receiving positive feedback ◆ interpreting and adjusting to needs of others 			
Assessor Feedback:			

Evaluation checklist — Report Writing

<p>Purpose and Readership</p> <p>Intended reader named and considered (style/format) Aim of the report clear and stated (To inform, analyse, evaluate or persuade?)</p> <p>Date and author</p>	
<p>Format and Style</p> <p>Text in a recognised industry layout and format? For example:</p> <ul style="list-style-type: none"> ◆ executive summary ◆ body ◆ conclusions ◆ recommendations ◆ appendices <p>Designed for readability? (presentation, headings/bullet points/ numbering/white space/clear graphics linked to text)</p> <p>Appropriate style? (formal/technical language and expression used consistently)</p>	
<p>Accuracy</p> <p>Is the information accurate?</p> <p>Are the graphics accurate, well presented and annotated to industry standard?</p> <p>Have you checked spelling and punctuation?</p>	
<p>Feedback —development comments</p>	

Appendix 3

Mapping of Opportunities for inclusion of Health and Safety

Y = Explicit (regulations/standards are quoted) or implicit opportunity to develop knowledge of Health and Safety issues.

Health and Safety Mapping per Award

Unit title	Credit	Level	HNC Const	HNC AT	HND AT	HNC CM	HND CM	HNC QS	HND QS	HNC BS	HND BS	HND FM
3-D Modelling	2	7										
Architectural CAD: An Introduction	1	7										
Architectural Design Sketching and Drawing	1	7										
Architectural Procedures and Design	1	7		Y	Y						Y	
Building Inspection	1	7										
Building Maintenance Management	1	7										
Building Maintenance Technology	1	7										
Building Measurement and Cost Studies	1	7										
Building Science	1	7										
Building Services - Introduction	1	6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Building Services in Large Buildings	1	8		Y	Y	Y	Y	Y	Y	Y	Y	Y
Building Services: Heating, Lighting & Acoustics	1	8		Y	Y						Y	Y
Building Services: Ventilation, Air-conditioning & Refrigeration	1	8			Y							Y
CAD 2-D 1	1	7										
Construction Materials and Specifications	1	7										
Construction Planning	1	8			Y	Y	Y		Y			Y
Construction Site Surveying A	1	7										
Construction Site Surveying B	1	7										
Construction Technical Communication Skills	1	7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Construction Technology: Domestic Construction	1	6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Construction Technology: Indust/Comm Superstructure	1	7		Y	Y	Y	Y	Y	Y	Y	Y	Y
Construction Technology: Specialist Systems	1	8			Y		Y		Y	Y	Y	Y
Construction Technology: Substructure	1	7										
Conversion and Adaptation of Buildings	1	8			Y					Y	Y	Y

Data and Telecommunications Infrastructure	1	8											
Design of Building Structures	1	7											
Economics and the Built Environment	1	8											
Estimating	1	7											
Facilities Management: Operational and Support Services	1	8											
Facilities Management: Property Services	1	8											
Facilities Resource Planning and Contract Management	1	8											Y
Financial Studies for the Construction Industry	1	8											
Fire Safety in Buildings	1	8			Y							Y	Y
Health and Safety in Construction	1	7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Human Resource Management in Construction	1	8											
Introduction to the Construction Industry	1	7											
Managing Construction Organisations	1	8											
Mathematics for Construction	1	6											
Personal Development and Planning (DDE3R34)	1	7											
Quality in Construction	1	7											
Quantitative Building Studies: Building Services	1	7											
Quantitative Building Studies: Floors and Roofs	1	7											
Quantitative Building Studies: Substruct and Drainage	1	7											
Quantity Surveying Practice	1	8											
Scottish Law for Construction	1	8											
Site Administration	1	7		Y		Y	Y	Y	Y				
Standard Forms of Construction Contract	1	8											
Statutory Control of Buildings	1	7											
Structural Mechanics	1	7											
Surveying Historic Buildings	1	8											
Work Role Effectiveness (DG6E34)	3	7			Y		Y		Y		Y	Y	Y

Health and Safety mapping per Outcome

Unit title	Credit	Level	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5
3-D Modelling	1	7					
Architectural CAD: An Introduction	1	7					
Architectural Design Sketching and Drawing	1	7					
Architectural Procedures and Design	1	7		Y			
Building Inspection	1	7					
Building Maintenance Management	1	7					
Building Maintenance Technology	1	7					
Building Measurement and Cost Studies	1	7					
Building Science	1	7					
Building Services - Introduction	1	6			Y		Y
Building Services in Large Buildings	1	8	Y	Y	Y	Y	
Building Services: Heating, Lighting & Acoustics	1	8	Y	Y	Y		
Building Services: Ventilation, Air-conditioning & Refrigeration	1	8		Y			
CAD 2-D 1	1	7					
Construction Materials and Specifications	1	7					
Construction Planning	1	8			Y		
Construction Site Surveying A	1	7					
Construction Site Surveying B	1	7					
Construction Technical Communication Skills	1	7			Y		
Construction Technology: Domestic Construction	1	6	Y	Y	Y	Y	
Construction Technology: Indust/Comm Superstructure	1	7	Y	Y	Y	Y	Y
Construction Technology: Specialist Systems	1	8	Y	Y	Y		
Construction Technology: Substructure	1	7					
Conversion and Adaptation of Buildings	1	8	Y				
Data and Telecommunications Infrastructure	1	8					
Design of Building Structures	1	7					
Economics and the Built Environment	1	8					
Estimating	1	7					
Facilities Management: Operational and Support Services	1	8					
Facilities Management: Property Services	1	8					
Facilities Resource Planning and Contract Management	1	8				Y	
Financial Studies for the Construction Industry	1	8					
Fire Safety in Buildings	1	8	Y	Y	Y	Y	
Health and Safety in Construction	1	7	Y	Y	Y		
Human Resource Management in Construction	1	8					
Introduction to the Construction Industry	1	7					
Managing Construction Organisations	1	8					
Mathematics for Construction	1	6					
Personal Development and Planning (DE3R 34)	1	7					
Quality in Construction	1	7					

Quantitative Building Studies: Building Services	1	7					
Quantitative Building Studies: Floors and Roofs	1	7					
Quantitative Building Studies: Substruct and Drainage	1	7					
Quantity Surveying Practice	1	8					
Scottish Law for Construction	1	8					
Site Administration	1	7	Y			Y	
Standard Forms of Construction Contract	1	8			Y		
Statutory Control of Buildings	1	7					
Structural Mechanics	1	7					
Surveying Historic Buildings	1	8					
Work Role Effectiveness (DG6E 34)	3	7		Y	Y		

Appendix 4

Mapping of Opportunities for inclusion of Sustainability

Y = Explicit (regulations/standards/guidance are quoted) or implicit opportunity to develop knowledge of sustainability issues.

Sustainability mapping per Award

Unit title	Credit	Level	HNC Const	HNC AT	HND AT	HNC CM	HND CM	HNC QS	HND QS	HNC BS	HND BS	HND FM
3-D Modelling	2	7										
Architectural CAD: An Introduction	1	7										
Architectural Design Sketching and Drawing	1	7	Y	Y	Y	Y	Y		Y		Y	Y
Architectural Procedures and Design	1	7										
Building Inspection	1	7					Y			Y	Y	Y
Building Maintenance Management	1	7										
Building Maintenance Technology	1	7			Y					Y	Y	Y
Building Measurement and Cost Studies	1	7										
Building Science	1	7	Y		Y		Y		Y		Y	Y
Building Services - Introduction	1	6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Building Services in Large Buildings	1	8		Y	Y	Y	Y	Y	Y	Y	Y	Y
Building Services: Heating, Lighting & Acoustics	1	8		Y	Y						Y	Y
Building Services: Ventilation, Air-conditioning & Refrigeration	1	8			Y						Y	Y
CAD 2-D 1	1	7										
Construction Materials and Specifications	1	7	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Construction Planning	1	8			Y	Y	Y		Y			Y
Construction Site Surveying A	1	7										
Construction Site Surveying B	1	7										
Construction Technical Communication Skills	1	7										
Construction Technology: Domestic Construction	1	6	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Construction Technology: Indust/Comm Superstructure	1	7		Y	Y	Y	Y	Y	Y	Y	Y	Y
Construction Technology: Specialist Systems	1	8			Y		Y		Y	Y	Y	Y
Construction Technology: Substructure	1	7										
Conversion and Adaptation of Buildings	1	8			Y					Y	Y	Y

Data and Telecommunications Infrastructure	1	8											
Design of Building Structures	1	7											
Economics and the Built Environment	1	8											
Estimating	1	7											
Facilities Management: Operational and Support Services	1	8									Y	Y	Y
Facilities Management: Property Services	1	8											
Facilities Resource Planning and Contract Management	1	8											Y
Financial Studies for the Construction Industry	1	8											
Fire Safety in Buildings	1	8											
Health and Safety in Construction	1	7											
Human Resource Management in Construction	1	8											
Introduction to the Construction Industry	1	7	Y		Y		Y		Y		Y	Y	Y
Managing Construction Organisations	1	8											
Mathematics for Construction	1	6											
Personal Development and Planning (DE3R 34)	1	7		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Quality in Construction	1	7		Y	Y	Y	Y		Y				Y
Quantitative Building Studies: Building Services	1	7											
Quantitative Building Studies: Floors and Roofs	1	7											
Quantitative Building Studies: Substruct and Drainage	1	7											
Quantity Surveying Practice	1	8											
Scottish Law for Construction	1	8											
Site Administration	1	7		Y		Y	Y	Y	Y				
Standard Forms of Construction Contract	1	8		Y	Y	Y	Y	Y	Y		Y		
Statutory Control of Buildings	1	7			Y		Y			Y	Y	Y	
Structural Mechanics	1	7											
Surveying Historic Buildings	1	8											
Work Role Effectiveness (DG6E 34)	3	7			Y		Y		Y		Y	Y	Y

Sustainability mapping per Outcome

Unit title	Credit	Level	Outcome 1	Outcome 2	Outcome 3	Outcome 4	Outcome 5
3-D Modelling	1	7					
Architectural CAD: An Introduction	1	7					
Architectural Design Sketching and Drawing	1	7	Y	Y	Y		
Architectural Procedures and Design	1	7					
Building Inspection	1	7	Y	Y	Y		
Building Maintenance Management	1	7					
Building Maintenance Technology	1	7	Y	Y			
Building Measurement and Cost Studies	1	7					
Building Science	1	7	Y	Y		Y	
Building Services - Introduction	1	6	Y	Y		Y	
Building Services in Large Buildings	1	8	Y	Y			
Building Services: Heating, Lighting & Acoustics	1	8	Y	Y	Y		
Building Services: Ventilation, Air-conditioning & Refrigeration	1	8			Y		
CAD 2-D 1	1	7					
Construction Materials and Specifications	1	7	Y				
Construction Planning	1	8	Y	Y			
Construction Site Surveying A	1	7					
Construction Site Surveying B	1	7					
Construction Technical Communication Skills	1	7					
Construction Technology: Domestic Construction	1	6	Y	Y	Y	Y	
Construction Technology: Indust/Comm Superstructure	1	7	Y	Y	Y	Y	Y
Construction Technology: Specialist Systems	1	8				Y	
Construction Technology: Substructure	1	7					
Conversion and Adaptation of Buildings	1	8		Y	Y	Y	
Data and Telecommunications Infrastructure	1	8					
Design of Building Structures	1	7					
Economics and the Built Environment	1	8					Y
Estimating	1	7					
Facilities Management: Operational and Support Services	1	8	Y	Y	Y	Y	
Facilities Management: Property Services	1	8					
Facilities Resource Planning and Contract Management	1	8		Y	Y		
Financial Studies for the Construction Industry	1	8					
Fire Safety in Buildings	1	8					
Health and Safety in Construction	1	7					
Human Resource Management in Construction	1	8					
Introduction to the Construction Industry	1	7			Y		
Managing Construction Organisations	1	8					
Mathematics for Construction	1	6					
Personal Development and Planning (DE3R 34)	1	7	Y	Y	Y		
Quality in Construction	1	7	Y	Y	Y		
Quantitative Building Studies: Building Services	1	7					
Quantitative Building Studies: Floors and Roofs	1	7					

Quantitative Building Studies: Substruct and Drainage	1	7					
Quantity Surveying Practice	1	8					
Scottish Law for Construction	1	8	Y	Y	Y		
Site Administration	1	7					
Standard Forms of Construction Contract	1	8					
Statutory Control of Buildings	1	7					
Structural Mechanics	1	7					
Surveying Historic Buildings	1	8					
Work Role Effectiveness (DG6E 34)	3	7	Y	Y	Y		