Acknowledgement

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
5	**Updates to Framework:** Previously, Communication F3GB 11 was not listed on the framework but has now been added. Product Design: Design Analysis DF4V 11, Building Construction: Superstructure DV3R 12, and Building Construction: Site Establishment and Substructure DV3N 12 finished 31/07/2020 and therefore have been removed from the framework **Revision of Framework:** Model Making: General 1 – D0HP 12 was replaced by Art and Design: Model Making General 1 F9WN 12. D0HP 12 finished 31/07/2012. Model Making: Architectural 1 D0HM 12 was replaced by Art and Design: Architectural Model Making 1 F9WT 12. DOHM 12 finished on 31/07/2012. CNC Part Programming EE9Y 12 was replaced by Industrial CNC Part Programming F5HV 12. EE9Y 12 finished on 31/07/2011.	24/03/2022
4	**Revision of unit code:** Unit code was updated for the following unit: Mathematics: Applications H22J 75 (J289 75) The unit content and assessment for the unit is unchanged	25/09/2019
3	**Revision of Unit**: D322 11Mathematics 2 *has been* revised by H22J 75 Mathematics: Applications *and will finish on 31/07/2016.* H23W 75 Literacy *has been added as an alternative to* F3GB 11 Communication*.	12/05/2014
2	**Revision of Unit**: F3J8 12, Computer Aided Drawing in Construction has been revised by H65V 46 Computer Aided Drafting: An Introduction and will finish on 31/07/2017.	27/01/2014

Contents

1   Introduction

This is the Arrangements Document for the National Certificate (NC) in Computer Aided Design and Technology, at SCQF level 6, which was validated in August 2011. 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 purpose of this award is to enhance the introductory level provision within the engineering and technology sectors, and address the gap within this provision in relation to qualifications in Computer Aided Design (CAD) and Technology.

The Group Award will provide progression within the Scottish Credit and Qualifications Framework (SCQF) towards the Higher National Certificate/Diploma (HNC/HND) in Computer Aided Draughting and Design and Computer Aided Architectural Design and Technology, referred to in Appendix 1.

National Certificates are primarily aimed at 16–18 year olds and adults in full-time education, normally at a Further Education (FE) college. They prepare candidates for employment or further study, by developing a range of knowledge and skills.

This Group Award is also designed to meet the needs of employers who wish learners to attain qualifications that meet current industry demands.

2   Rationale for the development of the Group Award

The ever increasing use of technology and CAD in various sectors, particularly engineering, was the main driver behind the development. The software platforms used for CAD continue to be updated on a yearly basis, requiring related updates in skills, which this Group Award addresses.

*Computer Aided Design is considered by employers in Scotland to be one of the top three disciplines where there is a significant skills gap. Other generic skills gaps highlighted were core personal skills (7%), IT/computer skills (7%).

* Source SEMTA Scotland report 2010.
http://www.semta.org.uk/pdf/SSAScotApril2010v1.1Final.pdf

The National Certificate in Computer Aided Design and Technology, at SCQF level 6, is designed to promote appropriate learning and teaching to address the skills areas identified as lacking in "adequately trained" and "experienced" employees. The Group Award will also facilitate progression to further and higher education, where these skills may be enhanced and developed further.

A range of research was carried out to establish a framework which would allow continuing progression to further and higher education, as well as preparation for work within industry. Various stakeholders including representatives from further education, industry and the Sector Skills Council were surveyed and consulted.

The Group Award framework comprises 12 credits (72 SCQF points), and the structure of the Group Award is split into the following sections:

♦ mandatory core: 6 credits (36 SCQF points)
♦ restricted core: 1 credit (6 SCQF points) from a choice of 2 credits
♦ options: 5 credits (30 SCQF points) from a wide range of specially selected Units

Both the mandatory and restricted core sections are designed in accordance with the SQA Design Principles for National Certificates. The restricted core contributes to building a degree of flexibility, in line with the options section, which is aimed at meeting the complex needs of a wide range of employers and sectors.

The NC reflects the specialist areas within the engineering and technology sectors, and facilitates the following:

♦ articulation routes to FE/HE programmes and supervisory levels within the industry.
♦ employee development in key sector areas
♦ support to adult returners by updating their skills and knowledge

The NC will enhance the available choice for candidates wishing to develop skills and knowledge in CAD and provide centres currently delivering HNCs in Computer Aided Design with a specific course aimed at providing a formal route for progression from National Certificate to HN. It has also been designed specifically for progression into employment (see Appendix 1: Progression and Articulation Pathways).

The Group Award framework contains Units which will develop the ability to be flexible and to work co-operatively with others and address the priorities contained with Curriculum for Excellence (CfE), such as citizenship.

3   Aims of the Group Award

The main aim of the Group Award is to provide a practical, flexible programme that will enable candidates to acquire and develop the skills and knowledge needed to access a higher SCQF level of study in Computer Aided Design or to move into the employment market within the industry.

The provision of multiple exit routes provides candidates with achievable choices and will put them in a stronger position to move to the next stage of their study or career development and should increase their chances of doing this successfully.

3.1 Principal aims of the Group Award

The NC in Computer Aided Design and Technology at level 6 will prepare candidates for employment or higher education, from which they could pursue a career in the industry. In so doing, it aims to enable candidates to:

1   Develop an understanding of the employability skills for the Computer Aided Design and technology sector
2   Gain an understanding of concepts and terms used in the industry
3   Develop a range of skills in relation to Computer Aided Design and technology
4   Gain an understanding of the developments and changes in a Computer Aided Design and technology environment
5   Develop knowledge of local and international perspective on design
6   Develop knowledge of local and international perspective on current drawing standards
7   Develop skills and knowledge for the preparation of progression to further qualifications at SCQF level 7 and above.

The aims will be met via the six mandatory Units (see table below which maps aims to Units).

NC Computer Aided Technology, Level 6		
Unit Code	Unit Title	Aim
F3GB 11	Communication	1,2,7
D322 11	Mathematics 2	1,2,7
D173 12	Computer Graphics	1,2,3,4,5,6,7
FT8M 12	Drawing Office Practice	1,2,3,4,5,6,7
FT8P 12	3D CAD	1,2,3,4,5,6,7
FT8R 12	CADD Project	1,2,3,4,5,6,7
Restricted Mandatory		
F5H5 12	Computer Aided Draughting for Engineers	1,2,3,4,5,6,7
*H65V 46	Computer Aided Drafting: An Introduction	1,2,3,4,5,6,7

*Refer to history of changes for revision details

3.2   General aims of the Group Award

General aims of the NC in Computer Aided Design and Technology at SCQF level 6 reflect its practical focus, delivering robust development of knowledge, understanding and skills. The general aims are to:

♦   provide candidates with the opportunity to develop appropriate knowledge, understanding and skills to work in a computer aided design and technology environment
♦   provide the opportunity for candidates to take optional Units at SCQF levels 5 and 6
♦   provide sufficient flexibility to allow for a number of different modes of delivery
♦   provide candidates with a recognised, relevant and up-to-date Group Award in Computer Aided Design and Technology
♦   provide candidates with opportunities to develop skills and knowledge aligned to National Occupational Standards (NOS)
♦   provide candidates with skills required for a career in engineering and construction, in relation to CAD and design (such as a CAD technician)
♦   develop Core Skills

3.3   Target groups

Target market overview and characteristics mainly relate to school leavers, the 16-19 age group and adult returners who are seeking a career in this specialist field. The Group Award is also suitable for existing employees undertaking continuous professional development.

3.4   Employment opportunities

Through addressing the significant skills gap in Computer Aided Design (CAD) as noted by employers in Scotland, this NC is designed to support employment opportunities, particularly in the engineering and technology sectors. The NC will facilitate the following:

♦   articulation routes to the FE/HE programmes and supervisory levels within the industry
♦   employee development and updating of skills and knowledge.

Potential job roles could include working within a draughting and design office, careers in CAD and Design engineering or CAD and Design construction, eg CAD Technician.

4 Access to the Group Award

4.1 Access requirements

Some experience of working in an engineering environment and a basic knowledge of graphic communication would be beneficial. It would be advantageous for candidates to have achieved one of the following:

♦ National Certificate in Engineering, in a range of disciplines at SCQF level 5, including:
  — Electrical Engineering (G988 45)
  — Electronic Engineering (G98D 45)
  — Engineering Practice (GD27 45)
  — Engineering Systems (GD2F 45)
  — Fabrication and Welding Engineering (G981 45)
  — Manufacturing Engineering (G982 45)
  — Mechanical Maintenance Engineering (G983 45)
♦ NPA Construction SCQF Level 5 (G8H4 45)
♦ NPA Construction Operations SCQF Level 5 (G9AT 45)
♦ Intermediate 2 SCQF level 5 Graphic Communication (C033 11)
♦ Intermediate 2 SCQF level 5 Product Design (C211 11)

4.2 Core Skills entry profile

While entry to the award is at the discretion of the centre, it is recommended that candidates have the following Core Skills profile at entry:

Information and Communication Technology	SCQF level 4 or above
Numeracy	SCQF level 4 or above
Communication	SCQF level 4 or above
Problem Solving	SCQF level 4 or above
Working with Others	SCQF level 4 or above

4.3 Alternative access arrangements

Centres may operate alternative access arrangements in cases where the candidate has the required competences in a given area. These arrangements are as follows:

♦ assessment on demand
♦ credit transfer
♦ accreditation of prior learning
♦ relevant work experience

5 Group Award structure

The individual Units within the Group Award structure are in the main taken from the existing SQA Unit catalogue. The new and revised Units have been developed and levelled taking into consideration the standards set at SCQF level 6.

5.1 Framework

Computer Aided Design and Technology (GD3E 46), 12 credits (72 SCQF points).

Mandatory Units	Code	SCQF credit points	SCQF level	SQA credit value
*Literacy or Communication	H23W 75 F3GB 11	6 6	5 5	1 1
*Mathematics: Applications	J289 75	6	5	1
Computer Graphics	D173 12	6	6	1
Drawing Office Practice	FT8M 12	6	6	1
3D CAD	FT8P 12	6	6	1
CADD Project	FT8R 12	6	6	1
*Refer to history of changes for revision details.			Total -	**6**

Restricted Mandatory Units	Code	SCQF credit points	SCQF level	SQA credit value
(a minimum of 1 SQA credit required)				
Computer Aided Draughting (CAD) for Engineers	F5H5 12	6	6	1
*Computer Aided Drafting: An Introduction	H65V 46	6	6	1

*Refer to history of changes for revision details.

Options Section

Optional Units	Code	SCQF credit points	SCQF level	SQA credit value
(between 4 and 5 SQA credits required)				
Graphical Engineering Communication	F5JG 12	6	6	1
Architectural Technology: Manual and Computer-Aided Construction Drawing	DV3X 12	6	6	1
Engineering: Applying Information Technology	F5D4 12	6	6	1
Engineering Design	F5K5 12	6	6	1
Engineering Workshop Skills	F5KE 12	6	6	1
Engineering Assembly Skills	F5KA 12	6	6	1
Engineering Materials	F5KD 12	6	6	1
Product Design: Developing Design Proposals	DF4W11	6	5	1
Product Design: Manufacturing Products	DF4X 11	6	5	1
Sustainable Design	FT8N 12	6	6	1
Construction Site Surveying: An Introduction	F3JM 12	6	6	1
Art and Design: Model Making — General 1	F9WN 12*	6	6	1
Art and Design: Architectural Model Making 1	F9WT 12*	6	6	1
Industrial CNC Part Programming	F5HV 12*	6	6	1

*Refer to history of changes for revision details.

5.2   Mapping information

The sector skills council (SSC), SEMTA, have published the National Occupational Standards for the various disciplines in engineering and related disciplines. This NC complements the existing suite of qualifications and is mapped against specific National Occupational Standards in Appendix 2.

5.3 Opportunities to achieve Core Skills

Four of the five Core Skills: *Communication, Information and Communication Technology, Numeracy* and *Problem Solving* are embedded within Units in the mandatory section of the NC, and so will be automatically certificated at SCQF level 5 (see Appendix 3). The remaining Core Skill, *Working with Others*, is signposted in the Unit Drawing Office Practice (FT8M 12) and various optional Units.

Opportunities to develop aspects of the Core Skills within the Group Award are identified in the table in Appendix 3. There are opportunities to develop all 5 of the Core Skills within the NC.

Progress in development will be dependent on the delivery centre resources and the approaches taken to learning and teaching. More information regarding the development of Core Skills can be found in the support notes of the individual Units. Development of Core Skills will take place through learning and teaching activities as well as through practical activities which candidates have been involved in planning and delivering and their reflections on such activities.

At their discretion, centres may add standalone Core Skill Units to the curriculum to support candidates' development.

The following table shows both the recommended entry and anticipated exit levels:

Core Skill	Recommended entry level (SCQF level)	Anticipated exit level
Communication	4	5 (certificated)
Information and Communication Technology	4	5 (certificated)
Numeracy	4	5 (certificated)
Problem Solving	4	5 (certificated)
Working with Others	4	6 (signposted)

5.4 Articulation, professional recognition and credit transfer

The NC in Computer Aided Design and Technology at SCQF Level 6 will enhance the available choice for candidates wishing to develop skills and knowledge in CAD. Centres currently delivering HNCs in Computer Aided Design now have a specific course aimed at providing a formal route for progression, from National Certificate to HN. This Group Award is also designed specifically for progression into employment (see Appendix 1: Progression and Articulation Pathways).

6   Approaches to delivery and assessment

The approaches to delivery and assessment due to the nature of the content of the Units will largely be in the practical environment. The assessments will measure the skills of the candidate as well as their knowledge and understanding.

Content and context

The content and context of the Group Award is based on the delivery of the Units mainly within a practical environment allowing the candidates to build their skills over the timeframe of delivery. The underpinning knowledge in the theoretical Units should be completely contextualised in order that the candidates can then incorporate the learning into practical applications.

The Units within the Group Award are aligned to National Occupational Standards. For a mapping of Units to standards, please see Appendix 2. The Group Award is also designed in order that the candidates can progress from SCQF level 6 to HNC at SCQF level 7 then on to HND at SCQF level 8. For a mapping of progression from NC Units to HNC Units, please see Appendix 5.

Delivery and assessment

The Group Award has been developed to facilitate flexible delivery and assessment, which is intended to be of a practical nature wherever possible, reflecting the practical nature of the Computer Aided Design industry. Delivery models will be dependent on the centre and the client group. For example, they could also be offered to part time candidates working full time in industry and attending college day-release and/or full time candidates.

Delivery of Units within the Group Award should not necessarily be done in isolation as each Unit links directly with the knowledge, skills and experiences developed in each of the others. This approach will enable a coherent and best value experience for candidates who will be able to understand the links between Units, which should be reinforced by all staff involved in delivery.

There are opportunities for integrated learning and assessment across the Units and where possible a holistic approach should be taken to the delivery and assessment of the Group Award.

A candidate-centred, practical and interactive approach to delivery and learning should be adopted throughout. The range of methods used in delivering the award should ensure that experiential learning opportunities are available to candidates. Methods of delivery could include presentations, demonstrations, practical exercises and project work. It would also be advantageous for the learner if group work was encouraged, where appropriate.

The table below indicates a possible sequence of delivery.

	Technical Subjects		Personal Development	
Semester 1	♦ 3D CAD (FT8P 12) ♦ Computer Aided Draughting (CAD) for Engineers (F5H5 12) **OR** ♦ Computer Aided Drawing in Construction (F3J8 12)	♦ Drawing Office Practice (FT8M 12) ♦ Computer Graphics (D173 12) ♦ One from Option Section — supports candidates' development	Communication (F3GB 11)	Mathematics 2 (D322 11)
Semester 2	CADD Project (FT8R 12)	Four from Option Section — complements project and candidates' development needs		

Modes of delivery

The delivery of the award is at the discretion of the individual centre. The NC in Computer Aided Design and Technology at SCQF level 6 has been designed to be compatible with both full-time and part-time modes of delivery. The Group Award includes seven mandatory Units (7 credits) and five optional credits from the framework.

Assessment

It will be expected that centres will adopt a range of assessment methods such as practical exercises, presentations, observations, project work, open-book assignments, tutorials, and report writing.

7   General information for centres

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**.

Internal and external verification

All instruments of assessment used within this Group Award 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* **(www.sqa.org.uk)**.

Open learning

In partnership with other organisations and colleges, SQA has produced a range of online assessment and teaching and learning materials for the new National Certificate in Engineering awards. Details of e-assessment and teaching and learning materials are available on SQA's website. Materials developed may be suitable for some of the Units within this NC.

Although not specifically designed as an online or open learning programme there is scope for e-learning and e-assessment of theoretical components. However, in the case of practical activities, such as production of CAD data, e-assessment is not appropriate. In these cases, other forms of evidence could be encouraged such as video recording. Where alternative methods are used, staff in centres must consider how they will ensure the authentication of candidate evidence.

Advice on the use of online and open and distance learning materials is given in individual NQ Unit specifications where it is considered that these modes of delivery are appropriate. However, where such modes of delivery are used due regard must be paid to assessment. Planning would be required by centres to ensure the sufficiency and authenticity of candidate evidence. Arrangements would be required to be put in place to ensure that assessments were conducted under the conditions specified in the Unit specification. For example, in the case of a Unit which involved a test, a centre would have to make arrangements for the test to be conducted under controlled, supervised conditions. Likewise, where a Unit involves a practical based assessment, a centre would have to make arrangements for candidates to come into the centre, or other appropriate venue, to undertake the assessment under the conditions specified in the NQ Unit specification.

8   General information for candidates

The NC in Computer Aided Design and Technology award at SCQF level 6, is designed to enable you to acquire and develop knowledge, understanding and skills for working in a draughting and design office. It will enable you to focus upon the key skills associated with computer aided design and related disciplines.

The NC will give you a platform which will enable you to progress through further education or pursue employment opportunities such as a career in engineering and construction, in relation to CAD and Design. It will also provide you with the opportunities to develop your skills and knowledge through Units aligned to National Occupational Standards.

The NC contains seven mandatory Units (totalling 7 credits). In addition, your centre will deliver five further appropriate credits which together will make up the 12 needed to successfully complete the qualification.

The mandatory Units are designed in order to:

♦   provide you with appropriate employability skills for Computer Aided Design and transferable skills demanded by employers
♦   provide an understanding of concepts and terms used in the industry
♦   provide you with a range of practical skills in relation to Computer Aided Design and drawing office practice
♦   provide you with an awareness of developments and changes in a Draughting and Design office
♦   prepare you for entry into further qualifications at a higher level

The NC in Computer Aided Design and Technology at SCQF level 6 will equip you with the knowledge and skills to progress to SCQF level 7, for example to Computer Aided Draughting and Design HNC (G868 15), or to pursue employment opportunities.

The NC will equip you with skills and knowledge such as:

♦   the skills required to work in a draughting and design office
♦   British Standards for draughting and design
♦   organisational and employability skills (eg the importance of a positive attitude to the workplace, time-keeping and attendance)
♦   the importance of good verbal communication
♦   the importance of good listening skills
♦   how to work co-operatively with others as a member of a team
♦   self-respect and respect and consideration for others
♦   adaptability and flexibility
♦   planning and preparing
♦   confidence to seek and accept feedback
♦   confidence to give feedback
♦   undertaking self-review and evaluation

9   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 SCQF credit point equates to 10 hours of learning. NQ Units at SCQF levels 2–6 are worth 6 SCQF credit points, NQ Units at level 7 are worth 8 SCQF points.

SCQF levels: The SCQF covers 12 levels of learning. National Qualification Group Awards are available at SCQF levels 2–6 and will normally be made up of National Units which are available from SCQF levels 2–7.

Dedicated Unit to cover Core Skills: This is a non-subject Unit that is written to cover one or more particular Core Skills.

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 National Certificate/National Progression Award 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 National Certificates/National Progression Awards are those developments or revisions undertaken by a group of centres in partnership with SQA.

10   Appendices
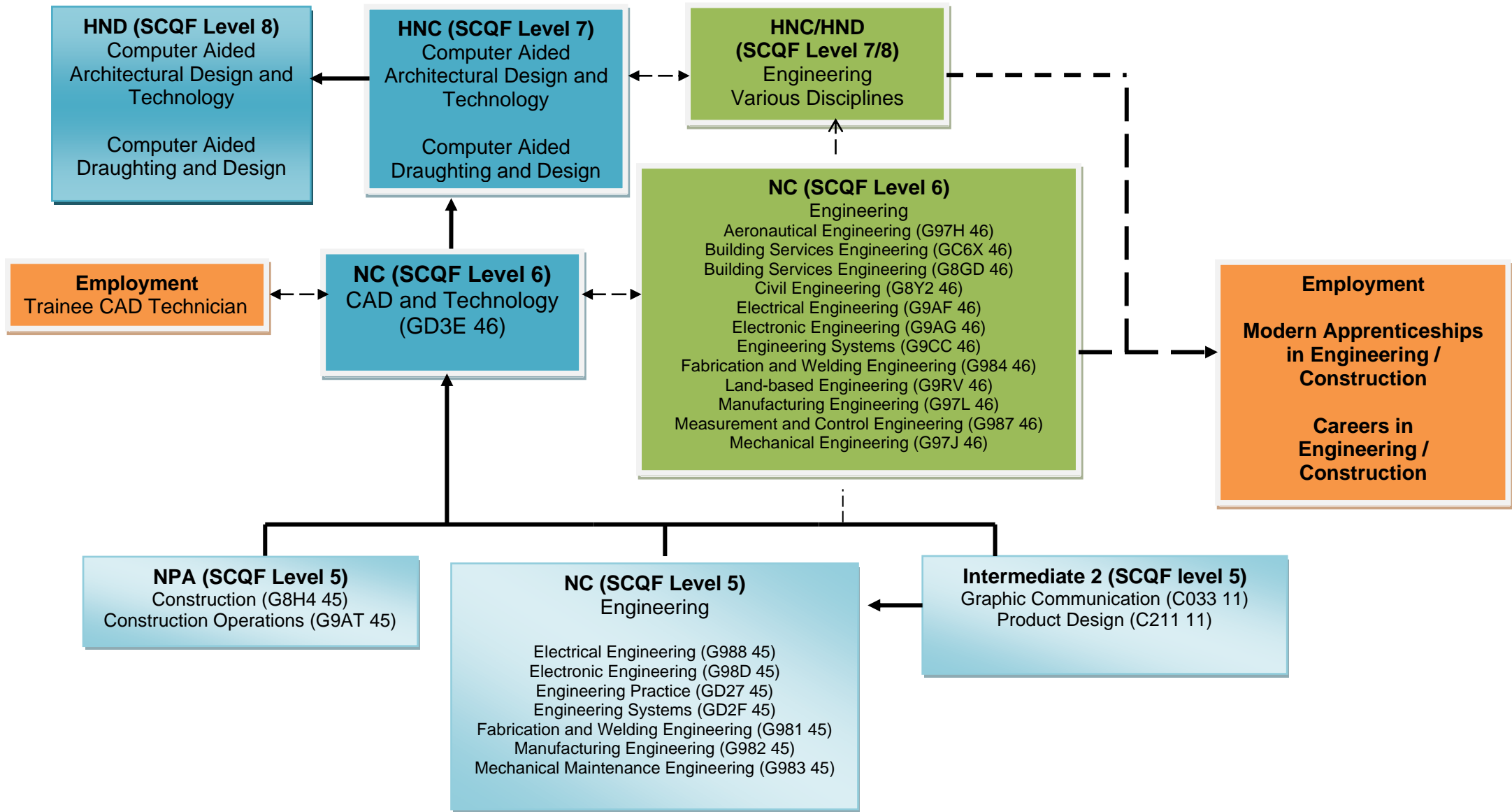
Appendix 1 — Progression and Articulation Pathways
Appendix 2 — Mapping of National Occupational Standards to Units
Appendix 3 — Core Skills
Appendix 4 — SQA Qualifications in Computer Aided Design and possible
                       progression routes
Appendix 5 — Progression: NC Units to HNC Units

Appendix 1   Progression and Articulation Pathways

HND (SCQF Level 8)
Computer Aided Architectural Design and Technology

Computer Aided Draughting and Design

HNC (SCQF Level 7)
Computer Aided Architectural Design and Technology

Computer Aided Draughting and Design

HNC/HND (SCQF Level 7/8)
Engineering
Various Disciplines

NC (SCQF Level 6)
Engineering
Aeronautical Engineering (G97H 46)
Building Services Engineering (GC6X 46)
Building Services Engineering (G8GD 46)
Civil Engineering (G8Y2 46)
Electrical Engineering (G9AF 46)
Electronic Engineering (G9AG 46)
Engineering Systems (G9CC 46)
Fabrication and Welding Engineering (G984 46)
Land-based Engineering (G9RV 46)
Manufacturing Engineering (G97L 46)
Measurement and Control Engineering (G987 46)
Mechanical Engineering (G97J 46)

Employment
Trainee CAD Technician

NC (SCQF Level 6)
CAD and Technology
(GD3E 46)

Employment

Modern Apprenticeships in Engineering / Construction

Careers in Engineering / Construction

NPA (SCQF Level 5)
Construction (G8H4 45)
Construction Operations (G9AT 45)

NC (SCQF Level 5)
Engineering

Electrical Engineering (G988 45)
Electronic Engineering (G98D 45)
Engineering Practice (GD27 45)
Engineering Systems (GD2F 45)
Fabrication and Welding Engineering (G981 45)
Manufacturing Engineering (G982 45)
Mechanical Maintenance Engineering (G983 45)

Intermediate 2 (SCQF level 5)
Graphic Communication (C033 11)
Product Design (C211 11)

Appendix 2   Mapping of National Occupational Standards to Units

SEMTA Occupational Standards Unit	Relevant SQA Units	Notes
Unit No 4: Producing Mechanical Engineering Drawings using Computer Aided Techniques	Computer Aided Draughting (CAD) for Engineers; 3D CAD; Drawing Office Practice	Progression towards all aspects of SEMTA Unit No: 4 could be covered when delivering the SQA Units listed SQA Unit.
Unit No 5: Producing Engineering Drawings/Models using 3D Computer Aided Techniques	CAD:3D Modelling; CADD Project	Progression towards all aspects of SEMTA Unit No: 4 could be covered when delivering the SQA Units listed SQA Unit.
Unit No 6: Producing Electrical Engineering Drawings using Computer Aided Techniques	Computer Aided Draughting (CAD) for Engineers; Drawing Office Practice	The NC CADT framework contains SQA Units, which when taught collectively, could provide opportunity to develop skills and knowledge towards the occupational standard.
Unit No 7: Producing Electronic Engineering Drawings using Computer Aided Techniques	Computer Aided Draughting (CAD) for Engineers; Drawing Office Practice	The NC CADT framework contains SQA Units, which when taught collectively, could provide opportunity to develop skills and knowledge towards the occupational standard.
Unit No 8: Producing Fabrication/Engineering Drawings using Computer Aided techniques	Computer Aided Draughting (CAD) for Engineers; Drawing Office Practice; Engineering Workshop Skills; Engineering Assembly Skills	The NC CADT framework contains SQA Units, which when taught collectively, could provide opportunity to develop skills and knowledge towards the occupational standard.
Unit No 9: Producing Fluid Power Engineering Drawings using Computer Aided techniques	Computer Aided Draughting (CAD) for Engineers; Drawing Office Practice	The NC CADT framework contains SQA Units, which when taught collectively, could provide opportunity to develop skills and knowledge towards the occupational standard.
Unit No 10: Producing Engineering Systems/Services Drawings using Computer Aided techniques	Computer Aided Draughting (CAD) for Engineers; Drawing Office Practice; Computer Aided Drawing in Construction	The NC CADT framework contains SQA Units, which when taught collectively, could provide opportunity to develop skills and knowledge towards the occupational standard.
Unit No 26: Producing Engineering Drawings using Computer Aided Design	Computer Aided Draughting (CAD) for Engineers; Drawing Office Practice	The NC CADT framework contains SQA Units, which when taught collectively, could provide opportunity to develop skills and knowledge towards the occupational standard.

Appendix 3   Core Skills

Key S= signposted, **E()** = embedded (SCQF level)

Unit code	Unit	Communication		Information and Communication Technology	Numeracy		Problem Solving			Working with Others
		Oral	Written		Using Graphical Information	Using Number	Critical Thinking	Planning and Organising	Reviewing and Evaluating	
Mandatory Units:										
F3GB 11	Communication	**E(5)**	**E(5)**							
D322 11	Mathematics 2				**E(5)**	**E(5)**				
D173 12	Computer Graphics			**E(5)**				**E(6)**		
FT8M 12	Drawing Office Practice	S	S	S	S	S	S	S	S	S
FT8P 12	3D CAD			S	**E(4)**	S				
FT8R 12	CADD Project	S	S	S	S	S	**E(5)**	**E(5)**	**E(5)**	
Restricted Mandatory Units:										
F5H5 12	Computer Aided Draughting (CAD) for Engineers			S	S	S				
F3J8 12	Computer Aided Drawing in Construction			S		S	S	S		
Optional Units:										
F5JG 12	Graphical Engineering Communication				**E(5)**					
DV3X12	Architectural Technology: Manual and Computer-Aided Construction Drawing				**E(4)**					

Unit code	Unit	Communication		Information and Communication Technology	Numeracy		Problem Solving			Working with Others
		Oral	Written		Using Graphical Information	Using Number	Critical Thinking	Planning and Organising	Reviewing and Evaluating	
F5D4 12	Engineering: Applying Information Technology			**E(6)**						
F5K5 12	Engineering Design	S	S	S	S	S	S	S	S	S
F5KE 12	Engineering Workshop Skills				S	S	S	S	S	S
F5KA 12	Engineering Assembly Skills						S	S	S	S
F5KD 12	Engineering Materials				S	S				
DF4V 11	Product Design: Design Analysis						**E(5)**			
FT8N 12	Sustainable Design						**E(6)**			
DV3R 12	Building Construction: Superstructure				**E(4)**		**E(5)**			
DV3N 12	Building Construction: Site Establishment and Substructure				**E(4)**		**E(5)**			
F9WN 12	Art and Design: Model Making - General 1				S	S	S	S	S	
F9WT 12	Art and Design: Architectural Model Making 1	S	S		S	S	S	S	S	
F5HV 12	Industrial CNC Part Programming			S	S	S	S	S	S	

Appendix 4 SQA qualifications in Computer Aided Design and possible progression routes

SCQF	SQA National Courses and Group Awards	Higher Education	Scottish Vocational Qualifications (SVQs)	SCQF
8		**HND** ♦ Computer Aided Draughting and Design ♦ Computer Aided Design and Technology		8
7		**HNC** ♦ Computer Aided Draughting and Design ♦ Computer Aided Design and Technology	**SVQ Level 3**	7
6	**Higher** ♦ Graphic Communication ♦ **NC** Computer Aided Design and Technology			6
5	**Intermediate 2** ♦ Graphic Communication ♦ **NC** Electrical Engineering (G988 45) Electronic Engineering (G98D 45) Engineering Practice (GD27 45) Engineering Systems (GD2F 45) Fabrication and Welding Engineering (G981 45) Manufacturing Engineering (G982 45) Mechanical Maintenance Engineering (G983 45) ♦ **NPA** Construction ♦ **NPA** Construction Operations		**SVQ Level 2**	5
4	**Intermediate 1** ♦ Graphic Communication ♦ Product Design		**SVQ Level 1**	4

Appendix 5   Progression: NC Units to HNC Units

NC Computer Aided Design and Technology Mandatory Units		HNC Computer Aided Draughting and Design Mandatory and Optional Units	
Communication	F3GB 11	Communication: Practical Skills	D77G 34
Computer Graphics	D173 12	CAD: Graphical Design	DW1C 34
		CAD: 2DI	DW1E 34
Drawing Office Practice	FT8M 12	CAD: 2DI	DW1E 34
		CAD: 2DII	DW12 34
3D CAD	FT8P 12	CAD: 3D Modelling	DW13 34
		CAD: Features Based Modelling 1	DW19 34
CADD Project	FT8R 12	Computer Aided Draughting and Design: Graded Unit 1	DW15 34
Computer Aided Draughting (CAD) For Engineers	F5H5 12	CAD: 2DI	DW1E 34
		CAD: Principles	DW16 34
Computer Aided Drawing in Construction	F3J8 12	CAD: 2DI	DW1E 34
		CAD: Architectural 1	DW1D 34