Arrangements for:

HNC Automotive Engineering

Group Award Code: G96Y 15

Validation date: December 2008

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Acknowledgement

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of Higher National qualifications.

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
04	Revision of Unit: DE1K 33 Workplace Communication in English has been revised by H8T2 33 and finishes on 31/07/2016.	27/03/15
03	Revision of Units: DK2K 34 Getting Started in Business has been revised by H7V4 34 Preparing to Start a Business and will finish on 31/07/2016. DE3N 34 Communication: Analysing and Presenting Complex Communication has been revised by H7TK 34 Communication: Business Communication and will finish on 31/07/2016.	12/01/15
02	Framework updated to include revised Unit *Creating a Culture of Customer Care* H1F0 34.	21/05/12

Contents

1 Introduction

This is the Arrangement Document for the revised Group Award in HNC Automotive Engineering**,** which was validated in December 2008. 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.

This revised award will replace the HNC Automotive Engineering which was validated in 1999.

The revised award is designed to equip candidates with the knowledge, understanding and skills required for success in current and future employment or for progression to further academic qualifications.

2 Rationale for the revision of the award

2.1 Background

The predecessor HNC Automotive Engineering award, validated in 1999, has been successful with some 250 candidates being registered for it since 2004, building on the success of previous years. The steady uptake of candidates, which has been recorded on an annual basis, indicates that they are mainly from the central belt of Scotland.

The latest review of the HNC Automotive Engineering has taken place to take cognisance of the rapidly changing technology and increased use of electronics within modern vehicle designs, changes to the HN design principles and development of Core Skills. The technological advances and use of electronics has strongly influenced the Unit content. The structure of the award now fulfils the requirements of not just the original client group but offers opportunity to a wider client base through the flexibly designed framework.

This HNC Automotive Engineering award satisfies the following important criteria:

- Group Award framework comprises Units that are relevant to today's technology and the diagnostic skills required of a technician
- the framework meets the needs of varying client groups — candidates, employers, professional associations, colleges and training providers

2.2 Market research, consultation and development process

To ensure that the new qualification is vocationally relevant and meets the needs of both candidates and industry, market research and consultation was carried out by the Qualifications Design Team (QDT) set up to oversee the development. The QDT also made use of labour market intelligence and research findings published by the Institute of the Motor Industry — the Sector Skills Council (SSC) for the sector. The QDT met at key stages throughout the consultation and development process.

A variety of stakeholders including:

- The SSC
- Employers
- Further education colleges
- Training providers
- Higher Education Institutions (HEIS)
- Candidates

were consulted on:

- The proposed Unit content
- The proposed award structure
- Employment/recruitment needs
- Articulation to HE courses

2.2.1 Summary of consultation feedback

The consultation feedback confirmed:

- The need for a more practical based qualification
- The award should reflect current automotive technologies
- Greater integration required between units, particularly the technology-based units
- More emphasis required on developing problem solving skills
- Delivery options should be customised to meet the needs of candidates and employers
- Award content and delivery modes should promote and encourage candidates' achievement and retention

2.2.2 Development process

The QDT developed the Unit content and structure of the award to take cognisance of the findings of the market research and consultation feedback. As a result:

- the majority of the mandatory Units contain a practical element
- the framework of the award incorporates up-to-date technology
- there are greater opportunities for integration of delivery/assessment of Units
- the Core Skill of Problem Solving is signposted across many of the Units
- the range of options reflects specialisms, other than the technological aspects, of Automotive Engineering
- Unit content is more relevant to current technological advancements with the aim of increasing candidate motivation and attainment
- the award is designed to develop learning and transferable skills
- the award is designed to address lifelong learning and Continuing Professional Development (CPD) needs

3 Aims of the award

Those aspiring to work in the motor industry and current employees seeking to develop their career must be equipped with the knowledge and skills that will enable them to not only function, but evolve and continue to remain current, relevant and effective in an ever expanding and dynamic market. Discussions with employers, training agencies and awarding bodies have highlighted that, as well as being knowledgeable and competent vocationally, potential employees should have developed transferable and Core Skills that will enhance their future careers and Continuing Professional Development (CPD).

As the operation of modern vehicle workshops becomes more professional in structure, organisation and management, those wishing to work in the 'frontline' must develop the qualities necessary to do so, and ensure their skills and knowledge remain current and relevant. It is increasingly important, in the competitive market, that employees are more aware of the wider aspects of the motor industry and not just specific aspects relating to their current position.

The aims of the HNC qualification are manifold. There are educational aims relating to CPD and lifelong learning as well as knowledge and motor-industry related aims dealing with relevant competences and skills. The qualification has general and specific aims and objectives as identified below.

3.1 General aims of the award

The general aims of the HNC Automotive Engineering are:

1 To develop knowledge and skills in planning, developing and evaluating.

2 To enable progression within the SCQF.

3 To develop study and research skills.

4 To develop learning and transferable skills.

5 To develop personal effectiveness and problem solving ability.

6 To develop awareness of responsible environmental management.

7 To support career development and Continuing Professional Development.

3.2 Specific aims of the award

The specific aims of the HNC Automotive Engineering are:

1 To be relevant to the varying needs of the modern automotive engineering industry.

2 To develop knowledge, understanding and skills in automotive engineering principles and technologies.

3 To provide in-depth knowledge of the vehicular systems, components and integration of the associated systems pertaining to the sector.

4 To develop candidates' abilities to analyse automotive engineering problems.

5 To develop candidates' abilities to apply a logical and systematic approach to diagnosis of components and inter-disciplinary vehicular systems.

6 To prepare candidates for employment in the automotive industry.

7 To develop specialist competences within the fields of automotive engineering: Light Motor Vehicle; Heavy Goods Vehicle; and Plant and Electrical/Electronic.

8 To support the academic requirements for membership of automotive professional bodies.

3.3 Target groups

The HNC Automotive Engineering is suitable for a wide range of candidates, in particular the following groups:

- Post-apprenticeship candidates wishing to advance their career
- Technicians wishing to advance their career
- Candidates seeking a career change
- Candidates looking for a suitable progression route from further education to higher education
- Employees in industry wishing to update their qualifications
- Employees in industry with no formal qualifications

Within the industry, formal qualifications are regarded as important for technicians and other personnel within the motor industry. The HNC offers those candidates without a formal qualification the opportunity to gain recognition of their skills through a certificated Group Award.

3.4 Employment opportunities

Employment opportunities exist in a variety of contexts and draw on the different components included in the Group Award framework. Employers wish to recruit multi-skilled employees who demonstrate good practical skills, possess diagnostic skills and have a good knowledge of current vehicle systems. The ability to problem solve and demonstrate good communication skills are also in demand within the industry. The Group Award also provides additional and updated skills to employees within the industry who are seeking a more challenging role within their company or beyond.

Candidates may gain employment as:

- Service technicians
- Master technicians
- Service receptionist engineers
- Workshop controllers.

4 Access to awards

As with all SQA qualifications, access to the award will be at the discretion of the centre. Access to the HNC should be as broadly based as possible, but consistent with the selection of candidates who have a reasonable chance of successfully completing the course.

The following recommendations are for guidance only. Examples of appropriate entry qualifications are specified below. These are not exhaustive or mutually exclusive and may be offered in a variety of combinations at the discretion of the particular centre.

4.1 Formal entry qualifications

- Two Highers (SCQF level 6)
- Successful completion of a relevant programme of study, eg SVQ level 3, VRQ level 3, BTEC level 3

4.2 Recommended Core Skills entry profile

The recommended Core Skills entry profile for the award is given in the table below:

Core Skill	SCQF Level
Communication	5
Numeracy	5
IT	5
Problem Solving	5
Working with Others	4

4.3 Work experience

- Previous experience of employment within the Automotive Engineering industry
- Current experience of employment within the Automotive Engineering industry

4.4 Speakers of other languages

For candidates where English is not their first language it is recommended that they possess English for Speakers of Other Languages (ESOL) level 5 or a score of 5.5 in International English Language Testing System (IELTS).

Centres may also consider applicants who, for whatever reason, do not necessarily meet the above criteria but are otherwise considered suitable candidates.

5 Award structure

The HNC has been designed in accordance with SQA's design principles for HN awards, ie:

- HNCs shall be designed to be at SCQF level 7 and shall comprise 96 SCQF credit points with at least 48 credit points at SCQF level 7. This should include a mandatory section of at least 48 SCQF credit points and include one Graded Unit of 8 SCQF credit points at SCQF level 7.

To attain the HNC Automotive Engineering, a candidate must achieve 12 HN credits, ie mandatory Units totalling 11 credits and an optional Unit worth 1 credit.

The optional Units have been selected to match the expectations of employers, professional bodies and the key competences identified during the consultation. These Units have been selected as they enhance the candidate's employability; by covering areas such as communication, IT customer care, business and planning skills.

It is at the discretion of the delivering centre which of the options to make available, however, consideration should be given to candidate expectations, career goals and progression to HE in making this decision.

5.1 Framework

Mandatory Units — 11 credits required

Unit title	Unit code	SCQF credit points	SCQF level	SQA credit value
Automotive Engineering: Electrical and Electronic Principles and Ancillary Systems	F53X 34	16	7	2
Automotive Engineering: Engine Management	F53Y 34	16	7	2
Automotive Engineering: Diagnostics	F53W 34	8	7	1
Automotive Engineering: Engine Technology	F540 34	8	7	1
Automotive Engineering: Steering and Suspension Systems	F541 34	16	7	2
Automotive Engineering: Braking Systems and Vehicle Stability Control	F53V 34	16	7	2
Automotive Engineering: Graded Unit 1	F5DN 34	8	7	1
Total				**11**

Optional Units — 1 credit required

Unit title	Unit code	SCQF credit points	SCQF level	SQA credit value
Communication: Business Communication*	H7TK 34*	8	7	1
Information Technology: Applications Software 1	D75X 34	8	7	1
Creating a Culture of Customer Care	DJ42 34 *(finishes 31/07/2015)* **OR** H1F0 34	8	7	1
Personal Development Planning	DE3R 34	8	7	1
Preparing to Start a Business*	H7V4 34*	8	7	1
Workplace Communication in English	H8T2 33*	8	6	1

In accordance with SQA's design principles, the framework allows for the development of all five Core Skills.

5.1.1 Graded Unit

The purpose of the Graded Unit is to assess the candidate's ability to integrate and apply the knowledge and/or skills gained in individual Units, to demonstrate that they have achieved the aims of the award, as detailed in Sections 3.1 and 3.2, and to grade candidate achievement. The Graded Unit will be assessed and a grade of A, B or C will be awarded.

Candidates will take a one credit Graded Unit at SCQF level 7 in the HNC Automotive Engineering award.

The Graded Unit is a Project based Graded Unit taking the form of a Practical Assignment, which it is recommended, is delivered towards the end of the HNC. However, centres should ensure the instructions for the assessment task are distributed to allow candidates sufficient time to plan and carry out the assessment task.

The Graded Unit is designed to allow candidates to demonstrate the ability to integrate knowledge and skills through a scenario drawing on the mandatory Units, in which candidates must diagnose a vehicle with faults. This type of Graded Unit was chosen to ensure that the essential underpinning theoretical knowledge can be integrated and used in context, and that the practical nature of the industry is reflected. Candidates will respond to a range of faults in vehicle systems that may occur in the Automotive Engineering industry.

The Graded Unit requires candidates to plan, develop and evaluate information on a project which should be in the main, a candidate-led piece of work, demanding independent planning and action. Competency in these areas is perceived by stakeholders as the key skills and abilities needed and expected from this level of qualification.

5.1.2 Recommended Core Skills entry and exit levels

The importance of Core Skills has been recognised and these are developed throughout the award.

Consultation feedback highlighted the Core Skills of *Working with Others* and *Communication* as being very important along with *Problem Solving*. This is in line with research from the different skills agencies that also identify a need for these Core Skills by employers. It should be noted that although there are no mandatory entry and exit levels the following are recommended:

Core Skill	Entry SCQF level	Exit SCQF level
Communication	5	5
Working with Others	5	5
Problem Solving	5	5
Information Technology	5	5
Numeracy	5	5

Candidates will achieve the Core Skill of *Problem Solving* at SCQF level 5 when completing the Graded Unit.

Candidates may also achieve certification of the Core Skills of *Communication* or *Information Technology* at SCQF level 6, should either *Communication: Analysing and Presenting Complex Communication* (DE3N 34) or *Information Technology: Applications Software 1* (D75X 34) be delivered as the optional credit.

Many candidates accessing the HNC Automotive Engineering may have previously attained SCQF level 5 in Core Skills *Communication* and *Information Technology*, depending on qualifications gained.

Appendix 1 contains a Core Skill Signposting table which shows where each of the Core Skills may be developed or is embedded with specific Units.

5.2 Mapping information

An indication of how the mandatory Units map to the aims and objectives of the award, as outlined in Sections 3.1–3.2 above, is given in Appendix 2

The National Occupational Standards (NOS) for the sector have been mapped against the HNC Automotive Engineering Units and ensure that the necessary automotive engineering competences are covered by the mandatory Units. Appendix 3 contains the NOS Unit titles and illustrates where these have been mapped against the HN Units.

5.3 Articulation, professional recognition and credit transfer

Progression to higher education

The University of the West of Scotland has confirmed that they would consider candidates who have completed the HNC Automotive Engineering for entry to their degree courses. They are confident that they would be able to offer 1st year access to candidates who have successfully completed the HNC. They currently have an Honours Degree in Motorsport Design Engineering, which may be attractive to some candidates. They also have Honours Degrees in Product Design and Development and in Engineering Management, both of which would be suitable.

Recognition by professional bodies

On successful completion of HNC Automotive Engineering Award, both the Institute of the Motor Industry (IMI) and the Institute of Road Transport Engineers (IRTE) have agreed to consider the award as an entry qualification for membership of the respective Automotive Engineering bodies.

In all cases applicants, progressing to Higher Education or applying for professional recognition, would be assessed on an individual basis.

Credit transfer

Candidates may be given credit transfer between the predecessor Units and the revised HN Units. Credit transfer can be given where there is broad equivalence between the subject related content of the Unit or combination of Units. Candidates who are given credit transfer from the predecessor Units must still satisfy all other conditions of the revised HNC Automotive Engineering award by achieving:

- The mandatory Units (either by credit transfer or normal study)
- A Graded Unit of 8 SCQF credit points at SCQF level 7
- The correct number of credits at the correct SCQF level
- Development of the Core Skills required by the end-users of the Group Award

A table listing where full or partial credit transfer can be given between the predecessor Units and the revised Units is given in Appendix 4. These arrangements have been agreed by an External Verifier.

6 Approaches to delivery and assessment

The HNC Automotive Engineering has been developed to meet the ever-changing needs of what is one of the most dynamic of industries. The structure has been selected to ensure it now offers a wider possibility for uptake within the automotive industry. The mandatory Units will give the centres delivering the award the flexibility to offer the award not only to light vehicle technicians but to many other automotive groups including: commercial vehicle technicians; fast-fit and roadside recovery specialists.

It is recommended that all Units are taught and assessed within the Automotive subject area due to the practical elements involved. These practical elements will also assist in developing the communication and problem solving skills highlighted as key weaknesses by the automotive industry.

6.1 Mode of delivery

Delivery of the programme should ensure that candidates can progress academically, practically and gain increased knowledge. To achieve this, the delivery should create opportunities to develop these aspects appropriately. Academic progression information is given in Section 5.3 of this document, and during consultation with HE institutions the need for appropriate study and research skills for candidates wishing to articulate to degree level programmes was stressed.

This award could be delivered on a full-time and part-time basis. Part-time could be by either day release or evening classes. Due to the practical nature of the HNC there are limited opportunities for distance learning. There are some aspects of the theory in some of the Units where it may be possible to accommodate distance learning. Full details on the suitability of Units for Open Learning are contained in each individual Unit specification. As the majority of the Units require access to specialised equipment within a workshop environment, centres could encounter some difficulties in offering this award on Open Learning basis.

Centres would have to ensure that all assessments conditions are met irrespective of the mode of delivery chosen.

Units, both optional and mandatory, should be viewed as offering opportunities to develop and enhance independent study, research and written/oral communication skills. Delivery should aim to incorporate learning that devolves responsibility to candidates and use structured activities (practical and theoretical) to develop good study skills. Examples include workshop activities, extended response activities, group and individual tasks and opportunities to access manufacturers' information resources.

6.2 Sequence of delivery

The sequence of Unit delivery is at the discretion of the delivering centre although the suggested delivery schedule given in Appendix 5 offers an appropriate logical learning progression through mandatory and optional Units. The model shown in Appendix 5 is for a full-time programme based on a three block/semester year, with each block/semester having a duration of 12 weeks.

It is strongly recommended that the Unit *Automotive Engineering: Electrical and Electronic Principles and Ancillary Systems* is delivered first, in order to provide a sound foundation in the principles for dealing with electrical and electronic components found on modern vehicles.

Other Units may also be clustered when delivering, eg *Automotive Engineering: Engine Management; Automotive Engineering: Engine Technology* and *Automotive Engineering*: *Diagnostics* to enhance the opportunity of integration or *Automotive Engineering: Steering and Suspension Systems* and *Automotive Engineering: Braking and Vehicle Stability Control* to reflect the development of data communications between vehicle systems to provide efficient control of the vehicle and the reduction of vehicle emissions.

6.3 Assessment strategy

A variety of assessment instruments is used in this HNC, including practical tasks, case studies, reports, and short answer questions. There is a particular emphasis on practical aspects in the Units, as preferred by industry and candidates. The assessment is spread throughout the delivery of the Units, and some assessments may be undertaken in specified assessment conditions.

The assessments across each Unit of study should be staggered to alleviate pressure on candidates and to take account of their readiness for assessment, time restrictions and assessment loading.

6.4 Integration opportunities

There are opportunities for integration of Units across the framework. The Units *Automotive Engineering: Steering and Suspension Systems* and *Automotive Engineering: Braking Systems and Vehicle Stability Control* could be successfully integrated. For example Braking Systems and Vehicle Stability Control (Outcome 3) the candidate is required to explain the function and operation of a vehicle stability system, Steering and Suspension Systems (Outcome 2), also requires an explanation of the principles of operation of an adaptive suspension system.

The Units *Automotive Engineering: Engine Management* and *Automotive Engineering: Engine Technology* could also be successfully integrated. For example *Engine Management Unit (Outcome 1)* the candidate is required to explain the principle of operation of an Electronic Control Unit, *Engine Technology* (Outcome 2, also requires an explanation of how variable valve timing is controlled by the use of an Electronic Control Unit.

The content and underpinning knowledge gained in the Unit *Automotive Engineering: Diagnostics* is such that it could be successfully integrated with any of the other mandatory Units. Evidence generated for this Unit could be successfully used within other Units. The purpose of this Unit is to demonstrate competence in using a range of electrical and electronic test equipment to test sensors within vehicle systems, therefore the candidate has a wide variety of systems to choose from to provide evidence for this Unit. Systems would include Engine Management, Braking and Stability Control Systems, Steering and Suspension which are all part of the mandatory Units required for this award. For example, in Outcome 3 of the *Diagnostics Unit*, candidates could diagnose sensors within ABS and engine management systems, using electrical/electronic diagnostic equipment.

6.5 Graded Unit

The Graded Unit integrates the competences gained by candidates in the individual Units. As the Graded Unit draws upon and combines the skills gained within the mandatory Units, it is strongly recommended that Graded Unit delivery begins after some or most of the supporting Units have been completed.

The Graded Unit is a project based Graded Unit taking the form of a practical assignment. It is has been designed to allow candidates to demonstrate the ability to integrate knowledge and skills through a scenario drawing on the mandatory Units, in which candidates must diagnose a vehicle with faults. As stated in Section 5, research concluded that this was the most appropriate form of Graded Unit to ensure that the essential underpinning theoretical knowledge could be integrated and used in context, and that the practical nature of the industry is reflected. The assessment will require candidates to respond to a range of faults in vehicle systems that may occur in the Automotive Engineering industry.

Sufficient time should be allocated for candidates to complete the Graded Unit assessment. Delivery should focus on the Group Award as a whole and teaching should aim to embed the wider considerations of the Unit subject matter.

Allocation of staff should draw on the specialism required for each area although it is good practice for all staff to be involved in the delivery and assessment of the Graded Unit.

The Group Award has been designed to ensure a progressive learning experience for candidates. This is evident in the development of knowledge and practical skills developed in the mandatory Units. The Graded Unit requires candidates to plan, develop and evaluate information on a project which should be, in the main, a candidate-led piece of work demanding independent planning and action.

6.6 Resource requirements

With a qualification of this type, it is essential that resources to support candidates and the delivery of the award are at the disposal of the delivering centre. It is fundamental that delivering centres have either their own workshop facilities and diagnostic equipment to support this programme or have alternative access to these resources. This is essential as candidates need to have full and easy access to modern vehicles with appropriate systems, adequate tooling and specialist diagnostic equipment to effectively and efficiently diagnose typical faults found on a modern vehicle.

These workshop facilities and equipment should be used to provide candidates with some 'real life' customer service training in vehicle maintenance and repair techniques. Access to manufacturers' vehicle information (service/repair data) and procedures is also essential, both as a training tool and a mechanism for improving candidate performance.

With regard to the staff delivering the award, it is vital that they have the requisite knowledge and experience in current motor vehicle diagnostic and repair techniques. Dealership site visits and guest lectures, eg BOSCH, SNAP ON could also be embedded into the award delivery to enhance the candidate experience at HNC level.

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/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)**.

8 General information for candidates

The Higher National Certificate in Automotive Engineering has been designed to provide you with the necessary skills and qualities required to work and advance your career in the motor industry and to enable you to progress to HND/degree level programmes.

This HNC in Automotive Engineering is a national Group Award providing a flexible and integrated programme of practical and theoretical skills. The award has been designed with input from delivering centres, industry and former candidates.

This award will provide you with an understanding of current vehicle systems underpinning theoretical knowledge, and practical experience in automotive engineering practices. It will develop your skills in a number of areas, including:

- Automotive diagnostic skills
- Automotive practical skills
- Problem Ssolving skills

This HNC may be offered as a full-time or part-time programme. Part-time programmes may take the form of day release or evening classes. Centres may provide opportunities for other forms of study, eg distance or open learning. However, due to the content of the Units within the Group Award access to specialist equipment is required and centres, will in the main, deliver the Units in a workshop environment.

Access to the HNC will be at the discretion of centres and recommended entry may be by formal entry qualifications or relevant work experience. Examples of qualifications and work experience are given below - these are neither exhaustive nor mutually exclusive and may be offered in a variety of combinations.

- Two Highers (SCQF level 6)
- Previous experience of employment within the Automotive Engineering industry
- Current experience of employment within the Automotive Engineering industry
- Successful completion of a relevant programme of study, eg SVQ level 3, VRQ level 3, BTEC level 3

The HNC consists of 12 HN credits – 11 mandatory credits and one optional credit. The mandatory credits include a one credit Graded Unit at SCQF level 7. The Graded Unit is designed to show that you can integrate the knowledge, skills and competences you gain while undertaking individual Units. The Graded Unit delivery is likely to begin after some or most of the supporting Units have been completed.

The Graded Unit is a project based Unit taking the form of a practical assignment designed to allow you to integrate knowledge and skills through a scenario drawing on the mandatory Units, in which you must diagnose a vehicle with faults. You will respond to a range of faults that may occur in the day-to-day Automotive Engineering industry. A grade of A, B or C will be awarded on successful completion of this Unit.

Throughout your course you will also be given the opportunity to develop the Core Skills of *Communication, Numeracy, Information Technology, Problem Solving* and *Working with Others*.

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 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 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 HNC/HND 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.

10 Appendices

Appendix 1: Core Skills signposting
Appendix 2: Mapping of Units to Group Award aims
Appendix 3: Links to National Occupation Standards (NOS)
Appendix 4: Credit transfer information
Appendix 5: Suggested delivery schedule

Appendix 1: Core Skills signposting

S for signposted or E for embedded + SCQF level

Unit code	Unit title	Communication		Numeracy		Information Technology	Problem Solving			Working with Others
		Oral	Written	Using Graphical Information	Using Number	Using Information Technology	Critical Thinking	Planning and Organising	Reviewing and Evaluating	
F5DN 34	Automotive Engineering: Graded Unit 1						E5	E5	E5	
F53X 34	Automotive Engineering: Electrical and Electronic Principles and Ancillary Systems	S5	S5	S5	S5		S5	S5	S5	
F53Y 34	Automotive Engineering: Engine Management	S5	S5				S5	S5	S5	
F53W 34	Automotive Engineering: Diagnostics			S5	S5		S5	S5	S5	S5
F540 34	Automotive Engineering: Engine Technology	S5	S5							
F541 34	Automotive Engineering: Steering and Suspension Systems	S5	S5				S5	S5	S5	
F53V 34	Automotive Engineering: Braking Systems and Vehicle Stability Control	S5	S5							
DE3N 34	Communication: Analysing and Presenting Complex Communication					E6				
D75X 34	Information Technology: Applications Software 1					E6				
DJ42 34 *(finishes 31/07/2015)* **OR** H1F0 34	Creating a Culture of Customer Care	S5	S5				S5	S5	S5	
DE3R 34	Personal Development Planning	S5	S5			S4	S6	S6	S6	
DK2K 34	Getting Started in Business		S5	S5	S5	S5	S6	S6	S6	
DE1K 33	Workplace Communication in English	E5	E5							

Appendix 2: Mapping of Units to aims

Unit code	Unit title	General aims							Specific aims							
		1	2	3	4	5	6	7	1	2	3	4	5	6	7	8
F53X 34	Automotive Engineering: Electrical and Electronic Principles and Ancillary Systems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F53Y 34	Automotive Engineering: Engine Management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F53W 34	Automotive Engineering: Diagnostics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F540 34	Automotive Engineering: Engine Technology		✓		✓			✓	✓	✓	✓			✓	✓	✓
F541 34	Automotive Engineering: Steering and Suspension Systems	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F53V 34	Automotive Engineering: Braking Systems and Vehicle Stability Control		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
F5DN 34	Automotive Engineering: Graded Unit 1	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓		

Appendix 3: Links to National Occupational Standards for the Automotive Retail Sector

National Occupational Standards — Unit codes and titles

Code	Title
G1	Contribute to Workplace Good Housekeeping
G2	Ensure Your Own Actions Reduce Risks to Health and Safety
G3	Maintain Positive Working Relationships
LV01	Carry Out Routine Vehicle Maintenance
LV02	Light Vehicle — Remove and Replace Engine Units and Components
LV03	Light Vehicle — Remove and Replace Auxiliary Electrical Units and Components
LV05	Conduct Pre and Post Work Vehicle Inspections
LV06	Inspect Vehicles
LV07	Light Vehicle — Diagnose and Rectify Vehicle Engine and Component Faults
LV08	Light Vehicle — Diagnose and Rectify Vehicle Chassis System Faults
LV09	Valet Vehicles
LV10	Identify and Agree Customer Vehicle Needs
LV11	Overhaul Mechanical Units
LV12	Light Vehicle — Remove and Replace Transmission and Driveline Units and Components
LV13	Light Vehicle — Diagnose and Rectify Transmission and Driveline System Faults
AE06	Diagnose and Rectify Auxiliary Equipment Electrical Faults

Appendix 3: Mapping NOS Units to HNC Automotive Engineering Units

NOS codes	HNC Units
G1, G2, G3, LV01, LV03, LV05, LV06, AE06	Automotive Engineering: Electrical and Electronic Principles and Ancillary Systems (F53X 34)
G1, G2, G3, LV01, LV02, LV03, LV05, LV06, LV07, LV11, AE06	Automotive Engineering: Engine Management (F53Y 34)
G1, G2, G3, LV01, LV05, LV06, LV07, LV08, LV11, LV13, AE06	Automotive Engineering: Diagnostics (F53W 34)
G1, G2, G3, LV01, LV08, LV11, LV12, LV13, AE06	Automotive Engineering: Engine Technology (F540 34)
G1, G2, G3, LV01, LV03, LV05, LV06, LV08, LV11, LV12, LV13, AE06	Automotive Engineering: Steering and Suspension Systems (F541 34)
G1, G2, G3, LV01, LV03, LV05, LV06, LV08, LV11, LV12, LV13, AE06	Automotive Engineering: Braking Systems and Vehicle Stability Control (F53V 34)
G1, G2, G3, LV01, LV02, LV03, LV04, LV05, LV06, LV07, LV08, LV11, LV12, LV13, AE06	Automotive Engineering: Graded Unit 1 (F5DN 34)

Appendix 4: Credit transfer conditions

Old Unit		New Unit		Credit transfer conditions
Unit code	**Unit title**	**Unit code**	**Unit title**	
D67E 04 D76J 04	Automotive: Electrical/ Electronic Science Automotive: Electrical/ Electronic Systems 1	F53X 34	Automotive Engineering: Electrical and Electronic Principles and Ancillary Systems	Candidates must have passed D67E 04 and D76J 04.
D67D 04	Automotive: Engine Management Systems	F53Y 34	Automotive Engineering: Engine Management	Candidates must have passed D67D 04. Additional requirements relating to; LO1 in F53Y 34.
D23V 04	Automotive: Diagnostics including using Electrical/Electronic Test Equipment	F53W 34	Automotive Engineering: Diagnostics	Candidates must have passed D23V 04. Additional requirements relating to; LO1 in F53W 34. Candidates must be assessed using either an ohmmeter, ammeter or voltmeter to diagnose a fault on the diesel post start system. The fault can be either open circuit, short circuit or high resistance. Apply appropriate health and safety. Additional requirements relating to; LO2 in F53W 34. Candidates must demonstrate the use of technical data for system diagnosis.

Old Unit		New Unit		Credit transfer conditions
Unit code	**Unit title**	**Unit code**	**Unit title**	
				Additional requirements relating to; LO3 in F53W 34. Candidates must demonstrate the correct use of electrical / electronic diagnostic equipment in the diagnosis of an air conditioning system sensor. Using given data candidates compare results against manufacturers specifications. Apply appropriate health & safety procedures.
D67K 04	Automotive: Power Units	F540 34	Automotive Engineering: Engine Technology	Candidates must have passed D67K 04. Candidates must explain the construction and operation of one variable valve timing layout as per LO2
D67G 04	Automotive: Steering and Suspension Systems	F541 34	Automotive Engineering: Steering and Suspension Systems	Candidates must have passed D67G 04. Candidates must explain the main function and operation of an electronic power assisted steering system and apply diagnostic test procedures as per LO1. Candidates must also apply test procedures to an electronic adaptive/active suspension system.

Old Unit		New Unit		Credit transfer conditions
Unit code	**Unit title**	**Unit code**	**Unit title**	
D67H 04	Automotive: Braking Systems and Traction Control	F53V 34	Automotive Engineering: Braking Systems and Vehicle Stability Control	Candidates must have passed D67H 04. Additional requirements relating to; LO1 in F53V 34. Candidates must explain construction of a Hall effect and inductive type sensor. Explain operation of Hall sensor. Produce schematic/graphical diagrams and annotate to show the flow of fluid through the ABS system when a wheel or wheels begin to lock. Identify and record a system fault using diagnostic equipment and procedures. Apply appropriate Health & Safety. Additional requirements relating to; LO2 in F53V 34. Due to developments in braking systems candidates will have to complete all of LO2 in F53V 34. Addional requirements relating to; LO3 in F53V 34. Due to developments in braking systems candidates will have to complete all of LO3 in F53V 34.

Appendix 5: Suggested delivery schedule

Mode of study: Full-time

Unit code	Unit title	SCQF level	Mandatory (M) /Optional (O)	Credit value	Block 1 / Semester 1	Block 2 / Semester 2	Block 3/ Semester 3
F53X 34	Automotive Engineering: Electrical and Electronic Principles and Ancillary Systems	7	M	2	✓	✓	
F53Y 34	Automotive Engineering: Engine Management	7	M	2		✓	✓
F53W 34	Automotive Engineering: Diagnostics	7	M	1			✓
F540 34	Automotive Engineering: Engine Technology	7	M	1	✓		
F541 34	Automotive Engineering: Steering and Suspension Systems	7	M	2		✓	✓
F53V 34	Automotive Engineering: Braking Systems and Vehicle Stability Control	7	M	2	✓	✓	
TBC	Optional Unit	6/7	O	1		✓	
F5DN 34	Automotive Engineering: Graded Unit 1	7	M	1			✓