Group Award Specification for:

HNC Water Operations

Group Award Code: GJ90 15

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Contents

1 Introduction

This document was previously known as the Arrangements document. The purpose of this document is to:

- assist centres to implement, deliver and manage the qualification
- provide a guide for new staff involved in offering the qualification
- inform course managers teaching staff, assessors, learners, employers and HEIs of the aims and purpose of the qualification
- provide details of the range of learners the qualification is suitable for and progression opportunities

The HNC Water Operations is intended primarily for those wishing to further their career in the UK Water Industry. The Qualification Design Team have developed the qualification with the flexibility to allow learners to study whilst still in employment. You will be given direction, which will provide you with a firm understanding of the organisation, operations and management of water and waste water, and an opportunity to study specialist areas essential to the Water Industry. The mandatory and optional Units of this qualification cover the principal operational areas of the water industry such as Water Resources, Water Quality, Water Treatment, Water Distribution and Waste Water Treatment. This is in line with the industry's drive to become increasingly multifunctional. By achieving the individual Unit competencies you will become a useful, adaptable employee within the UK Water Industry, able to contribute to the success and prosperity of the water company/authority or contractor.

This qualification is primarily intended for those employed in the water industry or involved in contracting or consultancy, across the entire spectrum of operational areas of the water industry, eg customer services, networks, treatment operatives, lab technicians, administration, planning and human resources.

This HNC expands the technical content of the HNC Water Operations (G979 15) and its predecessor award HNC Water Operations with Management (G03H 15).

2 Qualification structure

This Group Award is made up of 12 SQA Unit credits. It comprises 96 SCQF credit points of which 72 are at SCQF level 7 in the mandatory section including a Graded Unit of 8 SCQF credit points at SCQF level 7. For learners to achieve the HNC Water Operations they must complete all of the mandatory Units, including the Graded Unit and two of the four optional Units.

2.1 Structure

Mandatory Units

4 code	2 code	Unit title	SQA credit	SCQF credit points	SCQF level
F53S	34	Water Operations: Water Resources	1.5	12	7
F53R	34	Water Operations: Water Quality Management	1.5	12	7
F53M	34	Water Operations: Waste Water Treatment Processes	1.5	12	7
F53L	34	Water Operations: Materials and Components	1.5	12	7
F53P	34	Water Operations: Water Industry Structure and Organisation	1	8	7
J1BT	34*	Supervision and Management	1	8	7
F5GJ	34	Water Operations: Graded Unit 1	1	8	7

Optional Units — learners must complete two Units (Group A or Group B)

4 code	2 code	Unit title	SQA credit	SCQF credit points	SCQF level
Optional Units — Group A					
F53T	34	Water Operations: Water Treatment Processes	1.5	12	7
F53N	34	Water Operations: Water Distribution	1.5	12	7
Optional Units — Group B					
H7FG	34	Water Operations: Operation and Maintenance of the Sewerage Network	1.5	12	7
H7FF	34	Water Operations: Activated Sludge and Advanced Waste Water Treatment Processes	1.5	12	7

Additional Optional Units

4 code	2 code	Unit title	SQA credit	SCQF credit points	SCQF level
F7NE	34	Water Operations: Water Utilisation	1	8	7
H7K0	33	Engineering Mathematics 1	1	7	6
DV9N	34	Engineering Communication	1	8	7

The main change to the qualification from the previous HNC Water Operations (G979 15) is the incorporation of two new Units covering *Operation of the* Sewerage Network and Activated Sludge and Advanced Waste Water Treatment Processes. This will further benefit both learners and employers in terms of multifunctional aspects of the business.

3 Aims of the qualification

3.1 General aims of the qualification

1 To enable learners to develop their knowledge and skills relating to the Water Industry in order to make a more effective contribution to the business needs.
2 To enable progression within the Scottish Credit and Qualifications Framework (SCQF).
3 To develop study and research skills.
4 To prepare learners to progress to HE and membership of industry professional bodies, eg Institute of Water Officers.

3.2 Specific aims of the qualification

5 Provide learners with an understanding of the water industry in relation to water operations in terms of collection, treatment and distribution of water.
6 Provide learners with an understanding of wastewater in terms of collection, treatment and disposal.
7 To provide learners with an understanding of the legislative and regulatory context under which water operations are controlled.
8 To provide learners with an understanding of the organisation and management of the water industry in the UK.

3.3 Graded Unit

The Graded Unit for this award is a Project. Learners must choose a Project which will investigate and report on a technical operational area or areas of the water industry. These operational areas are Water Resources, Water Treatment, Water Distribution, Sewerage, Waste Water Treatment and Sludge Treatment and Disposal. The Graded Unit content will be further defined by the mix of mandatory and optional Units included in the course (see Section 2.1).

The Graded Unit offers learners, and where appropriate their employers, the opportunity to choose a Project which will help meet an individual's development needs. This approach will enable a learner to choose a general project aim in which they will demonstrate a broad understanding of all of the industry's technical operations. Alternatively, the learner can opt for a specific project aim in which they will investigate, in much greater detail, one particular aspect of the industry's operations, eg Water Treatment.

4 Recommended entry to the qualification

Entry to this qualification is at the discretion of the centre. The following information on prior knowledge, skills, experience or qualifications that provide suitable preparation for this qualification has been provided by the Qualification Design Team as guidance only.

Learners would benefit from having attained the skills, knowledge and understanding required by one or more of the following or equivalent qualifications and/or experience:

For HNC, admission should normally be open to applicants in possession of:

- An appropriate collection of SQA National Units or SVQ/NVQs (eg SVQ (2 or 3) or SCQF level 5)
- City and Guilds of London Institute Water Industry Certificate
- Alternative qualification(s) at least equivalent to the above
- Any other qualification which demonstrates that the prospective learner has attained a Core Skills profile that will allow them to benefit from taking this qualification

However, applications are welcome from those without any of the above qualifications but who have significant work experience in an appropriate role within the water industry and for whom the centre identifies as having a realistic expectation of attaining the qualification.

Work experience

It is preferable if learners are currently employed or have been employed in the water or waste water or related industries.

In the case of employees, entry to the course should be subject to agreement with the employer.

4.1 Core Skills entry profile

The Core Skill entry profile provides a summary of the associated assessment activities that exemplify why a particular level has been recommended for this qualification. The information should be used to identify if additional learning support needs to be put in place for learners whose Core Skills profile is below the recommended entry level or whether learners should be encouraged to do an alternative level or learning programme.

All Core Skills are signposted in the individual Units. Core Skills mapping to individual mandatory Units is shown in Section 5.3.

Core Skill	Recommended SCQF entry profile	Associated assessment activities
Communication	4	Good communication skills are required for learners doing this qualification as they will use written and/or oral communication skills to research, develop and present findings.
Numeracy	4	Good numerical skills are required for learners undertaking this qualification as they will need to carry out calculations and use formulae. Unit content will also cover financial information, budgetary management and asset management.

Core Skill	Recommended SCQF entry profile	Associated assessment activities
Information and Communication Technology (ICT)	4	Good ICT skills are required as learners may have to use information technology resources to research, prepare and present information throughout the qualification.
Problem Solving	4	As part of the qualification, learners may be required to investigate issues related to water operations and may be asked to make conclusions and recommendations for the resolution of these issues.
Working with Others	4	Learners will have the opportunity to develop the Core Skill Working with Others as part of this qualification. Learners will be working as part of team and team building in order to achieve objectives.

5 Additional benefits of the qualification in meeting employer needs

This qualification was designed to meet a specific purpose and what follows are details on how that purpose has been met through mapping of the Units to the aims of the qualification. Through meeting the aims, additional value has been achieved by linking the Unit standards with those defined in National Occupational Standards and/or trade/professional body requirements. In addition, significant opportunities exist for learners to develop the more generic skill, known as Core Skills through doing this qualification.

Water industry employers have identified a need to ensure that the water industry is able to access and develop a sustainable competent workforce to facilitate cross functional working. The industry is developing, with Energy and Utility Skills and industry regulators, a framework based on National Occupational Standards for ‘competent operators’ which all UK water undertakers have agreed to adopt. The flexibility of the framework allows for ‘off site’ academic training to develop workplace learning.

Most of the subject areas in this award will have been introduced to learners who have studied SVQ/NVQ levels 2/3. It is important to show the links with existing National Occupational Standards and hence the new framework, to demonstrate how the HNC assists in developing and progressing current and future industry training needs.

5.1 Mapping of qualification aims to Units

Code	Unit title	Aims							
		1	2	3	4	5	6	7	8
F53S 34	Water Operations: Water Resources	x	x	x	x	x			
F53R 34	Water Operations: Water Quality Management	x	x	x	x	x	x	x	
F53M 34	Water Operations: Waste Water Treatment Processes	x	x	x	x		x		
F53L 34	Water Operations: Materials and Components	x	x	x	x	x	x		
F53P 34	Water Operations: Water Industry Structure and Organisation	x	x	x	x				x
J1BT 34*	Supervision and Management	x	x	x	x				x
F5GJ 34	Water Operations: Graded Unit 1	x	x	x	x	x	x	x	
F53T 34	Water Operations: Water Treatment Processes	x	x	x	x	x			
F53N 34	Water Operations: Water Distribution	x	x	x	x	x			
H7FG 34	Water Operations: Operation of the Sewerage Network	x	x	x	x		x	x	x
H7FF 34	Water Operations: Activated Sludge and Advanced Waste Water Treatment Processes	x	x	x	x		x	x	x

5.2 Mapping of National Occupational Standards (NOS)

The table below provides information on the mapping of National Occupational Standards (NOS) to the Units in the HNC Water Operations qualification. The numbers 1-5 in the table relate to suites of NOS. Full details on the NOS within each suite can be found on the next page.

Code	Unit title	National Occupational Standards — Suite																			
F53S 34	Water Operations: Water Resources	1																			
F53R 34	Water Operations: Water Quality Management		2		4																
F53M 34	Water Operations: Waste Water Treatment Processes			3																	
F53L 34	Water Operations: Materials and Components					5															
F53P 34	Water Operations: Water Industry Structure and Organisation	1	2	3	4																
F5GJ 34	Water Operations: Graded Unit 1	1	2	3	4																
F53T 34	Water Operations: Water Treatment Processes		2	3																	
F53N 34	Water Operations: Water Distribution	1				5															
H7FG 34	Water Operations: Operation of the Sewerage Network			3																	
H7FF 34	Water Operations: Activated Sludge and Advanced Waste Water Treatment Processes		2																		

National Occupational Standards (NOS) relevant to the HNC Water Operations

1 Distribution Control

EUSDC01	Operate safely on the distribution network
EUSDC04	Determine the exact location of water loss (acoustic learning techniques)
EUSDC05	Cleanse water mains
EUSDC06	Disinfect water mains
EUSDC07	Carry out simple sampling operations

2 Treatment Process Operations

EUSTPO06	Monitor and maintain the quality of treatment processes
EUSOPP05	Receive, store and handle processing chemicals, reagents and other consumables
EUSTPO10	Receive and store sludge for processing
EUSOPP07	Carry out on-site sampling to maintain the quality of treatment processes
EUSTPO13	Take samples and measurements for quality assurance purposes

3 Sewerage Maintenance

EUSSM4	Restore sewers and ancillaries to an appropriate condition
EUSSM5	Carry out inspection and operational maintenance of sewers and ancillaries
EUSSM8	Prepare resources and segregate the area for site works

4 Maintain Water Supply Network

EUSMWS2	Carry out operational planning for network activities
EUSMWS5	Develop own understanding of techniques for minimum disruption of the distribution network during operational activities
EUSMWS8	Maintain budgetary and regulatory requirements for network activities and maintain professional relationships

5 Water Fittings Regulations/Byelaws/Enforcement

EUSMFRBE3	Secure compliance with water fittings regulations/byelaws

5.3 Mapping of Core Skills development opportunities across the qualification

Opportunities within each Unit, to develop aspects of Core Skills are highlighted below. There is no automatic certification of Core Skills or Core Skills components in this qualification.

Unit code	Unit title	Communication		Numeracy		ICT		Problem Solving			Working with Others	
		Written	Oral	Using Number	Using Graphical Information	Accessing Information	Providing/Creating Information	Critical Thinking	Planning and Organising	Reviewing and Evaluating	Working Co-operatively with Others	Reviewing Co-operative Contribution
F53S 34	Water Operations: Water Resources	S6	S6		S5	S5	S5	S6	S6	S6	S6	S6
F53R 34	Water Operations: Water Quality Management	S6	S6			S5	S5	S6	S6	S6		
F53M 34	Water Operations: Waste Water Treatment Processes	S6	S6			S5	S5	S6	S6	S6		
F53L 34	Water Operations: Materials and Components	S6	S6			S5	S5	S6	S6	S6		
F53P 34	Water Operations: Water Industry Structure and Organisation	S6	S6	S5	S5	S5	S5	S5	S5	S5		
J1BT 34*	Supervision and Management	S6	S6					S6	S6	S6	S6	S6
F5GJ 34	Water Operations: Graded Unit 1		S6	S5	S5	S5	S5	S6	S6	S6	S6	S6
F53T 34	Water Operations: Water Treatment Processes		S6			S5	S5					
F53N 34	Water Operations: Water Distribution		S6	S5	S5	S5	S5	S6	S5	S5	S5	

S = signposted within Unit specifications

Unit code	Unit title	Communication		Numeracy		ICT		Problem Solving			Working with Others	
		Written	Oral	Using Number	Using Graphical Information	Accessing Information	Providing/Creating Information	Critical Thinking	Planning and Organising	Reviewing and Evaluating	Working Co-operatively with Others	Reviewing Co-operative Contribution
H7FG 34	Water Operations: Operation of the Sewerage Network	S6	S6			S6	S6	S6				
H7FF 34	Water Operations: Activated Sludge and Advanced Wastewater Treatment Processes	S6	S6			S6	S6	S6				

S = signposted within Unit specifications

5.4 Assessment Strategy for the qualification

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
Water Operations: Water Quality Management	Closed-book assessment which could take the form of an appropriate balance of multiple choice and restricted response questions designed to meet the Evidence Requirements.	Closed-book assessment which could take the form of an appropriate balance of multiple choice and restricted response questions designed to meet the Evidence Requirements.	The assessment for this Outcome could consist of a report. Assessment could be combined with Outcome 4 of this Unit. The evidence for the report could be drawn from an employer's current or historical practice in Drinking Water Quality and Waste Water Quality Control.	The assessment for this Outcome could consist of a report. Assessment could be combined with Outcome 3 of this Unit. The evidence for the report could be drawn from an employer's current or historical practice in Drinking Water Quality and Waste Water Quality Control.	
Water Operations: Materials and Components	Assessment for Outcome 1 could be combined with other Outcomes as part of a single closed-book end of Unit assessment.	Part of the assessment of this Outcome could consist of a report which might be combined with Outcomes 3 and 4 and as part of a closed-book assessment for the whole Unit. Questions could take the form of an appropriate balance of multiple choice and restricted response type.	Part of the assessment of this Outcome could consist of a report which might be combined with Outcomes 2 and 4 and as part of a closed-book assessment for the whole Unit. Questions could take the form of an appropriate balance of multiple choice and	Part of the assessment of this Outcome could consist of a report which might be combined with Outcomes 2 and 3 and as part of a closed-book assessment for the whole Unit. Questions could take the form of an appropriate balance of multiple choice and	Assessment could consist of a closed-book end assessment. Questions could take the form of an appropriate balance of multiple choice and restricted response type.

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
		Ideally, learners should produce the practical components in the context of their workplace. However, if for practical reasons the learner cannot access suitable materials, evidence could be provided by means of a desk top study and/or literature search and review of an appropriate development as long as the Evidence Requirements are met.	restricted response type. Ideally, learners should produce the maintenance schedule in the context of their workplace. However, if for practical reasons the learner cannot access suitable materials, evidence could be provided by means of a desk top study and/or literature search and review of an appropriate development as long as the Evidence Requirements are met.	restricted response type.	
Water Operations: Waste Water Treatment Processes	Assessment could be a combination of a report and a closed-book end of Unit assessment. Questions used in the closed-book assessment should take the form of an appropriate balance of multiple choice and restricted response type. The report could be combined with that of Outcomes 2 and 4 of this	Assessment could be a combination of a report and a closed-book end of Unit assessment. Questions used in the closed-book assessment should take the form of an appropriate balance of multiple choice and restricted response type.	Assessment could be a closed-book end of Unit assessment. Questions used should take the form of an appropriate balance of multiple choice and restricted response in order to meet the Evidence Requirements.	Assessment could be a combination of a report and a closed-book assessment. Questions used in the closed-book assessment could take the form of an appropriate balance of multiple choice and restricted response type and could reflect a representative sample from the	

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
	Unit and evidence for the report could be drawn from a suitable employer's current or historical practice in Waste Water Treatment.	The report could be combined with that of Outcomes 1 and 4 of this Unit and evidence for the report should if possible be drawn from a suitable employer's current or historical practice in Waste Water Treatment.		content detailed in the support notes in the Unit specification. The report could be combined with that of Outcomes 1, 2 and 4 of this Unit and evidence for the report should if possible be drawn from a suitable employer's current or historical practice in Waste Water Treatment.	
Water Operations: Water Industry Structure and Organisation	The assessment for this Outcome could be a report requiring learners to compare two UK water companies chosen from England and Wales, Northern Ireland or Scotland.	The assessment for this Outcome could be a report and could be combined with Outcomes 1 and 3. The report should focus on a suitable water companies customer care policy and communication system.	Closed-book end-of-Unit assessment for the first two Evidence Requirements. The third Evidence Requirement could be assessed by learners preparing a report on a suitable water undertaker's budget management.		
Water Operations: Water Resources	Part of the assessment could consist of a report which might be combined with that of Outcomes 3 and 5 and as part of a closed-book assessment. Questions used could take the form of an appropriate	Closed-book assessment. Questions used could take the form of an appropriate balance of multiple choice and restricted response type and should reflect	Assessment could consist of a report which might be combined with Outcomes 1 and 5.	Assessment for this Outcome could be a closed-book assessment. Questions used could take the form of an appropriate balance of multiple choice and	Assessment could consist of a report which might be combined with Outcomes 1 and 3.

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
	balance of multiple choice and restricted response type and should reflect the Evidence Requirements.	the Evidence Requirements.		restricted response type.	
Water Operations: Graded Unit 1	This Graded Unit will be assessed by the use of Investigation. The developed Investigation should provide the learner with the opportunity to produce evidence that demonstrates she/he has met the aims of the Graded Unit that it covers.				
Supervision and Management	The assessment for this Outcome could be based on a practical management task or tasks that can be combined with Outcome 2 and 3. Evidence of work completed could be maintained in a portfolio and reports used to supplement the evidence where appropriate.	The assessment for this Outcome could be based on a practical management task or tasks that can be combined with Outcome 1 and 3. Evidence of work completed could be maintained in a portfolio and reports used to supplement the evidence where appropriate.	The assessment(s) could be based on a practical management task or tasks that cover all three Outcomes. The assessment could be based on a work situation or an organisational case study. Evidence of work completed could be maintained in a portfolio and reports used to supplement the evidence where appropriate.		
Water Operations: Water Distribution	Part of the assessment could consist of a report which might be combined with that of Outcomes1–3, and part as a closed-book end assessment. Questions used could take the form of an appropriate balance of multiple choice	Part of the assessment could consist of a report which might be combined with that of Outcomes1–3, and part as a closed-book end assessment. Questions used could take the form of an	Part of the assessment could consist of a report which might be combined with that of Outcomes 1–3, and part as a closed-book end assessment. Questions used could	Assessment could consist of questions used in the form of an appropriate balance of multiple choice and restricted response type.	Assessment could consist of questions used in the form of an appropriate balance of multiple choice and restricted response type.

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
	and restricted response type and should reflect the Evidence Requirements.	appropriate balance of multiple choice and restricted response type and should reflect the Evidence Requirements.	take the form of an appropriate balance of multiple choice and restricted response type and should reflect a representative sample of the Evidence Requirements.		
Water Operations: Water Treatment Processes	Assessment for this Outcome is a closed-book assessment and questions used could take the form of an appropriate balance of multiple choice and restricted response in order to meet Evidence Requirements.	Assessment could consist of a report and the assessment could be combined with that of Outcomes 3 and 4. The evidence for the report could be drawn from a suitable employer's current or historical water treatment plant or facilities. However if for practical reasons the learner cannot access employer sites and data, evidence could be provided by means of a desk top study and/or literature search and review of appropriate material which might include, employers future or proposed	Assessment could consist of a report and the assessment for this Outcome could be combined with that of Outcomes 2, and 4. The evidence for the report could be drawn from a suitable employer's current or historical water treatment plant or facilities. However if for practical reasons the learner cannot access employer sites and data, evidence could be provided by means of a desk top study and/or literature search and review of appropriate material which might include, employers future or	Assessment could consist of a report and the assessment could be combined with that of Outcomes 2 and 3. The evidence for the report could be drawn from a suitable employer's current or historical water treatment plant or facilities.	Closed-book assessment. Questions used could take the form of an appropriate balance of multiple choice and restricted response type.

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
		developments in water treatment, or the investigation and resolution of relevant current or historical water treatment process problems pertaining to the employer.	proposed developments in water treatment, or the investigation and resolution of relevant current or historical water treatment process problems pertaining to the employer.		
Water Operations: Activated Sludge and Advanced Waste Water Treatment Processes	Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning. Evidence for the Knowledge and/or Skills in this Outcome will be generated through sampling. Each learner will need to provide evidence to demonstrate they can examine five of the seven Knowledge and/or Skills items.	Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning. Evidence for the Knowledge and/or Skills in this Outcome will be generated through sampling. Each learner will need to provide evidence to demonstrate they can examine four of the five Knowledge and/or Skills items.	Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning. Evidence for the Knowledge and/or Skills in this Outcome will be generated through sampling. Each learner will need to provide evidence to demonstrate they can examine three of the eight Knowledge and/or Skills items.	Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning. Evidence for the Knowledge and/or Skills in this Outcome will be generated through sampling. Each learner will need to provide evidence to demonstrate they can examine five of the six Knowledge and/or Skills items.	

Unit	Assessment				
	Outcome 1	**Outcome 2**	**Outcome 3**	**Outcome 4**	**Outcome 5**
Water Operations: Operation and Maintenance of the Sewerage Network	Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning. Evidence for the Knowledge and/or Skills in this Outcome will be generated through sampling. Each learner will need to provide evidence to demonstrate they can examine six of the nine Knowledge and/or Skills.	Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning. Evidence for the Knowledge and/or Skills in this Outcome will be generated through sampling. Each learner will need to provide evidence to demonstrate they can examine four of the six Knowledge and/or Skills.	All Knowledge and/or Skills items in this Outcome must be assessed. Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning.	All Knowledge and/or Skills items in this Outcome must be assessed. Learners are required to provide written or oral recorded evidence. The evidence will be generated under supervised conditions in response to an assignment or unseen questions. Evidence through presentation will be supported by evidence of research and planning.	

6 Guidance on approaches to delivery and assessment

The programme could be delivered on a part time basis over a two year period. This might consist of 10 x 2 day tutorial visits per year including an Induction Day and Examination Day. The tutorials could be delivered at approximate six week intervals.

Mode of delivery

It is intended that this qualification should be delivered as much as possible with reference to actual industry practices and processes. With this in mind, it is highly desirable in some Units and essential in others for learners to have access to water industry installations and systems.

6.1 Sequencing/integration of Units

Sequence of delivery

The programme may be delivered on a part-time basis and a logical sequence of delivery is detailed below however this will need to reflect the Optional Units chosen. Although the Graded Unit is assessed at the end, it is delivered throughout the duration of the programme, concurrently with other Units.

Unit title:

Water Operations: Water Resources
Water Operations: Water Treatment Processes
Water Operations: Water Quality Management
Water Operations: Water Distribution
Water Operations: Materials and Components
Water Operations: Operation and Maintenance of the Sewerage Network
Water Operations: Waste Water Treatment Processes
Water Operations: Activated Sludge and Advanced Waste Water Treatment
Water Operations: Water Industry Structure and Organisation
Supervision and Management
Water Operations: Graded Unit 1

Integration opportunities

There is an opportunity to integrate the assessment between the Units, eg *Water Operations: Water Resources* and *Water Operations: Water Treatment Processes*. The degree of integration will be influenced by the choice of optional Units.

6.2 Recognition of Prior Learning

SQA recognises that learners gain knowledge and skills acquired through formal, non-formal and informal learning contexts.

In some instances, a full Group Award may be achieved through the recognition of prior learning. However, it is unlikely that a learner would have the appropriate prior learning and experience to meet all the requirements of a full Group Award.

The recognition of prior learning may **not** be used as a method of assessing in the following types of Units and assessments:

- HN Graded Units
- Course and/or external assessments
- Other integrative assessment Units (which may or not be graded)
- Certain types of assessment instruments where the standard may be compromised by not using the same assessment method outlined in the Unit
- Where there is an existing requirement for a licence to practice
- Where there are specific health and safety requirements
- Where there are regulatory, professional or other statutory requirements
- Where otherwise specified in an Assessment Strategy

More information and guidance on the *Recognition of Prior Learning* (RPL) may be found on our website **www.sqa.org.uk**.

The following sub-sections outline how existing SQA Unit(s) may contribute to this Group Award. Additionally, they also outline how this Group Award may be recognised for professional and articulation purposes.

6.2.1 Articulation and/or progression

Possession of the HNC Water Operations will provide access to the part-time, supported distance learning programme leading to the BSc degree in Environmental Protection at De Montfort University. The HNC generally in Scotland is recognised by many HE institutions as providing a qualification to access degree level study in 1st year or 2nd year in appropriate courses of higher education.

6.2.2 Professional recognition

Completion of this qualification would allow learners to join the Institute of Water Officers, however, they must also be working in the water industry.

6.2.3 Transitional Arrangements

It is recommended that learners who are in the process of completing the predecessor award complete it rather than switching to the revised award. However there may be occasions when it is not possible for learners to complete the existing award eg where they were unable to complete their studies due to ill health or difficulties with their employer and where the centre has gone on to offer the new award and only one or two Units need to be completed. In these cases it is recommended that the suggested credit transfer arrangements given in Section 6.2.4 be considered.

6.2.4 Credit transfer

These credit transfer arrangements should be regarded as guidelines and centres should bear in mind that the Award has been revised to update the skills and knowledge required in the water industry and related employers.

Old Unit Code	Current Unit Code	Comments
A79C 04 The Measurement and Control of Water and Waste Water Quality	F53R 34 Water Operations: Water Quality Management	Yes
A79H 04 Water Treatment Processes	F53T 34 Water Operations: Water Treatment Processes	Yes
A79B 04 Water Industry Organisation and A79B041 Related Activities	F53P 34 Water Operations: Water Industry Structure and Organisation	Yes
A79D 04 Water Resources	F53S 34 Water Operations: Water Resources	Yes
D5PY 04 Water Industry Materials and Components	F53L 34 Water Operations: Materials and Components	Yes
A79G 04 Water Distribution Function and Operation	F53N 34 Water Operations: Water Distribution	Yes
A79E 04 Waste Water Collection and Treatment	F53T 34 Water Operations: Waste Water Treatment	Yes

6.3 Opportunities for e-assessment

Research has indicated that it is important to retain face to face contact with the learners and opportunities for networking with other water industry personnel. In the event of any centre wishing to deliver this course on a fully open learning basis, then it would be highly desirable that prospective learners have access to water industry installations and work experience to enable them to undertake this course.

7 General information for centres

Equality and inclusion

The Unit specifications making up this Group Award have been designed to ensure that there are no unnecessary barriers to learning or assessment. The individual needs of learners will be taken into account when planning learning experiences, selecting assessment methods or considering alternative evidence. 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 qualification(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* **(www.sqa.org.uk/GuideToAssessment)**.

8 Glossary of terms

Embedded Core Skills: is where the assessment evidence for the Unit also includes full evidence for complete Core Skill or Core Skill components. A learner successfully completing the Unit will be automatically certificated for the Core Skill. (This depends on the Unit having been successfully audited and validated for Core Skills certification.)

Finish date: The end of a Group Award's lapsing period is known as the finish date. After the finish date, the Group Award will no longer be live and the following applies:

- learners may not be entered for the Group Award
- the Group Award will continue to exist only as an archive record on the Awards Processing System (APS)

Graded Unit: Graded Units assess learners' 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 learners to retain and adapt their skills and knowledge.

Lapsing date: When a Group Award is entered into its lapsing period, the following will apply:

- the Group Award will be deleted from the relevant catalogue
- the Group Award specification will remain until the qualification reaches its finish date at which point it will be removed from SQA's website and archived
- no new centres may be approved to offer the Group Award
- centres should only enter learners whom they expect to complete the Group Award during the defined lapsing period

SQA credit value: The credit value allocated to a Unit gives an indication of the contribution the Unit makes to an SQA Group Award. An SQA credit value of 1 given to an SQA Unit represents approximately 40 hours of programmed learning, teaching and assessment.

SCQF: The Scottish Credit and Qualification Framework (SCQF) provides the national common framework for describing all relevant programmes of learning and qualifications in Scotland. SCQF terminology is used 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: SCQF credit points provide a means of describing and comparing the amount of learning that is required to complete a qualification at a given level of the Framework. One National Unit credit is equivalent to 6 SCQF credit points. One National Unit credit at Advanced Higher and one Higher National Unit credit (irrespective of level) is equivalent to 8 SCQF credit points.

SCQF levels: The level a qualification is assigned within the framework is an indication of how hard it is to achieve. The SCQF covers 12 levels of learning. HNCs and HNDs are available at SCQF levels 7 and 8 respectively. Higher National Units will normally be at levels 6–9 and Graded Units will be at level 7 and 8. 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.

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

Signposted Core Skills: refers to opportunities to develop Core Skills arise in learning and teaching but are not automatically certificated.

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. Centres are advised to check SQA's APS Navigator to confirm they are using the up to date qualification structure.

NOTE: Where a Unit is revised by another Unit:

- No new centres may be approved to offer the Unit which has been revised.
- Centres should only enter learners for the Unit which has been revised where they are expected to complete the Unit before its finish date.

Version Number	Description	Date
02	Revision of Unit F5CP 34 Supervision and Management (finish date 31/07/2021) has been replaced by J1BT 34 Supervision and Management (start date 01/08/2018).	31/07/18

Acknowledgement

SQA acknowledges the valuable contribution that Scotland's colleges have made to the development of this qualification.

9 General information for learners

This section will help you decide whether this is the qualification for you by explaining what the qualification is about, what you should know or be able to do before you start, what you will need to do during the qualification and opportunities for further learning and employment.

The HNC Water Operations is intended primarily for those wishing to further their career in the UK Water Industry. The Qualification Design Team have developed the qualification with the flexibility to allow learners to study whilst still in employment You will be given direction, which will provide you with a firm understanding of the organisation, operations and management of water and wastewater, and an opportunity to study specialist areas essential to the Water Industry. The mandatory and optional Units of this qualification cover the principal operational areas of the water industry such as Water Resources, Water Quality, Water Treatment, Water Distribution and Wastewater Treatment. This is in line with the industry's drive to become multifunctional. By achieving the individual Unit competencies you will become a useful, adaptable employee within the UK Water Industry, able to contribute to the success and prosperity of the water company/authority or contractor.

Successful completion of this HNC will give you the opportunity to progress to higher education with De Montfort University in Leicester. You will be able to access the BSc Environmental Protection which is available on a distance study basis.

Typical learners

This qualification is primarily intended for those employed in the water industry or involved in contracting or consultancy, across the entire spectrum of operational areas of the water industry, eg customer services, networks, treatment operatives, lab technicians, administration, planning and human resources.

For admission to the course you would normally be in possession of one of the following:

- An appropriate collection of SQA National Units or SVQ/NVQs (eg SVQ 2 or 3 or SCQF level 5)
- City and Guilds of London Institute Water Industry Certificate
- Alternative qualification(s) at least at equivalent level to the above
- Any other qualification which demonstrates that you have attained a Core Skills profile that will allow you to have a realistic expectation of attaining the award.

However, applications are welcome from those without any of the above qualifications but who have significant work experience in an appropriate role within the water industry and who can be identified as being ready to undertake the qualification.

What level of study is involved?

It is anticipated that this qualification will require approximately 480 hours of study. Typically, this can be achieved within two academic years allowing four to five hours of study per week. You will have to successfully complete 12 SQA Unit credits achieve the HNC Water Operations.

The content of each Unit will be delivered through a series of tutorials, site visits and activities. Tutor/learner guidance sessions should also be set up to support learners through the programme to build their confidence and monitor progress.

During the learning process your skills in the following areas will be developed:

- Organising
- Communicating
- Researching
- Problem solving
- Working and co-operating with others

The main topics of study are:

Water Operations: Water Resources
Water Operations: Water Treatment Processes
Water Operations: Water Quality Management
Water Operations: Water Distribution
Water Operations: Materials and Components
Water Operations: Operation and Maintenance of the Sewerage Network
Water Operations: Waste Water Treatment Processes
Water Operations: Activated Sludge and Advanced Waste Water Treatment
Water Operations: Water Industry Structure and Organisation
Supervision and Management
Water Operations: Graded Unit 1

Unit and Graded Unit assessment

Each individual Unit in the qualification is assessed, although some or parts of Units may be assessed in an integrated way. The individual Units are assessed by a combination of assignments and an integrated end examination.

The Graded Unit is assessed by a Project which pulls together the skills and knowledge of the key technical Units of included in the course. The Project may be a general one including material from the majority of technical Units or it can be a detailed one investigating a particular aspect of work where this is considered appropriate by learner and employer. This Project is undertaken on an ongoing basis over the duration of the course.

You will be expected to hand in work to meet specified deadlines, which are an essential element of the assessment process. You must achieve at least a pass mark in all assessments in the specified timescale to achieve this qualification.

Employment opportunities

The HNC Water Operations is primarily a course aimed at employees of the water industry and contractors to the water industry. The course provides a broad understanding of the various functions of the water industry. Learners could come from a wide range of roles within the industry, and on completion of the course can gain promotion within the water industry, eg from operative to team leader or team leader to manager.