FDQ - Qualification Specification

FDQ number	Qualification title	Qualification number (QN)	EQF Level	Review date
328-415	FDQ Level 4 Diploma in Brewing and Brewery Operations (Wales)	C00/5269/9	5	30/09/2030

Qualification Purpose

This qualification is designed for learners in the brewing industry who wish to develop the higher-level skills and knowledge required to work as a supporting or head brewer. The qualification offers opportunities for learners to develop higher level technical knowledge to understand the brewing process and troubleshoot production issues as well as brewing skills and competence in the commercial aspects of the role.

The qualification forms part of the Welsh apprenticeship framework for Level 4 Brewer.

Purpose D. Confirm occupational competence and/or 'licence to practise'.
Sub purpose D1. Confirm competence in an occupational role to the standards required

Learners need to be 16 years old or over to take this qualification. Learners do not require any prior qualifications or food skills experience to take this qualification. However, prior achievement of FDQ L2 Diploma for Proficiency in Brewing Industry Skills (Wales) may be an advantage for some learners. The qualification assesses and recognises achievement within the workplace.

The qualification includes underpinning knowledge units covering a wide range of topics required for the role, from principles of beer recipe design, brewhouse operation, yeast and fermentation through to packaging and product stability. Occupational skills are addressed in areas such as running and controlling brewing operations, problem solving and continuous improvement as well as improving sustainability in brewing operations.

See below for a complete list of units that make up the qualification and their value within the qualification. This is a regulated qualification.

This qualification could lead to

The qualification will support progression to further learning in:

1. subject areas including:
    - Production management
    - Technical management
2. particular qualifications including:
    - FDQ Level 4 Diploma for Proficiency in Food Manufacturing Excellence (Wales)
3. This qualification may support employment in roles including;
    - Head brewer
    - Production lead/manager

Qualification support

This qualification has been designed and developed in partnership with the Food Skills Cymru (Drinks Cluster). It is also supported by the Food and Drink Training and Education Council.

Further Information

Further information can be obtained from our website at: http://www.fdq.org.uk

Or by contacting FDQ:

Tel: 0113 859 1266

Email: fdq@fdq.org.uk

Assessment

Learners for the FDQ Level 4 Diploma in Brewing and Brewery Operations (Wales) must complete a portfolio of evidence based on FDQ's units of assessment, following the portfolio of evidence specification provided in the qualification handbook. They must achieve a pass for their portfolio which is internally marked by the assessor.

Assessment requirements are set out in individual units of assessment, see exemplar *P/101/0010 Principles of brewhouse operations.* FDQ has in place a quality system comprising policies and procedures to ensure its qualifications are developed, delivered and remain fit for purpose. FDQ externally quality assures all centre assessment and internal quality assurance arrangements.

Achievement

The qualification outcome is graded Pass/Fail.

Rules of Combination (RoC)

FDQ Level 4 Diploma in Brewing and Brewery Operations (Wales)	
Total credits required for the qualification	**72**
Total Qualification Time (TQT)	720 hours
Group A – Mandatory units – Underpinning knowledge	35 credits
Group B – Mandatory units – Occupational competence	18 credits
Group C – Mandatory units – Occupational skills	19 credits
Guided Learning Hours (GLH)	465 hours

List of units

FDQ unit ref	Unit title	Level	GLH	Credit
Group A – Underpinning knowledge units				
P/101/0006	Principles of the beer industry	4	15	2
P/101/0007	Principles of compliance in brewing operations	4	20	3
P/101/0008	Principles of beer recipe design	4	22	3
P/101/0009	Principles of raw materials for brewing operations	4	19	3
P/101/0010	Principles of brewhouse operations	4	45	7
P/101/0011	Principles of yeast and fermentation in brewing operations	4	26	4
P/101/0012	Principles of maturation and finishing in brewing operations	4	10	2
P/101/0013	Principles of product stability and quality in brewing operations	4	12	2
P/101/0014	Principles of packaging in brewing operations	4	20	3
P/101/0015	Principles of plant design, maintenance and hygiene in brewing operations	4	38	6
Group B – Occupational competence units				
P/101/0016	Solve problems and lead continuous improvement in brewing operations	4	48	8
P/101/0017	Monitor production data and contribute to beer sales and promotion strategies	4	31	5
P/101/0018	Develop brewing knowledge and practice	4	17	2
P/101/0019	Maintain, promote and improve sustainable practice in brewing operations	4	20	3

Group C – Occupational skills units				
P/101/0020	Plan and prepare for brewing operations	4	20	4
P/101/0021	Run and control brewing operations	4	55	9
P/101/0022	Run and control packaging equipment in brewing operations	4	22	3
P/101/0023	Conduct quality assurance activities in brewing operations	4	16	2
P/101/0024	Transport and store bulk and packaged beer	4	9	1

Exemplar unit of assessment

Title	Principles of brewhouse operations				
FDQ unit reference	P/101/0010				
Level	4	Credit value	7	GLH	45
Learning outcomes		**Assessment criteria**			
The learner will:		**The learner can:**			
1. Understand the processes and equipment involved in the brewhouse		1.1 Specify the major processes involved in the brewhouse 1.2 Summarise the equipment and machinery used in the brewhouse 1.3 Describe how the features of brewhouse plant design contribute to product quality, safety and efficiency 1.4 Summarise maintenance strategies for each part of the brewhouse			

2. Understand the processes involved in the mashing stage of brewing operations	2.1 Explain the specifications of malt/grist required for different brewed products 2.2 Summarise the purpose of the mashing process 2.3 Explain the biochemical changes and key enzymes involved in mashing and mash conversion 2.4 Explain the factors that affect biochemical changes in mash conversion 2.5 Describe the parameters, process and equipment used in different types of mashing including: • Infusion mashing • Temperature stepped mashing • Decoction mashing 2.6 Explain the importance of controlling mash conversion 2.7 Explain why additional external enzymes and mineral salts may be required to produce a fully fermentable wort 2.8 Explain the importance of checking the starch end point and how this is determined 2.9 Describe the typical features in place to ensure safe operation of the mashing process in a manual, semi manual or automated process
3. Understand the processes involved in wort/mash separation	3.1 Summarise the purpose and objectives of the wort/mash separation process 3.2 Describe the process, parameters and equipment used in different types of wort/mash separation including: • Mash tun • Lauter tun • Mash filter

	3.3 Explain the importance of controlling the wort/ mash separation process 3.4 Summarise the importance of maximising the filtration efficiency of the separation process 3.5 Explain how wort quality can be affected by residual chemical compounds 3.6 Describe the typical features in place to ensure safe operation of mash separation process in a manual, semi manual or automated process 3.7 Summarise the considerations for recovery of co-products and spent grain at the end of the wort/mash separation stage
4. Understand the processes involved in wort boiling	4.1 Summarise the purpose and objectives of the wort boiling process 4.2 Summarise the factors which influence the effectiveness of the wort boiling process 4.3 Explain the changes in chemical compounds achieved during the wort boiling process 4.4 Describe the process, parameters and equipment used in wort boiling including: • Direct fired kettles/copper • Use of steam jackets • Internal heating • External heating using plate heat exchangers • Continuous systems under pressure 4.5 Explain the purpose and process of adding hops and adjuncts to the boiling wort to achieve different characteristics in the final brewed product 4.6 Summarise the chemical compounds in hops which give bitterness to brewed products

	4.7 Explain the factors which affect hop utilisation in the brewing process
5. Understand the processes involved in wort clarification	5.1 Summarise the purpose and objectives of wort clarification 5.2 Describe the process and parameters for wort clarification 5.3 Describe the equipment used in wort clarification including: • Hop back • Hop strainer • Sedimentation tanks • Whirlpool 5.4 Explain the purpose and use of finings to aid clarification
6. Understand the processes involved in wort cooling	6.1 Summarise the purpose and objectives of wort cooling 6.2 Describe the process of wort cooling 6.3 Describe the use of plate heat exchangers and other systems to cool wort
7. Understand the processes involved in the wort aeration	7.1 Summarise the purpose and objectives of wort aeration 7.2 Describe the process of wort aeration 7.3 Explain the factors which dictate the level of aeration required in a brewed product
8. Understand common problems and faults that can occur in brewhouse operations	8.1 Summarise the reasons for common faults that can occur in the brewhouse including: • Stuck mash • Incorrect pH • Incorrect temperature • Incorrect aeration

	8.2 Explain the impact of common brewhouse faults in the brewed product and how they can be rectified
9. Understand health and safety requirements in brewhouse operations	9.1 Summarise the main safety risks in the brewhouse 9.2 Explain the control measures in place to mitigate harm including: • Safe working procedures • Plant design • Use of automation 9.3 Describe the control and use of personal protective equipment in the brewhouse
10. Understand the cleaning processes used for brewhouse equipment	10.1 Summarise the importance of maintaining cleanliness in brewhouse equipment 10.2 Explain how equipment used in the brewhouse stages should be cleaned effectively 10.3 Explain the importance of disposing of wastewater and cleaning materials appropriately 10.4 Describe how to check cleanliness of brewhouse equipment
Purpose and assessment overview	
Unit purpose and aim(s)	The aim of the unit is to assess understanding aligned to the Brewing and Brewery Operations pathway in the Welsh Food and Drink Apprenticeship Framework.
Assessment requirements and guidance	The FDQ Qualification Handbook for Level 4 Brewing and Brewery Operations, sets out the assessment and quality assurance requirements for this unit. The learner must demonstrate their understanding to meet all learning outcomes. Assessment methods appropriate to the needs of the learner must be used to

	generate satisfactory evidence of knowledge and understanding.
Additional information about this unit	
Support for this unit	Food and Drink Training and Education Council Levercliff
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