

## FDQ - Qualification Purpose and Structure

| FDQ number | Qualification title                               | Qualification approval number (QN) | EQF Level | Review date               |
|------------|---|------------------------------------|-----------|---------------------------|
| 261-226    | Level 3 Diploma in Food Technology and Management | 600/3135/9                         | 4         | 31 <sup>st</sup> Dec 2021 |

### Purpose overview

This qualification is designed primarily for learners who wish to develop their food technology skills and understanding to support progress to the next level of vocational learning.

*Ofqual purpose B. Prepare for further learning or training and/or develop knowledge and/or skills in a subject area. Sub purpose B2. Develop knowledge and/or skills in a subject area*

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. The qualification assesses and recognises achievement within a learning environment, and does not attract points on the UCAS tariff. Assessment is by practical demonstration, assignment, written examination and is graded pass/fail. This qualification is not publicly funded within an Apprenticeship programme, therefore learners aged 24 years and over may consider an Adult Learner Loan to support learning at a Further Education College in England.

The qualification covers mandatory food technology skills and knowledge in areas including: nutrition, food biochemistry, food testing, category science (e.g. meat/dairy/baking) and food technology processes (e.g. heating/sterilising/packaging). Learners have a large choice of skills in the mandatory groups of units, including areas like: food science skills, food science knowledge and food technology. Learners may choose optional units in enterprise and management skills to meet their learning and development needs. See below for: (i) a complete list of units that make up the qualification and their value within the qualification and (ii) the minimum and maximum Credits and Guided Learning Hours. This qualification is listed in the Regulated Qualifications Framework, and available for provision in England, Scotland, Wales, Northern Ireland and Eire.

### This qualification could lead to

The qualification will support progression to further learning in:

1. subject areas including;
  - food science

- food technology
  - food management
  - food hygiene and safety
2. particular qualifications including;
- Foundation Degree in Food Science and Technology
  - Foundation Degree in Food Nutrition
  - Foundation Degree in Food Manufacture
  - L4/5 Management qualifications
  - L4 Awards in Food Safety Management
3. Apprenticeships (Higher/Level 4/5) including;
- Higher Apprenticeship in Life Sciences & Chemical Science Professionals - Level 4 and 5 (England) Pathway 6 Food Science Technologist
  - Higher Apprenticeships in Management

These frameworks relate to technologist and management level roles including;

- food technologist
- food processing and manufacture manager
- product development technologist/manager
- quality assurance manager

This qualification is a Diploma requiring achievement of 110 credits. It is primarily designed for learners progressing into Level 4 Diploma and Level 5 Diploma/Foundation Degree learning in subject areas, qualifications and into Higher Apprenticeships listed above. The achievement of this Diploma allows sufficient breadth of development of food technology skills, enterprise and management skills to fully support progression into Higher Apprenticeship. A smaller Diploma version of this qualification is available requiring achievement of 60 credits, and is primarily designed for learners progressing into food technology related learning and roles.

### **Qualification support**

This qualification has received support from the Institute of Food Science and Technology and FDQ Approved Centres including Further Education Colleges: Bridgwater College, Duchy College, Reaseheath College and University College Birmingham.

### **Further Information**

Further information can be obtained from our website at: <http://www.fdq.org.uk/our-qualifications/technical/food-science-and-technology/>

Or by contacting FDQ Tel: 0113 3970 395 Email: [fdq@fdq.org.uk](mailto:fdq@fdq.org.uk)

## Rules of Combination (RoC)

|   |                  |
|---|------------------|
| <b>Total credits required for qualification</b> | <b>110</b>       |
| Food science skills (Group A)                   | Mandatory<br>20+ |
| Food science knowledge (Group B)                | Mandatory<br>20+ |
| Food Technology (Group C)                       | Mandatory<br>45+ |
| Enterprise skills (Group D)                     | Optional<br>0-25 |
| Management (Group E)                            | Optional<br>0-25 |
| Guided Learning Hours Range (min-max)           | 625-950          |
| <b>Total Qualification Time (TQT)</b>           | <b>688 hours</b> |

## Assessment methodology

Assessment is by practical demonstration, assignment, written examination and is graded pass/fail. 70% of these qualifications will be internally assessed through practical and written assignments, set by the centre and agreed with FDQ. These assessments will be subject to internal quality assurance and externally quality assured by FDQ.

The remaining 30% of assessment for the qualification will also be through internally assessed examination. The questions for these examinations may be written by participating centres, set and marked by the centre and then moderated through normal QA arrangements by FDQ.

## List of units

| Unit ref                              | Unit type | Unit title  | Level | Credit | GLH |
|---------------------------------------|-----------|---|-------|--------|-----|
| <b>Group A Food science skills</b>    |           |   |       |        |     |
| T/507/0145                            | VS        | Mathematics in food science                       | 3     | 6      | 40  |
| A/507/0146                            | VS        | Academic research skills in food science          | 3     | 2      | 15  |
| F/507/0147                            | VS        | Research skills for academic study                | 3     | 2      | 14  |
| J/507/0148                            | VS        | Statistical skills in food science                | 3     | 5      | 30  |
| L/507/0149                            | VS        | Mathematical calculations in food science         | 3     | 5      | 30  |
| H/507/0142                            | VS        | Principles of organic chemistry in food science   | 4     | 15     | 60  |
| K/507/0143                            | VS        | Principles of chemical properties and reactions   | 2     | 3      | 24  |
| M/507/0144                            | VS        | Principles of industrial process chemistry        | 3     | 12     | 80  |
| M/503/0310                            | UK        | Principles of dairy science                       | 3     | 2      | 14  |
| J/602/0621                            | UK        | Principles of seafood quality science             | 3     | 4      | 20  |
| R/602/4493                            | UK        | Principles of food science                        | 3     | 4      | 32  |
| D/602/6277                            | UK        | Principles of meat science                        | 4     | 5      | 37  |
| <b>Group B Food science knowledge</b> |           |   |       |        |     |
| F/602/4490                            | UK        | Principles of human food nutrition                | 3     | 4      | 31  |
| L/602/4492                            | UK        | Principles of a balanced diet                     | 3     | 4      | 31  |
| H/602/4496                            | UK        | Principles of human biology and food conversion   | 3     | 4      | 35  |
| A/602/4522                            | UK        | Principles of yeast biology for food and drink    | 3     | 4      | 30  |
| J/602/4538                            | UK        | Principles of water functionality in food science | 3     | 4      | 30  |

|            |    |  |   |   |    |
|------------|----|--|---|---|----|
| L/602/4511 | UK | Principles of protein biochemistry in food science       | 3 | 4 | 32 |
| K/602/4550 | UK | Principles of protein functionality in food science      | 3 | 4 | 32 |
| J/602/4510 | UK | Principles of lipid biochemistry in food science         | 3 | 4 | 35 |
| M/602/4548 | UK | Principles of lipid functionality in food science        | 3 | 4 | 35 |
| R/602/4509 | UK | Principles of carbohydrate biochemistry in food science  | 3 | 4 | 32 |
| L/602/4542 | UK | Principles of carbohydrate functionality in food science | 3 | 4 | 32 |
| D/602/4514 | UK | Principles of vitamin biochemistry in food science       | 3 | 4 | 30 |
| R/602/4512 | UK | Principles of gelatin biochemistry in food science       | 3 | 4 | 35 |
| Y/602/4513 | UK | Principles of mineral biochemistry in food science       | 4 | 5 | 30 |
| M/602/4551 | UK | Principles of mineral functionality in food science      | 3 | 4 | 24 |

### Group C Food technology

#### Food Technology

|            |    |  |   |   |    |
|------------|----|--|---|---|----|
| D/601/9684 | UK | Principles of using ICT and MIS in food technology           | 4 | 4 | 23 |
| A/602/4505 | UK | Principles of weights and measures in food technology        | 3 | 4 | 30 |
| K/602/4516 | UK | Principles of functional food additives in food technology   | 3 | 4 | 35 |
| K/602/4502 | UK | Principles of appearance and texture in food technology      | 3 | 3 | 23 |
| M/602/4503 | UK | Principles of flavours in food technology                    | 3 | 4 | 36 |
| T/602/4504 | UK | Principles of rheological characteristics in food technology | 3 | 4 | 32 |

|            |    |   |   |   |    |
|------------|----|---|---|---|----|
| A/602/4536 | UK | Principles of microbiology in food technology                   | 3 | 4 | 32 |
| J/502/7557 | UK | Principles of energy transfer in heating food technology        | 3 | 4 | 30 |
| L/502/7429 | UK | Principles of energy transfer in cooling food technology        | 3 | 4 | 28 |
| L/502/7558 | UK | Principles of the refrigeration cycle in food technology        | 3 | 4 | 32 |
| F/602/4506 | UK | Principles of freezing methods in food technology               | 3 | 4 | 30 |
| H/602/4515 | UK | Principles of pigments in food technology                       | 4 | 5 | 40 |
| T/602/4552 | UK | Principles of cleaning raw food materials                       | 3 | 3 | 22 |
| A/602/4553 | UK | Principles of sorting and grading produce and food materials    | 3 | 3 | 22 |
| F/602/4554 | UK | Principles of bulk size reduction of produce and food materials | 3 | 4 | 30 |
| J/602/4555 | UK | Principles of homogenisation in food technology                 | 3 | 4 | 30 |
| J/502/7493 | UK | Principles of centrifugation in food technology                 | 3 | 3 | 28 |
| H/502/7498 | UK | Principles of filtration in food technology                     | 3 | 4 | 26 |
| R/502/7495 | UK | Principles of irradiation in food technology                    | 3 | 4 | 34 |
| F/502/7430 | UK | Principles of canning in food technology                        | 3 | 4 | 30 |
| L/602/4556 | UK | Principles of aseptic packaging in food technology              | 3 | 3 | 20 |
| L/502/7494 | UK | Principles of blanching in food technology                      | 3 | 3 | 21 |
| M/602/3013 | UK | Principles of sterile processing in food technology             | 3 | 4 | 30 |
| A/502/7426 | UK | Principles of the dehydration process in food technology        | 3 | 4 | 34 |

|            |    |   |   |   |    |
|------------|----|---|---|---|----|
| H/601/5216 | UK | Principles of valves and pumps in food manufacture                        | 2 | 2 | 16 |
| K/601/5217 | UK | Principles of plate heat exchangers in food manufacture                   | 2 | 2 | 16 |
| D/502/7824 | UK | Principles of modified atmosphere and vacuum packaging in food technology | 2 | 2 | 13 |
| D/602/4562 | UK | Principles of bar coding in food operations                               | 3 | 3 | 20 |
| T/602/4566 | UK | Principles of food labelling in food operations                           | 3 | 4 | 30 |
| K/602/4564 | UK | Principles of paper and board packaging in food operations                | 3 | 4 | 34 |
| M/602/4565 | UK | Principles of plastic and cellulose films in food and drink               | 3 | 4 | 34 |
| T/502/0183 | UK | The principles of food safety supervision for manufacturing               | 3 | 3 | 25 |
| Y/600/2382 | UK | The principles of HACCP for food manufacturing                            | 3 | 3 | 20 |
| K/602/4225 | UK | Principles of flour in bakery   | 3 | 2 | 20 |
| T/602/4230 | UK | Principles of salt and dough conditioners / improvers in bakery           | 3 | 2 | 20 |
| A/602/4567 | UK | Principles of the Bulk Fermentation Process                               | 3 | 2 | 20 |
| F/602/4182 | UK | Principles of the Chorleywood bread process                               | 3 | 2 | 20 |
| F/602/4568 | UK | Principles of Mechanical Dough Development (MDD) using spiral mixing      | 3 | 2 | 20 |
| F/602/4196 | UK | Principles of dough fermentation and process control                      | 3 | 2 | 20 |
| K/602/4192 | UK | Principles of retarding and proving dough and process control             | 3 | 2 | 20 |

|            |    |  |   |   |    |
|------------|----|--|---|---|----|
| K/602/4211 | UK | Principles of oven baking bakery products  | 3 | 2 | 20 |
| K/602/4712 | UK | Principles of mixing flour confectionery and process control                           | 3 | 2 | 20 |
| L/503/0315 | UK | Principles of producing butter and mixed fat spreads                                   | 3 | 2 | 15 |
| H/503/0305 | UK | Principles of ice cream production   | 3 | 2 | 14 |
| J/503/0314 | UK | Principles of fermented dairy products   | 3 | 2 | 16 |
| F/503/0313 | UK | Principles of cheese making  | 3 | 3 | 23 |
| M/602/0614 | UK | Principles of fish or shellfish smoking  | 3 | 4 | 21 |
| D/602/0625 | UK | Principles of brining and salting fish or shellfish                                    | 3 | 2 | 13 |
| H/503/1602 | UK | Principles of fresh produce ripening   | 3 | 4 | 31 |
| F/503/1610 | UK | Principles of fresh produce handling and quality                                       | 3 | 3 | 23 |
| T/503/1622 | UK | Principles of the fresh produce handling systems                                       | 3 | 3 | 18 |
| A/503/1623 | UK | Principles of fresh produce packaging and preservation                                 | 3 | 4 | 26 |
| F/502/8058 | UK | Principles of curing meat  | 3 | 3 | 22 |
| R/602/6227 | UK | Principles of microbiology and parasitology in meat production                         | 4 | 3 | 24 |
| D/602/6229 | UK | Principles of anatomy and physiology of meat species                                   | 4 | 5 | 37 |
| Y/602/6276 | UK | Principles of pathology of meat species  | 4 | 5 | 37 |
| T/502/8008 | UK | Principles of technology in meat processing  | 3 | 3 | 21 |
| H/502/7825 | UK | Principles of animal waste and by-product removal and processing of edible co-products | 3 | 3 | 24 |



|                             |    |  |   |   |    |
|-----------------------------|----|--|---|---|----|
| A/602/6397                  | UK | Principles of wheat plants, grain production and storage     | 3 | 4 | 32 |
| F/602/6398                  | UK | Principles of screenroom processes in milling                | 3 | 4 | 32 |
| T/602/6401                  | UK | Principles of the break system in flour milling              | 3 | 5 | 32 |
| J/602/6399                  | UK | Principles of the scratch system in flour milling            | 3 | 4 | 26 |
| A/602/6402                  | UK | Principles of the reduction system in flour milling          | 3 | 4 | 24 |
| Y/602/6407                  | UK | Principles of flour packing, storage and despatch in milling | 3 | 4 | 24 |
| D/602/6408                  | UK | Principles of bulk handling grain and flour in milling       | 3 | 4 | 22 |
| T/502/7425                  | UK | Principles of the feed pelleting system in flour milling     | 3 | 4 | 26 |
| J/601/5208                  | UK | Principles of brewhouse processes in brewing                 | 2 | 2 | 7  |
| F/601/5210                  | UK | Principles of fermentation in brewing                        | 2 | 3 | 8  |
| L/601/5209                  | UK | Principles of conditioning and filtration in brewing         | 2 | 2 | 7  |
| R/601/5213                  | UK | Principles of centrifugation in brewing                      | 2 | 2 | 16 |
| T/601/5219                  | UK | Principles of filtration in brewing                          | 2 | 2 | 16 |
| K/601/5220                  | UK | Principles of extractions and distillation                   | 2 | 2 | 16 |
| M/601/5221                  | UK | Principles of evaporation in brewing                         | 2 | 1 | 8  |
| T/601/5222                  | UK | Principles of cider maturation and blending                  | 2 | 1 | 9  |
| A/601/5223                  | UK | Principles of cream liqueur production                       | 2 | 1 | 8  |
| F/601/5224                  | UK | Principles of juice storage and cider fermentation           | 2 | 3 | 24 |
| <b>Testing and analysis</b> |    |  |   |   |    |
| Y/502/7496                  | UK | Principles of sensory assessment in food                     | 3 | 3 | 22 |

|                                 |    |  |   |   |    |
|---------------------------------|----|--|---|---|----|
|                                 |    | technology   |   |   |    |
| H/602/4501                      | UK | Principles of food data analysis in food and drink                         | 3 | 4 | 30 |
| F/602/6403                      | UK | Principles of wheat and wheat flour laboratory testing                     | 3 | 5 | 36 |
| M/602/0628                      | UK | Principles of fish or shellfish quality assessment                         | 3 | 3 | 14 |
| <b>Group D Enterprise units</b> |    |  |   |   |    |
| L/504/4098                      | UK | Principles of creating a vision for food business                          | 3 | 2 | 16 |
| A/504/4100                      | UK | Principles of developing a food business idea                              | 3 | 2 | 15 |
| A/504/4095                      | UK | Principles of exploring food business motives                              | 3 | 2 | 15 |
| J/504/4102                      | UK | Principles of keeping financial records in food business                   | 3 | 4 | 28 |
| H/504/4110                      | UK | Principles of keeping up to date with legislation in food business         | 3 | 2 | 12 |
| J/504/4097                      | UK | Principles of carrying out banking for food business                       | 3 | 3 | 22 |
| L/504/4103                      | UK | Principles of implementing plans in food business                          | 3 | 3 | 23 |
| F/504/4101                      | UK | Principles of choosing supplies and suppliers for food business            | 3 | 3 | 24 |
| R/504/4104                      | UK | Principles of planning to sell food business products or services          | 3 | 2 | 14 |
| Y/504/4105                      | UK | Principles of planning the marketing of food business products or services | 3 | 3 | 23 |
| D/504/4106                      | UK | Principles of managing succession in food business                         | 3 | 2 | 16 |
| K/504/4108                      | UK | Principles of improving the quality of food business products or services  | 3 | 3 | 24 |

|            |    |  |   |   |    |
|------------|----|--|---|---|----|
| M/504/4109 | UK | Principles of investing capital in food business           | 3 | 3 | 23 |
| K/504/4111 | UK | Principles of making food business presentations           | 3 | 1 | 9  |
| M/504/4093 | UK | Principles of deciding on a food business location         | 3 | 3 | 23 |
| T/504/4094 | UK | Principles of establishing customer needs in food business | 3 | 3 | 24 |
| F/504/4096 | UK | Principles bidding for work in food business               | 3 | 3 | 23 |

## Group E Management

### Food Management

|            |    |   |   |    |    |
|------------|----|---|---|----|----|
| Y/601/9683 | UK | Principles of food policy and regulation                        | 4 | 5  | 36 |
| L/601/2701 | UK | Principles of sustainability in food operations                 | 3 | 4  | 34 |
| A/601/9689 | UK | Principles of change project management in food operations      | 4 | 4  | 35 |
| D/602/4058 | UK | Principles of engineering maintenance in food operations        | 3 | 3  | 19 |
| M/602/4064 | UK | Principles of resource and financial control in food operations | 3 | 2  | 17 |
| J/602/4054 | UK | Principles of effective communication in food operations        | 3 | 2  | 11 |
| L/507/0152 | UK | Principles of human resource management in food business        | 3 | 10 | 60 |
| D/602/4044 | UK | Principles of monitoring and assessing risks in food operations | 3 | 2  | 13 |
| L/602/3987 | UK | Principles of quality sampling and testing in food operations   | 3 | 3  | 18 |
| A/601/2953 | UK | Principles of improvement in food operations                    | 3 | 3  | 16 |

|                            |    |   |   |   |    |
|----------------------------|----|---|---|---|----|
| F/601/2954                 | UK | Principles of continuous improvement techniques (Kaizen) in food operations | 3 | 3 | 15 |
| K/601/2978                 | UK | Principles of Six Sigma methodology in food operations                      | 3 | 3 | 17 |
| M/601/2979                 | UK | Principles of Six Sigma metrics in food operations                          | 3 | 4 | 22 |
| <b>Product development</b> |    |   |   |   |    |
| T/602/4034                 | UK | Principles of quality in food operations                                    | 3 | 3 | 18 |
| L/602/4038                 | UK | Principles of product development in food operations                        | 3 | 4 | 31 |
| F/507/0150                 | VS | Carry out market research in food business                                  | 3 | 4 | 24 |
| J/507/0151                 | VS | Research and report information in food business                            | 3 | 4 | 36 |