



IfATE

Shaping skills training

Standard Draft Preview

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Standard in development
L6: Food industry technical professional (integrated degree)
Version 1.1

Title of occupation

Food industry technical professional (integrated degree)

UOS reference number

ST0197

Core and options

No

Level of occupation

Level 6

Occupational maps data

Route: Health and science

Pathway: Science

Cluster: Science professional

Typical duration of apprenticeship

48 months

Degree apprenticeship

degree-apprenticeship

Target date for approval

31/12/2024

Resubmission

No

Would your proposed apprenticeship standard replace an existing framework?

No

Does professional recognition exist for the occupation?

Yes

Regulated occupation

Is this a statutory regulated occupation?

No

Occupation summary

This occupation is found in a diverse range of sectors within the food and drink industry. For example, food manufacturing, research and development, quality control, and food marketing.

The size of employers in the food industry is diverse and includes a mix of organisations involved in food production, processing, distribution, and retail. The specific size of employers will depend on the subsector within the food industry and the nature of the business.

The broad purpose of the occupation is to ensure that food products meet stringent quality standards. Conducting inspections, maintaining documentation, and overseeing quality control measures. They support the implementation and monitoring of food safety protocols, promoting compliance and fostering a strong food safety culture.

A food industry technical professional will drive innovation by developing and improving food products and processes.

They may lead a team of food professionals and collaborate with cross-functional teams and communicate with customers.

In their daily work, an employee in this occupation interacts with a diverse range of individuals and groups, collaborating across different departments.

They interact with internal stakeholders, including research and development teams, quality teams, production and manufacturing, supply chain, procurement, commercial and finance. They may also interact with external stakeholders such as food safety auditors, suppliers, customers and government regulators.

An employee in this occupation will lead the implementation of food products that are safe to consume and of a consistent appearance, taste and texture to comply with company, customer and industry standards.

They lead and proactively resolve technical challenges using insight and data from a variety of sources to make recommendations on new ways of working.

They may research new trends and opportunities.

They may have responsibility for budgeting and staff management.

They inspire and lead a team of food professionals, emphasising technical guidance on food safety and quality.

Typical job titles

Assistant food technical manager

Flavourist

Food and drink technologist

Food engineer

Food hygiene manager

Food laboratory scientist

Food process manager

Food product innovation and development technologist

Food quality manager

Food retail technologist

Food safety auditor

Food safety manager

Food technical service manager

New product development scientist

Packaging technologist

Research and development food scientist

Are there any statutory/regulatory or other typical entry requirements?

No

Occupation duties

DUTY	KSBS
<p>Duty 1 Develop and improve food products by conducting experiments, creating new formulations, new product development, existing product development, recipes, and production scaling up processes.</p>	<p>K1 K2 K3 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K19 K20 K21 K24 K25</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
<p>Duty 2 Engage in research to explore new technologies, and methods and encouraging continuous improvement.</p>	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
<p>Duty 3 Conduct inspections, maintain documentation, and oversee quality control measures to ensure that food products meet established quality standards.</p>	<p>K1 K2 K3 K4 K5 K6 K7 K8 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
<p>Duty 4 Lead, Implement and monitor food safety and food defence protocols, ensuring compliance with regulations and promote a food safety culture.</p>	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
<p>Duty 5 Ensure compliance with and keep up to date with food regulations, laws and guidelines and disseminate information to internal and external stakeholders</p>	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K17 K18 K19 K20 K21 K22 K24</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p>

	B1 B2 B3 B4 B5 B7
Duty 6 Identify opportunities to optimise food processing, manufacturing processes and implement sustainable solutions.	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
Duty 7 Ensure food safety and the quality of raw materials and finished goods through the supply chain.	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K24 K25</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
Duty 8 Collaborate with internal and external stakeholders, including cross-Functional Teams.	<p>K12 K13 K14 K15 K16 K17 K20 K21 K23</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
Duty 9 Lead and develop colleagues on quality control procedures, food safety protocols, and other technical aspects.	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>

<p>Duty 10 Lead the preparation for and execution of internal, external, regulatory audits and inspections, ensuring that site processes and procedures are compliant and strive for continuous improvement.</p>	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25 K26</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>
<p>Duty 11 Lead and inspire a team of food professionals and provide technical guidance on food safety and quality.</p>	<p>K1 K2 K3 K4 K5 K6 K7 K8 K9 K10 K11 K12 K13 K14 K15 K16 K17 K18 K19 K20 K21 K22 K23 K24 K25 K27</p> <p>S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11 S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22</p> <p>B1 B2 B3 B4 B5 B6 B7</p>

KSBs

Knowledge

K1: Product and environmental microbiology.

K2: Food allergy and intolerance management, including labelling requirements and management systems for control of allergens in manufacturing.

K3: Food safety and hygiene legislation and regulation.

K4: Food microbiological, chemical and analytical testing techniques and principles including sampling and interpretation of results.

K5: Food hazards and their controls.

K6: Food analysis including fat, moisture, carbohydrate, protein, energy, density and melting point.

K7: Composition of food and its nutritional value and trends; including rheology, fluid dynamics, thermodynamics.

K8: Enhancing nutritional impact of food components, macro and micro-nutrients; preserving and enhancing nutritional values in processing, distribution and sale.

K9: How products can be developed and adapted to meet dietary requirements, habits and consumer trends.

K10: Functionality of ingredient categories including, dairy, fresh and frozen produce, meat, fish, bakery, oils and fats, alternative proteins, flavourings and functional ingredients.

K11: Principles of food processes, including, mixing and blending, batch and continuous processing, baking, thermal processing, canning, pasteurisation, enrobing, chilling and freezing.

K12: Food supply chain management systems and practices to assure the safety, quality and legality of all raw materials, packaging, final product and services.

K13: Food safety management systems including, specifications, traceability systems, food defence and food safety culture.

K14: Food quality management systems such as total quality management. Including, organoleptic quality assessment panels and various weight control systems.

K15: How to plan, manage and review products and processes, monitoring costs and measure against technical and operational Key Performance Indicators.

K16: Problem solving and continuous improvement techniques, including root cause analysis and investigation methods.

K17: Methods to collect, interpret and analyse technical data, using digital and mathematical techniques and presenting information, including Statistical Process Control (SPC).

K18: Identification and selection of appropriate laboratory test methods, the interpretation of results and the appropriate actions to take.

K19: Characteristics of packaging systems taking account of food safety hazards and quality, including processing and filling operations to assure shelf life compliance.

K20: The processes from concept to launch for new and existing product and process development, to include specification definition, scaling-up, hazard identification, technical feasibility and commercial viability.

K21: Factors governing food safety, ethics, integrity and sustainability within the global supply chain including, waste reduction and energy optimisation.

K22: Hygienic design and practices for factories and equipment, including Cleaning In Place (CIP).

K23: Principles used to lead, develop and manage resources, people and budgets.

K24: Properties of packaging materials that meet product preservation, shelf life and environmental sustainability goals.

K25: Methods used to measure appearance, colour, aroma, taste, texture and overall sensory characteristics of food products.

K26: Audit inspection and preparation requirements for quality and food safety systems.

K27: Leadership and management styles and how to inspire team members.

Skills

S1: Contribute to the development, validation and implementation of the Hazard Analysis and Critical Control Point (HACCP) system.

- S2:** Establish process parameters and control requirements; measure the impact of process on product, set limits and take action to deal with process and product non-conformance.
- S3:** Interpret laboratory results; identify and analyse trends to diagnose or anticipate issues; define and implement action plans.
- S4:** Contribute to creating and implementing product specifications to meet customer requirements, identifying the key risk factors in product design.
- S5:** Contribute to the development of internal audits to ensure compliance with legal, industry and customer standards.
- S6:** Identify and promote tools to ensure a food safety culture within the organisation.
- S7:** Utilise tools to support the delivery of consistent quality of products.
- S8:** Establish and monitor integrated cleaning and hygiene programmes.
- S9:** Drive external audits including preparation, auditor interaction and corrective actions.
- S10:** Manage complaint performance through the identification of trends and the design of corrective action programmes.
- S11:** Design and implement site procedures to ensure legal compliance with current food law.
- S12:** Manage, influence and negotiate with internal and external stakeholders.
- S13:** Optimise and control parameters that influence common industry processes, for example: washing, mixing, heating, cooking, cooling and chilling, freezing, drying, freeze drying.
- S14:** Collaborate with internal and external partners to deliver new or existing product development projects.
- S15:** Apply project management tools to deliver projects to time, cost, specification and quality.
- S16:** Coordinate investigations into product non-conformances and implement incident management procedures.
- S17:** Review and select scientific techniques considering cost and practicalities and justifying the selection of service providers.
- S18:** Contribute to monitoring supplier performance and intake controls using supplier risk management processes.
- S19:** Design, implement and validate traceability systems to be fully compliant with customer and legal requirements.
- S20:** Lead, inspire and support the development of the team, providing technical guidance on food safety and quality.

S21: Identify, select and source relevant data and critically evaluate complex information to inform actions.

S22: Support and participate in environmental sustainability efforts by ensuring eco-friendly practices, such as waste reduction and energy optimisation.

Behaviours

B1: Committed to the promotion of food safety, health and safety, environment and sustainable working practices.

B2: Proactively takes ownership and responsibility for delivering work and striving towards technical excellence.

B3: Responsive to change, demonstrates flexibility to changing working environment and demands.

B4: Demonstrates integrity and respect including diversity, beliefs, culture, needs and preferences. adapting communication for all.

B5: Committed to developing and leading collaborative working relationships across multi-functional teams.

B6: Inspires others and acts as an ambassador internally and externally.

B7: Fosters new ways of thinking and working; seeks out opportunities to drive forward change and improvements for the business and industry.

Qualifications

English and Maths

Apprentices without level 2 English and maths will need to achieve this level prior to taking the End-Point Assessment. For those with an education, health and care plan or a legacy statement, the apprenticeship's English and maths minimum requirement is Entry Level 3. A British Sign Language (BSL) qualification is an alternative to the English qualification for those whose primary language is BSL.

Does the apprenticeship need to include any mandated qualifications in addition to the above-mentioned English and maths qualifications?

Yes

Other mandatory qualifications

Food industry technical professional degree that fully aligns with the KSBs within the apprenticeship standard

Level: 6 (integrated degree)

Professional recognition

This standard aligns with the following professional recognition:

- The Science Council for Registered Scientist (RSci) for Upon successful completion of the apprenticeship and upon receipt of the apprenticeship certificate, individuals are eligible to apply for RSci through a shortened application route. Individuals also need to be a member of a professional body that is licensed by the Science Council to be awarded this status. Further information is on the Science Council's website.
- TBC: Institute of Food Science and Technology for ? Trailblazer chair is investigating ?

Consultation

The working party reviewing this standard, made up of seven employers and three training providers agreed that the level 6 Food Industry Technical Professional standard required a mandated degree so we wanted to gain agreement from the wider trailblazer group. The NSAFD contacted the food and drink employers that are part of our Food Science and Technology Trailblazer group to ask them if they would require the updated level 6 Food Industry Technical Professional apprenticeship standard to contain a mandated degree.

We asked the following question:

Question:

The typical roles that people completing the L6 Food Industry Technical Professional apprenticeship are listed below. If you were recruiting an experienced person for any of these roles (i.e. not an apprentices) would you require candidates to have a relevant degree? If yes, please provide a short statement explaining why and provide any evidence to support this requirement.

Typical Job Titles:

Food and Drink Technologist, Food Quality Manager, Food Safety Manager, Research and Development Food Scientist, Flavourist, Packaging Technologist, Food Engineer, Food Safety Auditor, New Product Development Scientist, Food Technical Service Manager, Food Process Manager,

Assistant Food Technical Manager, Food Hygiene Manager, Food Product Innovation and Development Technologist, Food Laboratory Scientist, Food Retail Technologist.

The trailblazer group is made up of 19 food and drink manufacturers. We received responses from over a third of the employers in this group, all stating that a degree is required. These employers provided us with sample job adverts or job descriptions of roles that this apprenticeship standard is developing individuals to be able to do when they have successfully completed the apprenticeship.

In addition, the NSAFD have provided links for job descriptions of typical roles for individuals completing this apprenticeship from our Tasty Careers website. These job descriptions were developed from industry insight and are used to inform young people about typical roles within our sector:

Development Technologist - <https://tastycareers.org.uk/job-descriptions/new-product-development-development-technologist>

New Product Development Manager - <https://tastycareers.org.uk/job-descriptions/new-new-product-development-manager>

Technical Manager - <https://tastycareers.org.uk/job-descriptions/technical-technical-manager>

Finally, the NSAFD carried out some random job searches for these types of roles on recruitment websites, all of which required a degree.

This information demonstrates that someone educated to degree level, in particular within food is required to carry out these types of roles and therefore the working party's decision that a mandated degree should be included within the level 6 Food Industry Technical Professional is reflective of the sector overall.

Progression Routes

ST0759 Research scientist-1.0 L7

Supporting uploads

Mandatory qualification uploads

Mandated degree evidence uploads

- ST0197_standard_mandated-degree-evidence_Copy of Mandated_degree_evidence_tool_January_2024_.xlsx
- ST0197_standard_mandated-degree-evidence_SOC Code.docx
- ST0197_standard_mandated-degree-evidence_wetransfer_employer-examples_2024-05-22_0948.zip

Professional body confirmation uploads

- ST0197_standard_professional-body-confirming-alignment_RSCi MA10 - Ratification Results - Food Industry Technical Professional L6.pdf
- ST0197_standard_professional-body-confirming-alignment_RSCi MA10 - Ratification Results - Food Industry Technical Professional L6.pdf

Subject sector area

2.1 Science