FDF50311 Diploma of Food Science and Technology

Release: 2

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Modification History

September 2012: Replacement of superseded imported Units.

Description

This Qualification provides a management level occupational outcome in a technical or quality role in food processing and supporting functions and covers a range of food related industries, including but not limited to:

- general food processing
- meat
- seafood
- poultry including chicken meat and egg processing
- dairy processing
- confectionery
- beverages
- baking and cereals.

Job roles This Qualification targets those working in technical and management roles covering product development, food safety and quality, food production and distribution, environmental factors and functions, and the management and review of workplace systems. The job role requires technical skills and knowledge in the science and technology that support food processing.

Job titles may include:

- food technologist
- production manager
- food testing manager
- quality systems manager
- food safety systems manager
- product development team leader
- processing systems manager
- environmental manager (food processing).

Additional Qualification advice

Units selected from other Training Packages must be relevant to the work outcome, local industry requirements and the Qualification level.

Note: AgriFood Skills Australia expects that the design of any training delivery and assessment program to support the achievement of this Qualification is based on:

- the context required by the industry and/or enterprise
- a holistic and integrated training delivery and assessment plan that identifies learning activities and evidence required
- flexible delivery options including on-the-job and work-based training that support the development of competency.

Pathways Information

Pathways into the Qualification

Pathways for candidates considering this Qualification include:

- FDF40311 Certificate IV in Food Science and Technology
- direct entry
- relevant vocational training and/or work experience.

A person who holds FDF40311 Certificate IV in Food Science and Technology will gain credit for Units already completed.

Pathways from the Qualification

After achieving this Qualification, candidates may undertake a relevant Advanced Diploma Qualification.

Licensing/Regulatory Information

There is no direct link between this Qualification and licensing, legislative and/or regulatory requirements. However all work must comply with food safety, OHS and environmental regulations and legislation that apply to the workplace.

Entry Requirements

Not applicable.

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Employability Skills Summary

Employability Skill	Industry/enterprise requirements for this Qualification include:
Communication	• Complete a range of workplace documentation and records. • Select communication technologies to support work operations. • Develop work instructions, specifications and procedures. • Demonstrate effective and appropriate communication and interpersonal skills when dealing with people. • Communicate with all people at all levels of the organisation in a professional manner. • Select and apply documentation, communication and interpersonal strategies when dealing with internal and external clients. • Select communication methods according to priority, cost and audience needs. • Analyse and apply technical information. • Prepare reports for research, marketing or process improvement processes. • Demonstrate high level presentation skills.
Teamwork	• Lead cooperative work relations with people of different ages, gender, race or religion. • Provide leadership. • Determine performance required to meet internal and external customer needs. • Manage organisational processes and provide problem solving support to others. • Facilitate team achievements. • Work collaboratively to research and solve technical problems and develop new processes or products.
Problem solving	• Investigate problem causes and implement corrective strategies. • Identify and address potential and actual problems associated with work operations or in achieving work outcomes. • Use material and process knowledge to solve problems. • Identify hazards and suggest control measures. • Analyse data and information at a technical level. • Evaluate food safety practices. • Apply technical knowledge to analyse problems and develop solutions. • Use a range of problem-solving techniques.
Initiative and enterprise	• Determine information gathering requirements to monitor work processes and procedures.

	• Determine quality and other indicators of work. • Identify efficient production processes. • Determine and act on situations requiring further information or problem solving. • Implement continuous improvement processes. • Provide leadership in the workplace. • Implement technical development processes.
Planning and organising	• Identify hazards and implement appropriate hazard control measures. • Demonstrate time management skills. • Determine resource requirements • Determine work timelines and output targets. • Optimise work processes. • Plan and organise the collection of data. • Plan new technical processes to integrate with production operations. • Plan the delivery of information and advice to management or workers.
Self-management	• Analyse implications of relevant acts and regulations on work practices. • Monitor work operations and identify and act on any quality and performance issues. • Manage own time to meet deadlines. • Determine workplace procedures and instructions. • Conduct work reviews to determine improvement requirements. • Plan individual time and resources required to investigate problems and develop and trial solutions.
Learning	• Develop learning opportunities. • Be supportive, assertive and use interpersonal skills to encourage workplace learning. • Identify own training needs and seek skill development if required. • Gather feedback to own work to assess effectiveness in meeting objectives and integrate information into own practice. • Assess work data and information to identify areas for improved performance. • Maintain currency of industry skill and knowledge. • Maintain technical knowledge through reading, research and professional conversations.
Technology	• Select and use computer software applications to support research, analysis of findings and reporting.

	- Work with technology safely and according to workplace standards. - Help others use technology efficiently and safely. - Ensure readiness and operational efficiency of workplace technology. - Apply high level technical skills in chemical and biological analysis techniques. - Integrate technology into existing production processes.

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Packaging Rules

This Qualification requires the achievement of twenty two (22) Units of Competency in accordance with the following rules.

Total Units must include a minimum of fourteen (14) Units coded FDF or MTM.

Ten (10) Core Units
Twelve (12) Elective Units

Elective selection must include:

- Five (5) elective Units from Group A
- One (1) elective Unit from Group B
- Three (3) Units from Groups A or B

Three (3) remaining elective Units may be selected from:

- Group A elective Units below, not previously selected
- Group B elective Units below, not previously selected
- A maximum of three (3) Units from any nationally endorsed Training Package and accredited course that are packaged at Certificate IV level, Diploma level or Advanced Diploma level.

NOTE: Units marked with an asterisk (*) require completion of prerequisite Unit/s which is identified under the Unit.

CORE UNITS

Complete all ten (10) core Units.

FDFFS4001A	Supervise and maintain a food safety plan
FDFFS5001A	Develop a HACCP-based food safety program* *FDFFS4001A Supervise and maintain a food safety plan*
FDFFST4004A	Perform microbiological procedures in the food industry
FDFFST5002A	Identify and implement required process control for a food processing operation
FDFFST5004A	Specify and monitor the nutritional value of processed foods
FDFFST5005A	Identify the biochemical properties of food
FDFFST5006A	Apply food microbiological techniques and analysis* *FDFFST4004A Perform microbiological procedures in the food industry*

FDFFST5030A	Develop, manage and maintain quality systems for food processing
FDFOHS4002A	Maintain OHS processes
MSAENV472B	Implement and monitor environmentally sustainable work practices

GROUP A: TECHNICAL ELECTIVES

Select a minimum of five (5) elective Units from Group A.

Scientific principles and laboratory operations

FDFFST5007A	Evaluate sampling plans in relation to food industry standards
FDFOP2015A	Apply principles of statistical process control* *FDFOP2061A Use numerical applications in the workplace*
FDFOP2061A	Use numerical applications in the workplace
FDFTEC4005A	Apply an understanding of food additives
FDFTEC4007A	Describe and analyse data using mathematical principles* *FDFOP2015A Apply principle of statistical process control* *FDFOP2061A Use numerical applications in the workplace*
MSL973004A	Perform aseptic techniques
MSL973007A	Perform microscopic examination
MSL974004A	Perform food tests
MSL974006A	Perform biological procedures* *MSL973004A Perform aseptic techniques* *MSL973007A Perform microscopic examination*
MSL975005A	Conduct sensory analysis
MSL975022A	Perform food analyses* *MSL974004A Perform food tests* *OR* *MSL974006A Perform biological procedures** *MSL973004A Perform aseptic techniques* *MSL973007A Perform microscopic examination*

Food quality and safety

FDFAU4002A	Communicate and negotiate to conduct food safety audits
FDFAU4003A	Conduct food safety audits
FDFAU4004A	Identify, evaluate and control food safety hazards
FDFAU4005A	Audit bivalve mollusc growing and harvesting processes* *FDFAU4002A Communicate and negotiate to conduct food safety audits* *FDFAU4003A Conduct food safety audits* *FDFAU4004A Identify, evaluate and control food safety hazards*
FDFAU4006A	Audit a cook chill process* *FDFAU4002A Communicate and negotiate to conduct food safety audits* *FDFAU4003A Conduct food safety audits* *FDFAU4004A Identify, evaluate and control food safety hazards*
FDFAU4007B	Audit a heat treatment process* *FDFAU4002A Communicate and negotiate to conduct food safety audits* *FDFAU4003A Conduct food safety audits* *FDFAU4004A Identify, evaluate and control food safety hazards.*
FDFAU4008A	Audit manufacturing of ready-to-eat meat products* *FDFAU4002A Communicate and negotiate to conduct food safety audits* *FDFAU4003A Conduct food safety audits* *FDFAU4004A Identify, evaluate and control food safety hazards*
SFIPROC504C	Design and manage a product recall

Food processing

FDFFST5001A	Monitor refrigeration and air conditioning systems in food processing
FDFFST5003A	Construct a process control chart for a food processing operation
FDFOP2030A	Operate a process control interface
FDFTEC4004A	Apply basic engineering principles to food processing* *FDFOP2030A Operate a process control interface* *FDFTEC4007A Describe and analyse data using mathematical principles* *FDFOP2015A Apply principle of statistical process control* *FDFOP2061A Use numerical applications in the workplace*

Management - technical and research

BSBRES401A	Analyse and present research information
FDFFST5008A	Develop a new food product
FDFTEC5001A	Manage and evaluate new product trials
MSS403011A	Facilitate implementation of competitive systems and practices
MSS403001A	Implement competitive systems and practices

Environment

FDFFST4012A	Apply water management principles to the food industry
FDFTEC5002A	Manage utilities and energy for a production process

GROUP B: INDUSTRY SPECIALISATION ELECTIVES

Select one (1) elective Unit from Group B, and
Select a minimum of three (3) elective Units from Group A and B.

Meat processing

MTMPS5603C	Develop, manage and maintain quality systems
MTMPSR5601C	Design and manage the food safety system

Dairy processing

FDFFST5023A	Implement and review the processing of milk fat products
FDFFST5024A	Implement and review the processing of fermented dairy products and dairy desserts
FDFFST5025A	Implement and review the processing of concentrated and dried dairy products
FDFFST5026A	Implement and review the processing of ice creams and frozen dairy products
FDFFST5027A	Implement and review the processing of milk and related products by the membrane system

Confectionery manufacture

FDFFST4030A	Implement and review the processing of chocolate and sugar-panned products
FDFFST4031A	Implement and review the processing of aerated confectioneries
FDFFST4032A	Implement and review the production of gums and jellies
FDFFST4033A	Implement and review the production of chocolate products
FDFFST4034A	Implement and review the processing of chocolate
FDFFST4035A	Implement and review the processing of high and low boil confectionery
FDFFST4036A	Implement and review the processing of confectionery products

Poultry industry processing

FDFFST4040A	Identify and implement product safety and quality for chilled or frozen poultry product manufacturing
FDFFST4041A	Identify and implement product safety and quality for cooked poultry product manufacturing
FDFFST4042A	Identify and implement product safety and quality for egg based product manufacturing

Other sectors

FDFFST4050A	Identify and implement product safety and quality for fruits, vegetables and other produce
FDFFST4051A	Identify and implement product safety and quality processes for fish and seafood products
FDFFST4052A	Implement and review the manufacturing and processing of edible fats and oils
FDFFST4053A	Implement and review manufacturing, packaging and testing of beverage products
FDFFST4054A	Identify and implement product safety and quality for manufacturing of cereal products