FDF50311 Diploma of Food Science and Technology

Release: 1
FDF50311 Diploma of Food Science and Technology

Modification History

Not applicable.
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

Licensing, legislative, regulatory or certification considerations
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.
## Employability Skills Summary

### EMPLOYABILITY SKILLS QUALIFICATION SUMMARY

<table>
<thead>
<tr>
<th>Employability Skill</th>
<th>Industry/enterprise requirements for this qualification include:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication</strong></td>
<td>• Complete a range of workplace documentation and records</td>
</tr>
<tr>
<td></td>
<td>• Select communication technologies to support work operations</td>
</tr>
<tr>
<td></td>
<td>• Develop work instructions, specifications and procedures</td>
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<tr>
<td></td>
<td>• Demonstrate effective and appropriate communication and</td>
</tr>
<tr>
<td></td>
<td>interpersonal skills when dealing with people</td>
</tr>
<tr>
<td></td>
<td>• Communicate with all people at all levels of the organisation</td>
</tr>
<tr>
<td></td>
<td>in a professional manner</td>
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<tr>
<td></td>
<td>• Select and apply documentation, communication and</td>
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<td></td>
<td>interpersonal strategies when dealing with internal and</td>
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<td></td>
<td>external clients</td>
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<td></td>
<td>• Select communication methods according to priority, cost and</td>
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<tr>
<td></td>
<td>audience needs</td>
</tr>
<tr>
<td></td>
<td>• Analyse and apply technical information</td>
</tr>
<tr>
<td></td>
<td>• Prepare reports for research, marketing or process</td>
</tr>
<tr>
<td></td>
<td>improvement processes</td>
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<tr>
<td></td>
<td>• Demonstrate high level presentation skills</td>
</tr>
<tr>
<td><strong>Teamwork</strong></td>
<td>• Lead cooperative work relations with people of different</td>
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<td></td>
<td>ages, gender, race or religion</td>
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<td></td>
<td>• Provide leadership</td>
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<td></td>
<td>• Determine performance required to meet internal and external</td>
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<td></td>
<td>customer needs</td>
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<td></td>
<td>• Manage organisational processes and provide problem solving</td>
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<td>support to others</td>
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<td></td>
<td>• Facilitate team achievements</td>
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<td></td>
<td>• Work collaboratively to research and solve technical problems</td>
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<td></td>
<td>and develop new processes or products</td>
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<tr>
<td><strong>Problem solving</strong></td>
<td>• Investigate problem causes and implement corrective</td>
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<tr>
<td></td>
<td>strategies</td>
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<td></td>
<td>• Identify and address potential and actual problems</td>
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<td>associated with work operations or in achieving work</td>
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<td></td>
<td>outcomes</td>
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<tr>
<td></td>
<td>• Use material and process knowledge to solve problems</td>
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<td></td>
<td>• Identify hazards and suggest control measures</td>
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<td></td>
<td>• Analyse data and information at a technical level</td>
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<td></td>
<td>• Evaluate food safety practices</td>
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<td></td>
<td>• Apply technical knowledge to analyse problems and develop</td>
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<tr>
<td></td>
<td>solutions</td>
</tr>
<tr>
<td></td>
<td>• Use a range of problem-solving techniques</td>
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<tr>
<td>Initiative and enterprise</td>
<td>Planning and organising</td>
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<tr>
<td>---------------------------</td>
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</tr>
<tr>
<td>• Determine information gathering requirements to monitor work processes and procedures</td>
<td>• Identify hazards and implement appropriate hazard control measures</td>
</tr>
<tr>
<td>• Determine quality and other indicators of work</td>
<td>• Demonstrate time management skills</td>
</tr>
<tr>
<td>• Identify efficient production processes</td>
<td>• Determine resource requirements</td>
</tr>
<tr>
<td>• Determine and act on situations requiring further information or problem solving</td>
<td>• Determine work timelines and output targets</td>
</tr>
<tr>
<td>• Implement continuous improvement processes</td>
<td>• Optimise work processes</td>
</tr>
<tr>
<td>• Provide leadership in the workplace</td>
<td>• Plan and organise the collection of data</td>
</tr>
<tr>
<td>• Implement technical development processes</td>
<td>• Plan new technical processes to integrate with production operations</td>
</tr>
<tr>
<td>Technology</td>
<td></td>
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<td>------------------------------------</td>
<td></td>
</tr>
<tr>
<td>• Select and use computer software applications to support research, analysis of findings and reporting</td>
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<tr>
<td>• Work with technology safely and according to workplace standards</td>
<td></td>
</tr>
<tr>
<td>• Help others use technology efficiently and safely</td>
<td></td>
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<tr>
<td>• Ensure readiness and operational efficiency of workplace technology</td>
<td></td>
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<tr>
<td>• Apply high level technical skills in chemical and biological analysis techniques</td>
<td></td>
</tr>
<tr>
<td>• Integrate technology into existing production processes</td>
<td></td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDFF4001A</td>
<td>Supervise and maintain a food safety plan</td>
</tr>
<tr>
<td>FDFF5001A</td>
<td>Develop a HACCP-based food safety program*</td>
</tr>
<tr>
<td></td>
<td>*FDFF4001A Supervise and maintain a food safety plan</td>
</tr>
<tr>
<td>FDFFST4004A</td>
<td>Perform microbiological procedures in the food industry</td>
</tr>
<tr>
<td>FDFFST5002A</td>
<td>Identify and implement required process control for a food processing operation</td>
</tr>
<tr>
<td>FDFFST5004A</td>
<td>Specify and monitor the nutritional value of processed foods</td>
</tr>
<tr>
<td>FDFFST5005A</td>
<td>Identify the biochemical properties of food</td>
</tr>
<tr>
<td>FDFFST5006A</td>
<td>Apply food microbiological techniques and analysis*</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FDFFST4004A</td>
<td>Perform microbiological procedures in the food industry</td>
</tr>
<tr>
<td>FDFFST5030A</td>
<td>Develop, manage and maintain quality systems for food processing</td>
</tr>
<tr>
<td>FDFOHS4002A</td>
<td>Maintain OHS processes</td>
</tr>
<tr>
<td>MSAENV472B</td>
<td>Implement and monitor environmentally sustainable work practices</td>
</tr>
</tbody>
</table>

**GROUP A: TECHNICAL ELECTIVES**

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

**Scientific principles and laboratory operations**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDFFST5007A</td>
<td>Evaluate sampling plans in relation to food industry standards</td>
</tr>
<tr>
<td>FDFOP2015A</td>
<td>Apply principles of statistical process control*</td>
</tr>
<tr>
<td></td>
<td>*FDFOP2061A Use numerical applications in the workplace</td>
</tr>
<tr>
<td>FDFOP2061A</td>
<td>Use numerical applications in the workplace</td>
</tr>
<tr>
<td>FDFTEC4005A</td>
<td>Apply an understanding of food additives</td>
</tr>
<tr>
<td>FDFTEC4007A</td>
<td>Describe and analyse data using mathematical principles*</td>
</tr>
<tr>
<td></td>
<td><em>FDFOP2015A Apply principle of statistical process control</em></td>
</tr>
<tr>
<td></td>
<td>*FDFOP2061A Use numerical applications in the workplace</td>
</tr>
<tr>
<td>MSL973004A</td>
<td>Perform aseptic techniques</td>
</tr>
<tr>
<td>MSL973007A</td>
<td>Perform microscopic examination</td>
</tr>
<tr>
<td>MSL974004A</td>
<td>Perform food tests</td>
</tr>
<tr>
<td>MSL974006A</td>
<td>Perform biological procedures*</td>
</tr>
<tr>
<td></td>
<td>*MSL973004A Perform aseptic techniques</td>
</tr>
<tr>
<td></td>
<td>*MSL973007A Perform microscopic examination</td>
</tr>
<tr>
<td>MSL975005A</td>
<td>Conduct sensory analysis</td>
</tr>
<tr>
<td>MSL975022A</td>
<td>Perform food analyses*</td>
</tr>
<tr>
<td></td>
<td>*MSL974004A Perform food tests</td>
</tr>
<tr>
<td></td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td><em>MSL974006A Perform biological procedures</em></td>
</tr>
<tr>
<td></td>
<td>*MSL973004A Perform aseptic techniques</td>
</tr>
<tr>
<td></td>
<td>*MSL973007A Perform microscopic examination</td>
</tr>
</tbody>
</table>
### Food quality and safety

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDAU4002A</td>
<td>Communicate and negotiate to conduct food safety audits</td>
</tr>
<tr>
<td>FDAU4003A</td>
<td>Conduct food safety audits</td>
</tr>
<tr>
<td>FDAU4004A</td>
<td>Identify, evaluate and control food safety hazards</td>
</tr>
<tr>
<td>FDAU4005A</td>
<td>Audit bivalve mollusc growing and harvesting processes*</td>
</tr>
<tr>
<td></td>
<td>*FDAU4002A Communicate and negotiate to conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4003A Conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4004A Identify, evaluate and control food safety hazards</td>
</tr>
<tr>
<td>FDAU4006A</td>
<td>Audit a cook chill process*</td>
</tr>
<tr>
<td></td>
<td>*FDAU4002A Communicate and negotiate to conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4003A Conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4004A Identify, evaluate and control food safety hazards</td>
</tr>
<tr>
<td>FDAU4007B</td>
<td>Audit a heat treatment process*</td>
</tr>
<tr>
<td></td>
<td>*FDAU4002A Communicate and negotiate to conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4003A Conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4004A Identify, evaluate and control food safety hazards</td>
</tr>
<tr>
<td>FDAU4008A</td>
<td>Audit manufacturing of ready-to-eat meat products*</td>
</tr>
<tr>
<td></td>
<td>*FDAU4002A Communicate and negotiate to conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4003A Conduct food safety audits</td>
</tr>
<tr>
<td></td>
<td>*FDAU4004A Identify, evaluate and control food safety hazards</td>
</tr>
<tr>
<td>SFIPROC504C</td>
<td>Design and manage a product recall</td>
</tr>
</tbody>
</table>

### Food processing

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDFFST5001A</td>
<td>Monitor refrigeration and air conditioning systems in food processing</td>
</tr>
<tr>
<td>FDFFST5003A</td>
<td>Construct a process control chart for a food processing operation</td>
</tr>
<tr>
<td>FDFOP2030A</td>
<td>Operate a process control interface</td>
</tr>
<tr>
<td>FDFTEC4004A</td>
<td>Apply basic engineering principles to food processing*</td>
</tr>
<tr>
<td></td>
<td>*FDFOP2030A Operate a process control interface</td>
</tr>
<tr>
<td></td>
<td><em>FDFTEC4007A Describe and analyse data using mathematical principles</em></td>
</tr>
<tr>
<td></td>
<td><em>FDFOP2015A Apply principle of statistical process control</em></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
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</tr>
<tr>
<td>FDFOP2061A</td>
<td>Use numerical applications in the workplace</td>
</tr>
</tbody>
</table>

**Management - technical and research**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSBRES401A</td>
<td>Analyse and present research information</td>
</tr>
<tr>
<td>FDFST5008A</td>
<td>Develop a new food product</td>
</tr>
<tr>
<td>FDFTEC5001A</td>
<td>Manage and evaluate new product trials</td>
</tr>
<tr>
<td>MSACMC411A</td>
<td>Lead a competitive manufacturing team</td>
</tr>
<tr>
<td>MSACMS400A</td>
<td>Implement a competitive manufacturing system</td>
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</tbody>
</table>

**Environment**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDFST4012A</td>
<td>Apply water management principles to the food industry</td>
</tr>
<tr>
<td>FDFTEC5002A</td>
<td>Manage utilities and energy for a production process</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MTMPS5603C</td>
<td>Develop, manage and maintain quality systems</td>
</tr>
<tr>
<td>MTMPSR5601C</td>
<td>Design and manage the food safety system</td>
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</tbody>
</table>

**Dairy processing**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>FDFST5023A</td>
<td>Implement and review the processing of milk fat products</td>
</tr>
<tr>
<td>FDFST5024A</td>
<td>Implement and review the processing of fermented dairy products and dairy desserts</td>
</tr>
<tr>
<td>FDFST5025A</td>
<td>Implement and review the processing of concentrated and dried dairy products</td>
</tr>
<tr>
<td>FDFST5026A</td>
<td>Implement and review the processing of ice creams and frozen dairy products</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
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<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FDFFST5027A</td>
<td>Implement and review the processing of milk and related products by the membrane system</td>
</tr>
<tr>
<td><strong>Confectionery manufacture</strong></td>
<td></td>
</tr>
<tr>
<td>FDFFST4030A</td>
<td>Implement and review the processing of chocolate and sugar-panned products</td>
</tr>
<tr>
<td>FDFFST4031A</td>
<td>Implement and review the processing of aerated confectioneries</td>
</tr>
<tr>
<td>FDFFST4032A</td>
<td>Implement and review the production of gums and jellies</td>
</tr>
<tr>
<td>FDFFST4033A</td>
<td>Implement and review the production of chocolate products</td>
</tr>
<tr>
<td>FDFFST4034A</td>
<td>Implement and review the processing of chocolate</td>
</tr>
<tr>
<td>FDFFST4035A</td>
<td>Implement and review the processing of high and low boil confectionery</td>
</tr>
<tr>
<td>FDFFST4036A</td>
<td>Implement and review the processing of confectionery products</td>
</tr>
<tr>
<td><strong>Poultry industry processing</strong></td>
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</tr>
<tr>
<td>FDFFST4040A</td>
<td>Identify and implement product safety and quality for chilled or frozen poultry product manufacturing</td>
</tr>
<tr>
<td>FDFFST4041A</td>
<td>Identify and implement product safety and quality for cooked poultry product manufacturing</td>
</tr>
<tr>
<td>FDFFST4042A</td>
<td>Identify and implement product safety and quality for egg based product manufacturing</td>
</tr>
<tr>
<td><strong>Other sectors</strong></td>
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</tr>
<tr>
<td>FDFFST4050A</td>
<td>Identify and implement product safety and quality for fruits, vegetables and other produce</td>
</tr>
<tr>
<td>FDFFST4051A</td>
<td>Identify and implement product safety and quality processes for fish and seafood products</td>
</tr>
<tr>
<td>FDFFST4052A</td>
<td>Implement and review the manufacturing and processing of edible fats and oils</td>
</tr>
<tr>
<td>FDFFST4053A</td>
<td>Implement and review manufacturing, packaging and testing of beverage products</td>
</tr>
<tr>
<td>FDFFST4054A</td>
<td>Identify and implement product safety and quality for manufacturing</td>
</tr>
</tbody>
</table>
Custom Content Section

Not applicable.