



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **FDFST4011A Apply the principles of nutrition to food processing**

**Release: 2**

## **FDFST4011A Apply the principles of nutrition to food processing**

### **Modification History**

April 2012: Minor typographical corrections.

### **Unit Descriptor**

This unit covers the skills and knowledge required to provide nutritional information for processed food, and to implement procedures to optimise the nutritional value of a product.

### **Application of the Unit**

This unit applies to production and technical supervisors and quality managers who are required to monitor the nutritional value of foods through processing and to interpret label information, and to members of product development teams who are required to assist in development and testing of products.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

Not applicable.

### **Employability Skills Information**

This unit contains employability skills.

### **Elements and Performance Criteria Pre-Content**

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

## Elements and Performance Criteria

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
1. Interpret labelling requirements to provide nutritional information	1.1 Food storage and preparation information on food labels is reviewed 1.2 The nutritional values of similar processed food products based on information supplied on the label are compared 1.3 Nutritional information on product labels to develop a diet plan for customers with specific requirements is interpreted
2. Evaluate the impact of processing methods on the nutritive value of processed compared to fresh food	2.1 The effect of processing on the stability and availability of macro and micro nutrients in a range of food products is determined 2.2 Processes for modification of processed foods to enhance nutritional value are investigated 2.3 Food storage methods are compared for the retention of nutritive value and the introduction of food chemicals such as preservatives 2.4 The nutritional impact of a range of additives for flavour or colouring enhancement is investigated 2.5 Health warnings and permissible levels for the use of artificial additives to food products are compiled for a food product range
3. Contribute to the development of a food product to meet a specified dietary requirement	3.1 Appropriate diets for customers with specific requirements or health challenges are identified 3.2 Common nutritional deficiencies and related diseases are evaluated 3.3 The nutritional properties of foods are matched to specified requirements 3.4 A food product is developed and nutritional advice provided

## Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

### Required skills include:

#### Ability to:

- recognise key macronutrients required for a healthy diet
- establish the processes of digestion and absorption
- establish the process of energy metabolism in the human body
- describe the role of proteins in nutrition
- describe the role of carbohydrates in nutrition
- describe the role of vitamins and minerals in nutrition
- describe the role of dietary fibre
- describe the role of lipids in nutrition
- describe the body's processes for storing and using water and its role in nutrition
- identify, review and apply key and current nutritional information
- compare the nutritional needs of special population groups
- evaluate nutritional issues in relation to product development, labelling and marketing of processed foods
- identify nutritional related risk factors and diseases
- establish public health and environmental hazards, in relation to nutrition.

### Required knowledge includes:

#### Knowledge of:

- impacts of processing on nutritive properties of food
- nutritional information on food label
- product development processes
- additives as nutritional enhancers
- impacts of processing on nutritive properties of food
- nutritional information on label
- product development to reduce negative nutritional effects or meet nutritional deficiencies
- additives as nutritional enhancers
- key macro and micro nutrients for a healthy diet
- the processes of digestion, absorption and energy metabolism in the human body
- human energy requirements
- dietary guidelines and legislative requirements related to processed foods
- the effects of processing and storage on nutrients, and the methods for overcoming these effects.
- nutrition related risk factors and diseases
- food intolerances and allergies
- diseases caused by nutritional deficiencies
- modified and functional foods and nutraceuticals.



## Evidence Guide

<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to evaluate processing methods and additives for their effects on the nutritional value of food products, and to apply nutritional knowledge in product development.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>Critical aspects of assessment must include evidence of the ability to compare the nutritive value of processed food products based on nutritional information, to assess the impact of food processing and preservation techniques on nutrient retention in the food product, and to apply knowledge of food properties and nutrition as part of contributing to product development or planning.</p>
<p>Context of and specific resources for assessment</p>	<p>Assessment of performance requirements in this unit should be undertaken within the context of food technology. Competency is demonstrated by performance of all stated criteria, including the critical aspects and knowledge and skills elaborated in the Evidence Guide, and within the scope as defined by the Range Statements applicable to the workplace environment.</p> <p>Assessment must occur in a real or simulated workplace where the assessee has access to:</p> <ul style="list-style-type: none"> <li>• Production process and related equipment, food testing data and operating procedures</li> <li>• Methods and related software systems as required for collecting data and calculating yields, efficiencies and material variances appropriate to production environment</li> <li>• Tests used to report relevant product/process information and recorded results</li> <li>• Nutritional information on ingredients and food products.</li> </ul>
<p>Method of assessment</p>	<p>The following assessment methods are suggested:</p> <ul style="list-style-type: none"> <li>• Written and/or oral questioning to assess knowledge and understanding</li> </ul>

	<ul style="list-style-type: none"><li>• Third party report for contribution to product development and application of nutritional knowledge in a food processing operation</li><li>• A comparison of food products based on label information</li><li>• Case studies.</li></ul>
Guidance information for assessment	Evidence should be gathered over a period of time in a range of actual or simulated environments.

## Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<p><b>Occupational health and safety requirements</b></p>	<ul style="list-style-type: none"> <li>• Codes of practice</li> <li>• Material Safety Data Sheets</li> <li>• Enterprise OHS policies, procedures and programs.</li> </ul>
<p><b>Regulations</b></p>	<ul style="list-style-type: none"> <li>• Australian and international standards including:                             <ul style="list-style-type: none"> <li>• industry guidelines and codes of practice</li> <li>• industry regulations</li> <li>• Australia New Zealand Food Standards Code</li> <li>• ISO Standards</li> <li>• codex alimentarius</li> </ul> </li> <li>• State food regulations</li> <li>• Legislation.</li> </ul>
<p><b>Workplace requirements</b></p>	<ul style="list-style-type: none"> <li>• Enterprise QA policy, practices and procedures</li> <li>• Enterprise-specific procedures</li> <li>• SOPs</li> <li>• Task requirements</li> <li>• Work instructions.</li> </ul>
<p><b>Food processing Regulations/ Standards/ Guidelines</b></p>	<ul style="list-style-type: none"> <li>• Australian and international standards</li> <li>• Codex Food Processing Standards</li> <li>• Federal and state legislation</li> <li>• NHMRC Australian dietary guidelines</li> <li>• FSANZ labelling regulations.</li> </ul>
<p><b>Organisations</b></p>	<p>May include:</p> <ul style="list-style-type: none"> <li>• National Health &amp; Medical Research Council (NHMRC)</li> <li>• National Heart Foundation of Australia (NHFA)</li> <li>• Federation of Australian Nutrition Organisations (FANO)</li> <li>• Nutrition Australia</li> <li>• The Nutrition Society of Australia</li> <li>• Dietitians Association of Australia</li> <li>• The Australian Institute of Food Science &amp; Technology</li> <li>• Australian society of clinical immunology and allergy.</li> </ul>



<b>Functional foods</b>	Any fresh or processed food claimed to have a health-promoting or disease-preventing property beyond the basic function of supplying nutrients. Fermented foods with live cultures are considered as functional foods with probiotic benefits.
<b>Nutraceuticals</b>	Includes functional foods that also aid in the prevention and/or treatment of disease(s) and/or disorder(s) (except anaemia),
<b>Modified foods</b>	Fresh or processed food which has had components added (e.g. Vitamin C enriched) or reduced (e.g. low fat milk).

## Unit Sector(s)

Technical.