**Sample Course Outline**

Food Science and Technology

General Year 12

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# Sample course outline

# Food Science and Technology – General Year 12

## Unit 3 and Unit 4

#### Semester 1 – Unit 3 – Food science

| **Week** | **Syllabus content** |
| --- | --- |
| 1–3 | **Nutrition*** food sources and role of micronutrients for health
	+ fat-soluble vitamins: A and D
	+ water-soluble vitamins: B1 (thiamine), B2 (riboflavin), B3 (niacin) and C
	+ minerals: calcium, iron and sodium
* effects of under-consumption of nutrients on health
	+ anaemia
	+ osteoporosis
	+ malnutrition
	+ constipation

**Task 1: Test – Nutrition for health** |
| 4 | **Food as a commodity*** the economic cost of raw and processed food products
* the development and use of varieties of food commodities, such as apples and potatoes, to:
	+ alter sensory and physical properties
	+ alter nutritional content
	+ improve yield
 |
| 5–7 | **Properties of food*** functional properties that determine the performance of food
	+ caramelisation
	+ crystallisation
	+ emulsification
	+ leavening
	+ aeration
	+ oxidation
	+ rancidity

**Task 2: Functional properties of food** |
| 8–9 | **Processing techniques*** investigate wet processing techniques and dry processing techniques
	+ suitable food commodities
	+ effect on nutrition
	+ heat transfer
	+ sensory properties
	+ cost of ingredients and energy
* functional properties that determine the performance of food
	+ dextrinisation
	+ denaturation
	+ coagulation
	+ gelatinisation
 |

| **Week** | **Syllabus content** |
| --- | --- |
| 10–11 | **Devise food products*** effects of over-consumption of nutrients on health
	+ obesity
	+ cardiovascular disease
	+ Type 2 diabetes
* devise food products
	+ interpret and adapt recipes
	+ devise food orders
	+ devise production plans
	+ apply preparation and processing techniques
	+ cost recipes

**Task 3: Meals for health** |
| 12 | **Food issues*** societal influences on food choices
	+ lifestyle
	+ culture
	+ religion
	+ health promotion campaigns
	+ advertising
* economic influences on food choices
	+ competition in the marketplace
	+ product availability
	+ consumer resources
 |
| 13 | **Laws and regulatory codes*** role of *Food Standards Australia New Zealand* (FSANZ)
* objectives of *Food Act 2008* (WA)
* purpose of the *Occupational Safety and Health Act 1984*
* *Australia New Zealand Food Standards Code* for food labelling requirements
	+ nutrition information panel
	+ percentage labelling
	+ name or description of the food
	+ food recall information
	+ information for allergy sufferers
	+ date marking
	+ ingredients list
	+ country of origin
	+ barcode
	+ weights and measures
	+ use and storage information
	+ mandatory warnings and information
	+ genetically modified content
	+ legibility
* categories of food exempt from food labelling laws
 |
| 14 | **Task 4: Externally set task** |

| **Week** | **Syllabus content** |
| --- | --- |
| 14–16 | **Heat and eat meals*** the technology process to produce a food product that demonstrates a wet processing technique and a dry processing technique based on a product proposal
	+ investigate
	+ devise
	+ produce
	+ evaluate
* devise food products
	+ trial recipes
* evaluate the food product
	+ product’s compliance with the proposal
	+ product’s sensory properties
	+ selection of processing techniques
	+ selection of equipment and resources
	+ time requirements

**Task 5: Heat and eat meals** |

#### Semester 2 – Unit 4 – The undercover story

| **Week** | **Syllabus content** |
| --- | --- |
| 1–2 | **Food as a commodity*** the food supply chain
	+ production
	+ processing
	+ packaging
	+ storage
	+ distribution of food commodities
* the concept of value-adding to food
	+ changes to nutritional content
	+ additional processing of food
	+ presentation and service
	+ packaging
 |
| 3–4 | **Dietary planning*** dietary planning
	+ *Healthy Eating Pyramid (Nutrition Australia May 2015)*
	+ *Australian Guide to Healthy Eating*
	+ *Australian Dietary Guidelines*
* the nutritional needs of demographic groups, such as adolescents and adults
* modification and fortification of foods by altering nutrient content
* influences on the nutritional wellbeing of individuals
	+ lifestyle
	+ cultural traditions
* devise food products
	+ interpret and adapt recipes

**Task 6: Dietary planning** |
| 5–7 | **Food processing techniques*** food processing techniques used to control the performance of food
	+ application of heat
	+ application of cold
	+ exposure to air
	+ addition of acid
	+ addition of alkali
	+ manipulation
* devise food products
	+ interpret and adapt recipes
	+ devise food orders
	+ devise production plans
	+ apply preparation and processing techniques
	+ cost recipes

**Task 7: Food processing techniques** |
| 8 | **Preserving food*** reasons for preserving food
	+ extend shelf life
	+ preserve nutritional value
	+ out of season availability
	+ palatability
	+ convenience
	+ economics
	+ reduce waste
 |

| **Week** | **Syllabus content** |
| --- | --- |
| 9–11 | **Processing systems and food preservation*** causes of food spoilage and contamination
	+ environmental factors, such as oxygen, light, heat, water, infestation
	+ enzymatic activity on food
	+ microbial contamination of food, such as mould, yeast, bacteria
* principles of food preservation
	+ control of temperature, such as pasteurisation, ultra-high temperature treatment, freezing, and canning or bottling
	+ anaerobic breakdown of organic substances or nutrients, such as fermentation
	+ addition of chemicals, such as salt, sugar, acid, and artificial preservative
	+ removal of moisture through dehydration and evaporation
	+ removal of oxygen through vacuum packing

**Task 8: Food preservation** |
| 12 | **Food issues*** factors that influence food choices
	+ location
	+ income
	+ supply and demand
	+ environmental impact
	+ advertising and marketing
* sponsorship, tokens and free gifts, and super-sizing techniques used to market food products
 |
| 13 | **Laws and regulatory codes*** principles of the HACCP system
	+ conduct a hazard analysis
	+ identify critical control points
	+ establish critical limits for each critical control point
	+ establish critical control point monitoring requirements
	+ establish corrective actions
	+ verify procedures
	+ establish record keeping procedures
* regulation of food safety in Australia
	+ state authorities
	+ local authorities
* *Occupational Safety and Health Act 1984* and the rights and responsibilities of employers and employees in food environments

**Task 9: Test – Laws and regulatory codes** |
| 14–16 | **A preserved food product*** the technology process to produce a preserved food product, based on a product proposal
	+ investigate
	+ devise
	+ produce
	+ evaluate
* devise food products
	+ develop, produce and evaluate prototypes
* evaluate the preserved food product
	+ product’s compliance with the proposal
	+ product’s use in another food product
	+ product’s sensory properties
	+ selection of processing techniques
	+ selection of equipment and resources
	+ time requirements
 |