**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 |