SAMPLE COURSE OUTLINE

FOOD SCIENCE AND TECHNOLOGY
GENERAL YEAR 12
**Sample course outline**

**Food Science and Technology – General Year 12**

**Unit 3 and Unit 4**

**Semester 1 – Unit 3 – Food science**

<table>
<thead>
<tr>
<th>Week</th>
<th>Syllabus content</th>
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<tbody>
<tr>
<td>1–3</td>
<td><strong>Nutrition</strong></td>
</tr>
<tr>
<td></td>
<td>• food sources and role of micronutrients for health</td>
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<tr>
<td></td>
<td>▪ fat-soluble vitamins: A and D</td>
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<td></td>
<td>▪ water-soluble vitamins: B1 (thiamine), B2 (riboflavin), B3 (niacin) and C</td>
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<td></td>
<td>▪ minerals: calcium, iron and sodium</td>
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<td></td>
<td>• effects of under-consumption of nutrients on health</td>
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<td></td>
<td>▪ anaemia</td>
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<td>▪ osteoporosis</td>
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<td>▪ malnutrition</td>
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<td>▪ constipation</td>
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<td><strong>Task 1: Test – Nutrition for health</strong></td>
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<td>4</td>
<td><strong>Food as a commodity</strong></td>
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<tr>
<td></td>
<td>• the economic cost of raw and processed food products</td>
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<td>• the development and use of varieties of food commodities, such as apples and potatoes, to:</td>
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<td></td>
<td>▪ alter sensory and physical properties</td>
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<td></td>
<td>▪ alter nutritional content</td>
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<td>▪ improve yield</td>
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<td>5–7</td>
<td><strong>Properties of food</strong></td>
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<td></td>
<td>• functional properties that determine the performance of food</td>
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<td></td>
<td>▪ caramelisation</td>
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<td>▪ crystallisation</td>
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<td>▪ emulsification</td>
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<td>▪ leavening</td>
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<td>▪ aeration</td>
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<td>▪ oxidation</td>
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<td>▪ rancidity</td>
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<td><strong>Task 2: Functional properties of food</strong></td>
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<td>8–9</td>
<td><strong>Processing techniques</strong></td>
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<td></td>
<td>• investigate wet processing techniques and dry processing techniques</td>
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<td>▪ suitable food commodities</td>
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<td>▪ effect on nutrition</td>
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<td>▪ heat transfer</td>
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<td>▪ sensory properties</td>
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<td>▪ cost of ingredients and energy</td>
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<td>• functional properties that determine the performance of food</td>
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<td>▪ dextrinisation</td>
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<td>▪ denaturation</td>
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<td>▪ coagulation</td>
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<td>▪ gelatinisation</td>
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<td>Week</td>
<td>Syllabus content</td>
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| 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 |
<p>| 14 | <strong>Task 4: Externally set task</strong> |</p>
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| 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

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<th>Week</th>
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| 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 |
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| 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 |