SAMPLE COURSE OUTLINE

FOOD SCIENCE AND TECHNOLOGY
ATAR YEAR 11
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Sample course outline
Food Science and Technology – ATAR Year 11
Unit 1 – Food science

<table>
<thead>
<tr>
<th>Week</th>
<th>Key teaching points</th>
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</table>
| 1–2  | **Food commodities**  
• primary and secondary processes used to convert raw commodities into safe, quality food products  
• effect of seasonal conditions on the quality, supply and price of food commodities  
• objectives of the *Food Act 2008 (WA)*  
• purpose of the *Occupational Safety and Health Act 1984* |
| 3–4  | **Nutrients**  
• food sources and role of macronutrients and water in the body  
  ▪ protein – complete and incomplete  
  ▪ carbohydrates – starches, sugars, and fibre or cellulose  
  ▪ lipids – saturated fats and oils, and unsaturated fats and oils  
• food sources and role of micronutrients in the body  
  ▪ fat-soluble vitamins – A and D  
  ▪ water-soluble vitamins – B1 (thiamine), B2 (riboflavin), B3 (niacin) and C  
  ▪ minerals – calcium, iron and sodium  
**Task 1: Test – Food commodities and nutrients** |
| 5–7  | **Properties and performance of food**  
• influence of sensory properties on the selection, use and consumption of raw and processed food  
  ▪ appearance  
  ▪ texture  
  ▪ aroma  
  ▪ flavour  
  ▪ sound  
• influence of physical properties on the selection, use and consumption of raw and processed food  
  ▪ size  
  ▪ shape  
  ▪ colour  
  ▪ volume  
  ▪ viscosity  
  ▪ elasticity  
• functional properties that determine the performance of food  
  ▪ dextrinisation  
  ▪ caramelisation  
  ▪ crystallisation  
  ▪ emulsification  
  ▪ gelatinisation  
  ▪ oxidation  
  ▪ denaturation  
  ▪ coagulation  
  ▪ leavening  
  ▪ aeration  
  ▪ rancidity |
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<tr>
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| 8–10 | **Processing techniques**  
|      | • investigate wet processing techniques and dry processing techniques  
|      |   ▪ suitable food commodities  
|      |   ▪ effect on nutrition  
|      |   ▪ heat transfer  
|      |   ▪ sensory properties  
|      |   ▪ cost  
|      | • 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  
|      | • 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 2: Processing techniques**  
| 11–12 | **Nutrition and health**  
|      | • societal influences on food choices  
|      |   ▪ lifestyle  
|      |   ▪ culture and traditions  
|      |   ▪ peer group  
|      | • effects of under-consumption of nutrients on health  
|      |   ▪ anaemia  
|      |   ▪ osteoporosis  
|      |   ▪ malnutrition  
|      |   ▪ constipation  
|      | • effects of over-consumption of nutrients on health  
|      |   ▪ obesity  
|      |   ▪ cardiovascular disease  
|      |   ▪ Type 2 diabetes  
|      | • devise food products  
|      |   ▪ interpret and adapt recipes  
|      |   ▪ devise food orders  
|      |   ▪ develop and trial recipes  
|      |   ▪ devise production plans  
|      |   ▪ apply preparation and processing techniques  
|      |   ▪ cost recipes  
|      | **Task 3: Nutrition and health**  
| 13–14 | **Influences on food choices**  
|      | • reasons for the development and use of varieties of food commodities  
|      |   ▪ alter sensory and physical properties  
|      |   ▪ alter nutritional content  
|      |   ▪ improve yield  
|      |   ▪ new technologies in food processing  
|      |   ▪ line extensions  
|      |   ▪ profit  

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### Key Teaching Points

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| 15   | **Labelling of Food**  
- role of Food Standards Australia New Zealand (FSANZ)  
- 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 |
| 16   | **Task 4: Semester 1 Examination** |
Sample course outline  
Food Science and Technology – ATAR Year 11  
Unit 2 – The undercover story

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| 1–2  | **Adding value to food commodities**  
• 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  
• define and classify functional foods  
  ▪ natural functional foods  
  ▪ processed functional foods – modified, fortified  
• modification and fortification of foods by altering nutrient content  
• Australia New Zealand Food Standards Code labelling requirement for health claims and for mandatory fortification of food  
**Task 5: Adding value to food commodities**  
| 3–4  | **Dietary planning**  
• dietary planning  
  ▪ *Healthy Eating Pyramid (Nutrition Australia May 2015)*  
  ▪ *Australian Guide to Healthy Eating*  
  ▪ *Australian Dietary Guidelines*  
• nutritional needs of demographic groups, such as adolescents and adults  
• influences on the nutritional wellbeing of individuals  
  ▪ lifestyle  
  ▪ cultural traditions  
  ▪ beliefs and values  
  ▪ economic circumstances  
  ▪ location  
  ▪ media  
| 5–6  | **Food processing**  
• 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  
| 7  | **Food spoilage and contamination**  
• 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  

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| 8–9    | **Food preservation**  
|        | • reasons for preserving food  
|        | ▪ extend shelf life  
|        | ▪ preserve nutritional value  
|        | ▪ out of season availability  
|        | ▪ palatability  
|        | ▪ convenience  
|        | ▪ economics  
|        | ▪ reduce waste  
|        | • 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 6: Test – Food spoilage and contamination, and food preservation**  
| 10–11  | **Gift basket**  
|        | • the technology process to produce a preserved food product based on a product proposal  
|        | ▪ investigate  
|        | ▪ devise  
|        | ▪ produce  
|        | ▪ evaluate  
|        | • analysis of 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  
|        | **Task 6: Gift basket**  
| 12–13  | **Who chooses the food?**  
|        | • influence of lifestyle choices, market demands and the impact of new technologies in developing innovative food products  
|        | • factors that influence food choices  
|        | ▪ location  
|        | ▪ income  
|        | ▪ supply and demand  
|        | ▪ environmental issues  
|        | ▪ advertising and marketing  
|        | ▪ ethical issues, such as animal welfare, fair trade, resource use, country of origin  
|        | • sponsorship, tokens and free gifts, and supersizing techniques used to market food products  
|        | **Task 8: Who chooses the food?**  

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<tr>
<td>14–15</td>
<td>Celebration meal</td>
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<td>devise food products</td>
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<td>- interpret and adapt recipes</td>
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<td>- devise food orders</td>
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<td>- develop, produce and evaluate prototypes</td>
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<td>- devise production plans</td>
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<td>- apply preparation and processing techniques</td>
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<td>- cost recipes</td>
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<td>principles of the HACCP system</td>
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<td>- conduct a hazard analysis</td>
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<td>- identify critical control points</td>
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<td>- establish critical limits for each critical control point</td>
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<td>- establish critical control point monitoring requirements</td>
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<td>- establish corrective actions</td>
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<td>- verify procedures</td>
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<td>- establish record keeping procedures</td>
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<td>regulation of food safety in Australia</td>
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<td>- national authorities</td>
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<td>- state authorities</td>
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<td>- local authorities</td>
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<td>Occupational Safety and Health Act 1984 and rights and responsibilities of employers and employees in food environments</td>
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<td>16</td>
<td>Task 9: Semester 2 examination</td>
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