



## SAMPLE COURSE OUTLINE

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**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	<p><b>Nutrition</b></p> <ul style="list-style-type: none"> <li>• food sources and role of micronutrients for health               <ul style="list-style-type: none"> <li>▪ fat-soluble vitamins: A and D</li> <li>▪ water-soluble vitamins: B1 (thiamine), B2 (riboflavin), B3 (niacin) and C</li> <li>▪ minerals: calcium, iron and sodium</li> </ul> </li> <li>• effects of under-consumption of nutrients on health               <ul style="list-style-type: none"> <li>▪ anaemia</li> <li>▪ osteoporosis</li> <li>▪ malnutrition</li> <li>▪ constipation</li> </ul> </li> </ul> <p><b>Task 1: Test – Nutrition for health</b></p>
4	<p><b>Food as a commodity</b></p> <ul style="list-style-type: none"> <li>• the economic cost of raw and processed food products</li> <li>• the development and use of varieties of food commodities, such as apples and potatoes, to:               <ul style="list-style-type: none"> <li>▪ alter sensory and physical properties</li> <li>▪ alter nutritional content</li> <li>▪ improve yield</li> </ul> </li> </ul>
5–7	<p><b>Properties of food</b></p> <ul style="list-style-type: none"> <li>• functional properties that determine the performance of food               <ul style="list-style-type: none"> <li>▪ caramelisation</li> <li>▪ crystallisation</li> <li>▪ emulsification</li> <li>▪ leavening</li> <li>▪ aeration</li> <li>▪ oxidation</li> <li>▪ rancidity</li> </ul> </li> </ul> <p><b>Task 2: Functional properties of food</b></p>
8–9	<p><b>Processing techniques</b></p> <ul style="list-style-type: none"> <li>• investigate wet processing techniques and dry processing techniques               <ul style="list-style-type: none"> <li>▪ suitable food commodities</li> <li>▪ effect on nutrition</li> <li>▪ heat transfer</li> <li>▪ sensory properties</li> <li>▪ cost of ingredients and energy</li> </ul> </li> <li>• functional properties that determine the performance of food               <ul style="list-style-type: none"> <li>▪ dextrinisation</li> <li>▪ denaturation</li> <li>▪ coagulation</li> <li>▪ gelatinisation</li> </ul> </li> </ul>

Week	Syllabus content
10–11	<p><b>Devise food products</b></p> <ul style="list-style-type: none"> <li>• effects of over-consumption of nutrients on health <ul style="list-style-type: none"> <li>▪ obesity</li> <li>▪ cardiovascular disease</li> <li>▪ Type 2 diabetes</li> </ul> </li> <li>• devise food products <ul style="list-style-type: none"> <li>▪ interpret and adapt recipes</li> <li>▪ devise food orders</li> <li>▪ devise production plans</li> <li>▪ apply preparation and processing techniques</li> <li>▪ cost recipes</li> </ul> </li> </ul> <p><b>Task 3: Meals for health</b></p>
12	<p><b>Food issues</b></p> <ul style="list-style-type: none"> <li>• societal influences on food choices <ul style="list-style-type: none"> <li>▪ lifestyle</li> <li>▪ culture</li> <li>▪ religion</li> <li>▪ health promotion campaigns</li> <li>▪ advertising</li> </ul> </li> <li>• economic influences on food choices <ul style="list-style-type: none"> <li>▪ competition in the marketplace</li> <li>▪ product availability</li> <li>▪ consumer resources</li> </ul> </li> </ul>
13	<p><b>Laws and regulatory codes</b></p> <ul style="list-style-type: none"> <li>• role of <i>Food Standards Australia New Zealand (FSANZ)</i></li> <li>• objectives of <i>Food Act 2008 (WA)</i></li> <li>• purpose of the <i>Occupational Safety and Health Act 1984</i></li> <li>• <i>Australia New Zealand Food Standards Code</i> for food labelling requirements <ul style="list-style-type: none"> <li>▪ nutrition information panel</li> <li>▪ percentage labelling</li> <li>▪ name or description of the food</li> <li>▪ food recall information</li> <li>▪ information for allergy sufferers</li> <li>▪ date marking</li> <li>▪ ingredients list</li> <li>▪ country of origin</li> <li>▪ barcode</li> <li>▪ weights and measures</li> <li>▪ use and storage information</li> <li>▪ mandatory warnings and information</li> <li>▪ genetically modified content</li> <li>▪ legibility</li> </ul> </li> <li>• categories of food exempt from food labelling laws</li> </ul>
14	<p><b>Task 4: Externally set task</b></p>

Week	Syllabus content
14–16	<p><b>Heat and eat meals</b></p> <ul style="list-style-type: none"><li>• the technology process to produce a food product that demonstrates a wet processing technique and a dry processing technique based on a product proposal<ul style="list-style-type: none"><li>▪ investigate</li><li>▪ devise</li><li>▪ produce</li><li>▪ evaluate</li></ul></li><li>• devise food products<ul style="list-style-type: none"><li>▪ trial recipes</li></ul></li><li>• evaluate the food product<ul style="list-style-type: none"><li>▪ product's compliance with the proposal</li><li>▪ product's sensory properties</li><li>▪ selection of processing techniques</li><li>▪ selection of equipment and resources</li><li>▪ time requirements</li></ul></li></ul> <p><b>Task 5: Heat and eat meals</b></p>

## Semester 2 – Unit 4 – The undercover story

Week	Syllabus content
1–2	<p><b>Food as a commodity</b></p> <ul style="list-style-type: none"> <li>• the food supply chain <ul style="list-style-type: none"> <li>▪ production</li> <li>▪ processing</li> <li>▪ packaging</li> <li>▪ storage</li> <li>▪ distribution of food commodities</li> </ul> </li> <li>• the concept of value-adding to food <ul style="list-style-type: none"> <li>▪ changes to nutritional content</li> <li>▪ additional processing of food</li> <li>▪ presentation and service</li> <li>▪ packaging</li> </ul> </li> </ul>
3–4	<p><b>Dietary planning</b></p> <ul style="list-style-type: none"> <li>• dietary planning <ul style="list-style-type: none"> <li>▪ <i>Healthy Eating Pyramid (Nutrition Australia May 2015)</i></li> <li>▪ <i>Australian Guide to Healthy Eating</i></li> <li>▪ <i>Australian Dietary Guidelines</i></li> </ul> </li> <li>• the nutritional needs of demographic groups, such as adolescents and adults</li> <li>• modification and fortification of foods by altering nutrient content</li> <li>• influences on the nutritional wellbeing of individuals <ul style="list-style-type: none"> <li>▪ lifestyle</li> <li>▪ cultural traditions</li> </ul> </li> <li>• devise food products <ul style="list-style-type: none"> <li>▪ interpret and adapt recipes</li> </ul> </li> </ul> <p><b>Task 6: Dietary planning</b></p>
5–7	<p><b>Food processing techniques</b></p> <ul style="list-style-type: none"> <li>• food processing techniques used to control the performance of food <ul style="list-style-type: none"> <li>▪ application of heat</li> <li>▪ application of cold</li> <li>▪ exposure to air</li> <li>▪ addition of acid</li> <li>▪ addition of alkali</li> <li>▪ manipulation</li> </ul> </li> <li>• devise food products <ul style="list-style-type: none"> <li>▪ interpret and adapt recipes</li> <li>▪ devise food orders</li> <li>▪ devise production plans</li> <li>▪ apply preparation and processing techniques</li> <li>▪ cost recipes</li> </ul> </li> </ul> <p><b>Task 7: Food processing techniques</b></p>
8	<p><b>Preserving food</b></p> <ul style="list-style-type: none"> <li>• reasons for preserving food <ul style="list-style-type: none"> <li>▪ extend shelf life</li> <li>▪ preserve nutritional value</li> <li>▪ out of season availability</li> <li>▪ palatability</li> <li>▪ convenience</li> <li>▪ economics</li> <li>▪ reduce waste</li> </ul> </li> </ul>

Week	Syllabus content
9–11	<p><b>Processing systems and food preservation</b></p> <ul style="list-style-type: none"> <li>• causes of food spoilage and contamination <ul style="list-style-type: none"> <li>▪ environmental factors, such as oxygen, light, heat, water, infestation</li> <li>▪ enzymatic activity on food</li> <li>▪ microbial contamination of food, such as mould, yeast, bacteria</li> </ul> </li> <li>• principles of food preservation <ul style="list-style-type: none"> <li>▪ control of temperature, such as pasteurisation, ultra-high temperature treatment, freezing, and canning or bottling</li> <li>▪ anaerobic breakdown of organic substances or nutrients, such as fermentation</li> <li>▪ addition of chemicals, such as salt, sugar, acid, and artificial preservative</li> <li>▪ removal of moisture through dehydration and evaporation</li> <li>▪ removal of oxygen through vacuum packing</li> </ul> </li> </ul> <p><b>Task 8: Food preservation</b></p>
12	<p><b>Food issues</b></p> <ul style="list-style-type: none"> <li>• factors that influence food choices <ul style="list-style-type: none"> <li>▪ location</li> <li>▪ income</li> <li>▪ supply and demand</li> <li>▪ environmental impact</li> <li>▪ advertising and marketing</li> </ul> </li> <li>• sponsorship, tokens and free gifts, and super-sizing techniques used to market food products</li> </ul>
13	<p><b>Laws and regulatory codes</b></p> <ul style="list-style-type: none"> <li>• principles of the HACCP system <ul style="list-style-type: none"> <li>▪ conduct a hazard analysis</li> <li>▪ identify critical control points</li> <li>▪ establish critical limits for each critical control point</li> <li>▪ establish critical control point monitoring requirements</li> <li>▪ establish corrective actions</li> <li>▪ verify procedures</li> <li>▪ establish record keeping procedures</li> </ul> </li> <li>• regulation of food safety in Australia <ul style="list-style-type: none"> <li>▪ state authorities</li> <li>▪ local authorities</li> </ul> </li> <li>• <i>Occupational Safety and Health Act 1984</i> and the rights and responsibilities of employers and employees in food environments</li> </ul> <p><b>Task 9: Test – Laws and regulatory codes</b></p>
14–16	<p><b>A preserved food product</b></p> <ul style="list-style-type: none"> <li>• the technology process to produce a preserved food product, based on a product proposal <ul style="list-style-type: none"> <li>▪ investigate</li> <li>▪ devise</li> <li>▪ produce</li> <li>▪ evaluate</li> </ul> </li> <li>• devise food products <ul style="list-style-type: none"> <li>▪ develop, produce and evaluate prototypes</li> </ul> </li> <li>• evaluate the preserved food product <ul style="list-style-type: none"> <li>▪ product's compliance with the proposal</li> <li>▪ product's use in another food product</li> <li>▪ product's sensory properties</li> <li>▪ selection of processing techniques</li> <li>▪ selection of equipment and resources</li> <li>▪ time requirements</li> </ul> </li> </ul>