



## SAMPLE COURSE OUTLINE

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**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

Week	Key teaching points
1–2	<p><b>Food commodities</b></p> <ul style="list-style-type: none"> <li>• primary and secondary processes used to convert raw commodities into safe, quality food products</li> <li>• effect of seasonal conditions on the quality, supply and price of food commodities</li> <li>• objectives of the <i>Food Act 2008</i> (WA)</li> <li>• purpose of the <i>Occupational Safety and Health Act 1984</i></li> </ul>
3–4	<p><b>Nutrients</b></p> <ul style="list-style-type: none"> <li>• food sources and role of macronutrients and water in the body               <ul style="list-style-type: none"> <li>▪ protein – complete and incomplete</li> <li>▪ carbohydrates – starches, sugars, and fibre or cellulose</li> <li>▪ lipids – saturated fats and oils, and unsaturated fats and oils</li> </ul> </li> <li>• food sources and role of micronutrients in the body               <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> </ul> <p><b>Task 1: Test – Food commodities and nutrients</b></p>
5–7	<p><b>Properties and performance of food</b></p> <ul style="list-style-type: none"> <li>• influence of sensory properties on the selection, use and consumption of raw and processed food               <ul style="list-style-type: none"> <li>▪ appearance</li> <li>▪ texture</li> <li>▪ aroma</li> <li>▪ flavour</li> <li>▪ sound</li> </ul> </li> <li>• influence of physical properties on the selection, use and consumption of raw and processed food               <ul style="list-style-type: none"> <li>▪ size</li> <li>▪ shape</li> <li>▪ colour</li> <li>▪ volume</li> <li>▪ viscosity</li> <li>▪ elasticity</li> </ul> </li> <li>• functional properties that determine the performance of food               <ul style="list-style-type: none"> <li>▪ dextrinisation</li> <li>▪ caramelisation</li> <li>▪ crystallisation</li> <li>▪ emulsification</li> <li>▪ gelatinisation</li> <li>▪ oxidation</li> <li>▪ denaturation</li> <li>▪ coagulation</li> <li>▪ leavening</li> <li>▪ aeration</li> <li>▪ rancidity</li> </ul> </li> </ul>

Week	Key teaching points
8–10	<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</li> </ul> </li> <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>• 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 2: Processing techniques</b></p>
11–12	<p><b>Nutrition and health</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 and traditions</li> <li>▪ peer group</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> <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>▪ develop and trial recipes</li> <li>▪ devise production plans</li> <li>▪ apply preparation and processing techniques</li> <li>▪ cost recipes</li> </ul> </li> </ul> <p><b>Task 3: Nutrition and health</b></p>
13–14	<p><b>Influences on food choices</b></p> <ul style="list-style-type: none"> <li>• reasons for the development and use of varieties of food commodities <ul style="list-style-type: none"> <li>▪ alter sensory and physical properties</li> <li>▪ alter nutritional content</li> <li>▪ improve yield</li> <li>▪ new technologies in food processing</li> <li>▪ line extensions</li> <li>▪ profit</li> </ul> </li> </ul>

Week	Key teaching points
	<ul style="list-style-type: none"> <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> <li>• societal influences on food choices <ul style="list-style-type: none"> <li>▪ media</li> <li>▪ advertising</li> <li>▪ marketing</li> </ul> </li> <li>• use of celebrities, media practices (including music, body image, colour, fonts and graphics) and food styling techniques to market food products</li> </ul>
15	<p><b>Labelling of food</b></p> <ul style="list-style-type: none"> <li>• role of <i>Food Standards Australia New Zealand (FSANZ)</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>
16	<b>Task 4: Semester 1 examination</b>

## Sample course outline

### Food Science and Technology – ATAR Year 11

#### Unit 2 – The undercover story

Week	Key teaching points
1–2	<p><b>Adding value to food commodities</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> <li>• define and classify functional foods               <ul style="list-style-type: none"> <li>▪ natural functional foods</li> <li>▪ processed functional foods – modified, fortified</li> </ul> </li> <li>• modification and fortification of foods by altering nutrient content</li> <li>• <i>Australia New Zealand Food Standards Code</i> labelling requirement for health claims and for mandatory fortification of food</li> </ul> <p><b>Task 5: Adding value to food commodities</b></p>
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>• nutritional needs of demographic groups, such as adolescents and adults</li> <li>• influences on the nutritional wellbeing of individuals               <ul style="list-style-type: none"> <li>▪ lifestyle</li> <li>▪ cultural traditions</li> <li>▪ beliefs and values</li> <li>▪ economic circumstances</li> <li>▪ location</li> <li>▪ media</li> </ul> </li> </ul>
5–6	<p><b>Food processing</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> </ul>
7	<p><b>Food spoilage and contamination</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> </ul>

Week	Key teaching points
8–9	<p><b>Food preservation</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> <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 6: Test – Food spoilage and contamination, and food preservation</b></p>
10–11	<p><b>Gift basket</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>• analysis of 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> <p><b>Task 6: Gift basket</b></p>
12–13	<p><b>Who chooses the food?</b></p> <ul style="list-style-type: none"> <li>• influence of lifestyle choices, market demands and the impact of new technologies in developing innovative food products</li> <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 issues</li> <li>▪ advertising and marketing</li> <li>▪ ethical issues, such as animal welfare, fair trade, resource use, country of origin</li> </ul> </li> <li>• sponsorship, tokens and free gifts, and supersizing techniques used to market food products</li> </ul> <p><b>Task 8: Who chooses the food?</b></p>

Week	Key teaching points
14–15	<p><b>Celebration meal</b></p> <ul style="list-style-type: none"> <li>• devise food products <ul style="list-style-type: none"> <li>▪ interpret and adapt recipes</li> <li>▪ devise food orders</li> <li>▪ develop, produce and evaluate prototypes</li> <li>▪ devise production plans</li> <li>▪ apply preparation and processing techniques</li> <li>▪ cost recipes</li> </ul> </li> <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>▪ national authorities</li> <li>▪ state authorities</li> <li>▪ local authorities</li> </ul> </li> <li>• <i>Occupational Safety and Health Act 1984</i> and rights and responsibilities of employers and employees in food environments</li> </ul>
16	<b>Task 9: Semester 2 examination</b>