Government of **Western Australia**
School Curriculum and Standards Authority

SAMPLE COURSE OUTLINE

FOOD SCIENCE AND TECHNOLOGY

ATAR YEAR 11

Acknowledgement of Country

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

Disclaimer

Any resources such as texts, websites and so on that may be referred to in this document are provided as examples of resources that teachers can use to support their learning programs. Their inclusion does not imply that they are mandatory or that they are the only resources relevant to the course. Teachers must exercise their professional judgement as to the appropriateness of any they may wish to use.

Sample course outline

Food Science and Technology – ATAR Year 11

Unit 1 – Food science and Unit 2 – The undercover story

Semester 1

Week	Syllabus content
1–2	**Food as a commodity** • 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. **Laws and regulatory codes** • objectives of the Food Act 2008 (WA). • purpose of the *Work Health and Safety Act 2020*.
3–4	**Nutrition** • 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 (ascorbic acid) ▪ minerals – calcium, iron and sodium. **Task 1: Test – Food commodities and nutrients**
5–7	**Properties 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.

Week	Syllabus content
	• functional properties that determine the performance of food: ▪ dextrinisation ▪ caramelisation ▪ crystallisation ▪ emulsification ▪ gelatinisation ▪ oxidation ▪ denaturation ▪ coagulation ▪ leavening ▪ aeration ▪ rancidity.
8–10	**Food products and processing systems** • 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	**Food issues** • societal influences on food choices: ▪ lifestyle ▪ culture and traditions ▪ peer group. **Nutrition** • effects of under-consumption of nutrients on health: ▪ anaemia ▪ osteoporosis ▪ malnutrition ▪ constipation.

Week	Syllabus content
	• effects of over-consumption of nutrients on health: ▪ obesity ▪ cardiovascular disease ▪ Type 2 diabetes. **Food products and processing systems** • 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	**Food as a commodity** • 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.
	Food issues • societal influences on food choices: ▪ media ▪ advertising ▪ marketing. • economic influences on food choices: ▪ competition in the marketplace ▪ product availability ▪ consumer resources. • use of celebrities, media practices (including music, body image, colour, fonts and graphics) and food styling techniques to market food products.

Week	Syllabus content
15	**Laws and regulatory codes** • role of Food Standards Australia New Zealand (FSANZ). • Australia New Zealand Food Standards Code for food labelling requirements: ▪ nutrition information panel ▪ percentage labelling ▪ food identification ▪ information for food allergies or intolerances ▪ date marking ▪ ingredient list ▪ labels must tell the truth ▪ food additives ▪ directions for use and storage ▪ legibility requirements ▪ country of origin ▪ nutrition and health claims. • categories of food exempt from food labelling laws.
16	**Task 4: Semester 1 examination**

Sample course outline

Food Science and Technology – ATAR Year 11

Semester 2

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.
	• define and classify functional foods:
	  ▪ natural functional foods
	  ▪ processed functional foods – modified, fortified.
	Nutrition
	• modification and fortification of foods by altering nutrient content.
	Laws and regulatory codes
	• 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	**Nutrition**
	• 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.

Week	Syllabus content
5–6	**Food products and processing systems** • food processing techniques used to control the performance of food: ▪ temperature – heat, cold ▪ exposure to air ▪ pH level ▪ addition of chemicals – salt, sugar ▪ removal of moisture ▪ manipulation.
7	**Properties of food** • 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.
8–9	**Properties of food** • 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	**Food products and processing systems** • 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**

Week	Syllabus content
12–13	**Food issues** • 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?**
14–15	**Food products and processing systems** • devise food products: ▪ interpret and adapt recipes ▪ devise food orders ▪ develop, produce and evaluate prototypes ▪ devise production plans ▪ apply preparation and processing techniques ▪ cost recipes. **Laws and regulatory codes** • principles of the Hazard Analysis Critical Control Point (HACCP) management 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: ▪ national authorities ▪ state authorities ▪ local authorities. • *Work Health and Safety Act 2020* and rights and responsibilities of employers and employees in food environments.
16	**Task 9: Semester 2 examination**