

Kalamunda Senior High School 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>Nutrition</p> <ul style="list-style-type: none"> • food sources and role of micronutrients for health <ul style="list-style-type: none"> § fat-soluble vitamins: A and D § water-soluble vitamins: B1 (thiamine), B2 (riboflavin), B3 (niacin) and C § minerals: calcium, iron and sodium • effects of under-consumption of nutrients on health <ul style="list-style-type: none"> § anaemia § osteoporosis § malnutrition § constipation <p>Task 1: Test – Nutrition for health</p>
4	<p>Food as a commodity</p> <ul style="list-style-type: none"> • the economic cost of raw and processed food products • the development and use of varieties of food commodities, such as apples and potatoes, to: <ul style="list-style-type: none"> § alter sensory and physical properties § alter nutritional content § improve yield
5–7	<p>Properties of food</p> <ul style="list-style-type: none"> • functional properties that determine the performance of food <ul style="list-style-type: none"> § caramelisation § crystallisation § emulsification § leavening § aeration § oxidation § rancidity <p>Task 2: Functional properties of food</p>
8–9	<p>Processing techniques</p> <ul style="list-style-type: none"> • investigate wet processing techniques and dry processing techniques <ul style="list-style-type: none"> § suitable food commodities § effect on nutrition § heat transfer § sensory properties § cost of ingredients and energy • functional properties that determine the performance of food <ul style="list-style-type: none"> § dextrinisation § denaturation § coagulation § gelatinisation
10–11	<p>Devise food products</p> <ul style="list-style-type: none"> • effects of over-consumption of nutrients on health <ul style="list-style-type: none"> § obesity § cardiovascular disease § Type 2 diabetes • devise food products <ul style="list-style-type: none"> § interpret and adapt recipes § devise food orders § devise production plans § apply preparation and processing techniques § cost recipes <p>Task 3: Meals for health</p>

Week	Syllabus content
12	<p>Food issues</p> <ul style="list-style-type: none"> • societal influences on food choices <ul style="list-style-type: none"> § lifestyle § culture § religion § health promotion campaigns § advertising • economic influences on food choices <ul style="list-style-type: none"> § competition in the marketplace § product availability § consumer resources
13	<p>Laws and regulatory codes</p> <ul style="list-style-type: none"> • role of Food Standards Australia New Zealand (FSANZ) • objectives of <i>Food Act 2008</i> (WA) • purpose of the <i>Occupational Safety and Health Act 1984</i> • Australia New Zealand Food Standards Code for food labelling requirements <ul style="list-style-type: none"> § 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
14	<p>Task 4: Externally set task</p>
14–16	<p>Heat and eat meals</p> <ul style="list-style-type: none"> • 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"> § investigate § devise § produce § evaluate • devise food products <ul style="list-style-type: none"> § trial recipes • evaluate the food product <ul style="list-style-type: none"> § product's compliance with the proposal § product's sensory properties § selection of processing techniques § selection of equipment and resources § time requirements <p>Task 5: Heat and eat meals</p>

Semester 2 – Unit 4 – The undercover story

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

Week	Syllabus content
9–11	<p>Processing systems and food preservation</p> <ul style="list-style-type: none"> • causes of food spoilage and contamination <ul style="list-style-type: none"> § 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 <ul style="list-style-type: none"> § 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 <p>Task 8: Food preservation</p>
12	<p>Food issues</p> <ul style="list-style-type: none"> • factors that influence food choices <ul style="list-style-type: none"> § 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	<p>Laws and regulatory codes</p> <ul style="list-style-type: none"> • principles of the HACCP system <ul style="list-style-type: none"> § 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 <ul style="list-style-type: none"> § state authorities § local authorities • <i>Occupational Safety and Health Act 1984</i> and the rights and responsibilities of employers and employees in food environments <p>Task 9: Test – Laws and regulatory codes</p>
14–16	<p>A preserved food product</p> <ul style="list-style-type: none"> • the technology process to produce a preserved food product, based on a product proposal <ul style="list-style-type: none"> § investigate § devise § produce § evaluate • devise food products <ul style="list-style-type: none"> § develop, produce and evaluate prototypes • evaluate the preserved food product <ul style="list-style-type: none"> § 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