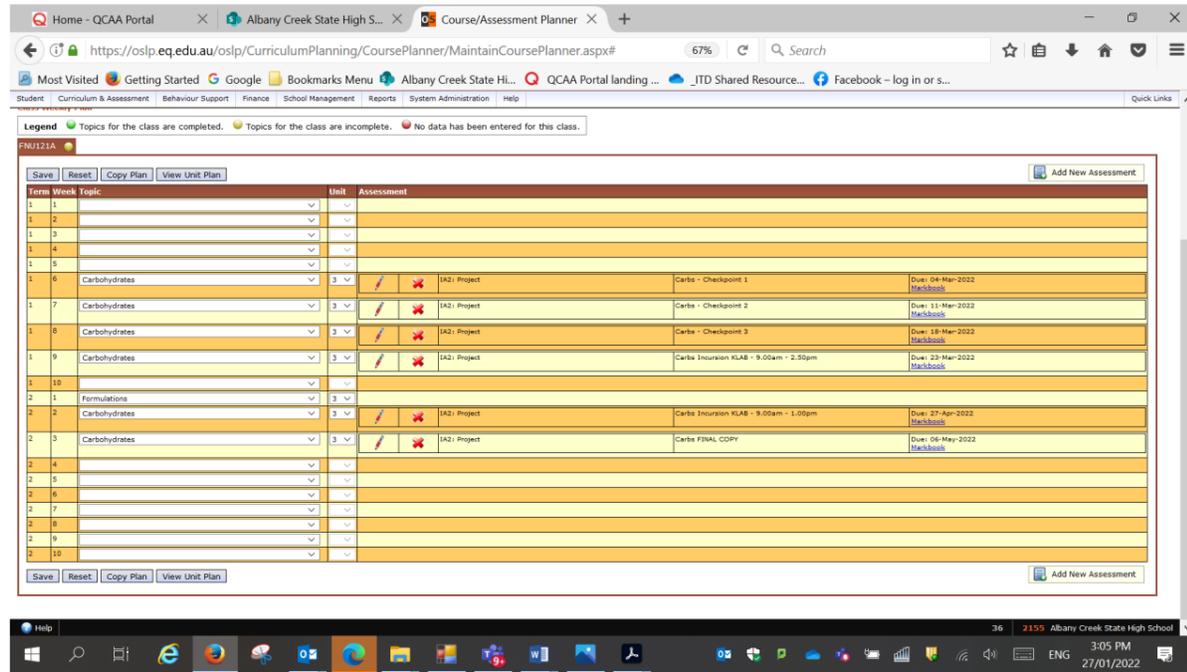


Syllabus References	Week	Lesson 1 - Monday 4	Lesson 2 - Wednesday 2	Lesson 3 - Friday 2
<p>In this topic, students will:</p> <ul style="list-style-type: none"> examine each sector of the food system related to carbohydrate, including: <ul style="list-style-type: none"> production, by that the production of carbohydrate-based food involves the planting, growing and harvesting of plant food sources processing, by <ul style="list-style-type: none"> recognising that some carbohydrate-based food sources can be consumed raw, e.g. most fruits and vegetables and some after processing, e.g. grains explaining the distribution pathways required to process foods in ways that extend shelf life explaining the reasons for and benefits of food processing to consumers, including convenience, cost, access to nutrients and minimisation of seasonality and pathogen growth cycles using food science experiments, to identify how food components interact with the manipulation of temperature and chemical and functional properties of carbohydrate-based food, including <ul style="list-style-type: none"> gelatinisation, by: explaining that gelatinisation occurs when liquids containing starch are heated; explaining that gelatinisation has three stages and is affected by the type of starch, temperature, and the quantity of tenderiser and type of acid used; experimenting with different types of starch to identify how they react in the gelatinisation process, including wheat flour, cornflour, potato starch and tapioca; recording and analysing results of experiments and drawing conclusions to determine which products would suit different formulations, comparing characteristics of appearance, taste, texture, flavour and aroma crystallisation and nucleation, by: explaining crystallisation as a processing technique that is used to separate a solid dissolved in a solution from the liquid; explaining that nucleation is the formation of a crystal from a solution, a liquid or a vapour; demonstrating and comprehend crystallisation and nucleation, including super-saturated solutions, using sugar and water caramelisation, by: recognising that caramelisation is a type of non-enzymatic browning; explaining that caramelisation is the oxidation of sugar dextrinisation, by: explaining that dextrinisation is the process involving the browning of starch foods when they are subjected to dry heat and is defined as the breakdown of starch into dextrins or disaccharides; experimenting with carbohydrate-based food to demonstrate and comprehend dextrinisation, including dry heat application to starch-based end-products, e.g. roux and starch browning to change the end-product colour and flavour of a thickened liquid or food gelification, by: defining gelification as the process of converting liquid substances into a solid gelatinous form with the help of a gelling agent, e.g. agar-agar, gelatine, carrageenan, gellan gum, pectin and methylcellulose carbohydrate; experimenting using gelling agents, e.g. using agar-agar to make soup noodles or cream cheese noodles leavening, by: describing leavening as the expansion of dough or batter or baked products resulting in rising; explaining the purpose of leavening agents to improve the gas bubbles and rising of dough; recognising and explaining the effects of three different types of leavening agents, including biological agents, e.g. active dry yeast; chemical agents, e.g. baking powder and potassium bicarbonate; and physical processes, e.g. using air or steam; experimenting with different flours, e.g. plain flour, self-raising flour, bread flour, gluten-free flour; developing different versions of a leavened food, measuring the area, height and volume, photographing the internal texture and measuring the diameter of gas bubbles of each sample; recording results showing the impact of different flours and leavening agents; drawing conclusions to suggest the best leavening agents for different formulations reviewing the food processing techniques used to control the access to and consumability of carbohydrate-based food sources, including: application of cold by chilling, freezing; application of heat by boiling, baking, microwaving; exposure to air through dehydration; change of pH through the addition of acid and alkali, addition of additives, salt, sugar, antioxidants, yeast, baking powder, cream of tartar; and physical manipulation by aerating, kneading, rolling, shaping synthesising primary data from experiments to develop ideas about the formulation of a carbohydrate-based food solution explaining the relationships between the structure and functions of carbohydrate and the effects of these in food processing and on food product quality distribution, by <ul style="list-style-type: none"> explaining that processing and preservation techniques can increase access to carbohydrate-based food sources for all consumers and will affect transport, storage and distribution consumption, by <ul style="list-style-type: none"> investigating carbohydrate-based foods, including breads and cake batters, through experimentation, comparing the sensory properties of appearance, taste, texture, flavour and aroma research and development, by <ul style="list-style-type: none"> investigating alternative ingredients, e.g. natural sweeteners and resistant starch investigating alternative uses for carbohydrates, e.g. edible cutlery made of millet waste management and sustainability, by 	1			
	2	P 250 ,251,252, 253 Unit 3 Carbohydrate and Fat\Carbohydrates Unit\Carbohydrates.ppt Homework:	P 250 ,251,252, 253 Unit 3 Carbohydrate and Fat\Carbohydrates Unit\Carbohydrates.ppt Homework:	P 250 ,251,252, 253 Unit 3 Carbohydrate and Fat\Carbohydrates Unit\Carbohydrates.ppt Homework:
	3	P 250 ,251,252, 253 Recap Slide 19 Unit 3 Carbohydrate and Fat\Carbohydrates Unit\Carbohydrates.ppt Write up: Klab alternative solution Homework:	KLAB: P269 Spent grain Brownie Homework: Profiling	Write up: Spent Grain Brownie Summaries and profiling Slide 20
	4	Slides 27 - 33 KLAB : Leavening SLIDE 37 - 41 Write up: Unit 3 Carbohydrate and Fat\Carbohydrates Unit\K.lab Leavening Baking Powder + Results.docx Homework: finish write ups	KLAB: P253 Leavening Baking Powder Homework: Profiling	Write up: Unit 3 Carbohydrate and Fat\Carbohydrates Unit\K.lab Leavening Baking Powder + Results.docx Summaries and profiling Homework:
	5	SLIDES 42 - 45 Write up: Unit 3 Carbohydrate and Fat\Carbohydrates Unit\K.lab Leavening Steam + Results.docx Summaries and profiling	KLAB P254 Leavening Air (physical) Homework: Profiling	KLAB: Write up: Unit 3 Carbohydrate and Fat\Carbohydrates Unit\K.lab Leavening Steam + Results.docx Summaries and profiling
	6	SLIDES 50 - 54 KLAB Write up: Unit 3 Carbohydrate and Fat\Carbohydrates Unit\K.lab Cake Batter + Results.docx Summaries and profiling	KLAB P262 Cake batter Homework: Profiling	FOLIO Given Out CHECKPOINT 1: Write up: Unit 3 Carbohydrate and Fat\Carbohydrates Unit\K.lab Cake Batter + Results.docx Summaries and profiling
	7	Folio	Folio	CHECKPOINT 2:
	8	Folio	Folio KLAB ORDERS DUE	CHECKPOINT 3:
	9		INCURSION: 9.00AM – 2.50PM KLABS X 3 + SENSORY PROFILING	CHECKPOINT 4

<ul style="list-style-type: none"> ✦ researching alternative methods of waste management for carbohydrate-based food waste, including secondary products resulting from, and by-products of, processing, e.g. using spent grains - protection, by <ul style="list-style-type: none"> ✦ explaining the biological, chemical and physical changes that cause food spoilage in carbohydrate-based foods, including <ul style="list-style-type: none"> ○ biological changes caused by bacteria, yeast and moulds, such as fermentation and spore development ○ chemical changes of retrogradation and syneresis ○ physical changes such as evaporation of moisture in baked goods ✦ explaining that carbohydrate-based food sources can be semi-perishable, e.g. fresh pasta, bread and baked goods explaining that carbohydrate-based food sources can be non-perishable, e.g. processed foods such as crackers, dry pasta, flour and rice In this topic, students will: <ul style="list-style-type: none"> • recognise that a nutrition consumer market is represented by individuals and groups who purchase food products, goods and services for their own needs • analyse the nutrition requirements of different nutrition consumer markets, including individuals or groups who are elderly, healthconscious, fitness-focused, pregnant, vegetarian and vegan, infant, allergic or foodintolerant, experiencing diet-related conditions or chronic disease, such as obesity, type 2 diabetes, coronary heart disease and dietrelated cancer • research the nutrition consumer markets to determine the nutrition requirements for formulating foods to support health <ul style="list-style-type: none"> - conduct interviews with stakeholders to collect primary data about their food choices - determine appropriate dietary choices for nutrition market consumers to maintain or improve health • investigate emerging nutritional food trends, e.g. snack food products, gluten-free alternatives, probiotic products, lactose- and dairy-free alternatives, and sustainable use of byproducts, to produce new food products, and understand their purpose • explain that the purpose of formulation is to combine ingredients in appropriate ratios or structures, according to a formula or recipe • recognise that the purpose of reformulating food products is to produce a different combination of ingredients for a particular need • explain the purpose of the food standards code related to the labelling of nutritional content, ingredients, the nutrition information panel, and Nutrient Profiling Scoring Criterion (NPSC) • use the NPSC to analyse information and data on food packaging to determine the suitability for specific nutrition consumer markets • investigate and determine how food formulations solve problems associated with food choices for different consumers recognise that food products considered unsuitable for specific nutrition consumer markets can be reformulated to achieve suitable nutritional value and palatability to meet consumer needs <ul style="list-style-type: none"> • investigate needs or opportunities for formulating and reformulating products to enhance nutritional outcomes, including reducing salt, sugar and/or saturated fat, reducing additives or chemicals, increasing fibre, or using alternative ingredients • develop a list of food products high in salt, fat, sugar, gluten and lactose and low in dietary fibre to reformulate or create new or line extension prototypes to solve problems for nutrition consumer markets • research specific stakeholders and food products to collect primary and secondary data • use data to develop ideas to solve problems related to food reformulations for specific nutrition consumer markets • experiment and test ideas and solutions for food formulations for specific nutrition consumer markets, including quality, functionality and reliability record and analyse data to draw conclusions about the feasibility of a solution for a specif 	10			
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<ul style="list-style-type: none"> In this topic, students will: <ul style="list-style-type: none"> • explore the problem, by <ul style="list-style-type: none"> - recognising and describing facts and principles about nutrition consumer market problems <ul style="list-style-type: none"> - explaining ideas and problems in a range of nutrition consumer market contexts - analysing the problem stimulus to understand and identify <ul style="list-style-type: none"> ▪ relevant stakeholders ▪ essential features, characteristics and constraints of the problem - researching nutrition requirements of one of the following nutrition consumer markets <ul style="list-style-type: none"> ▪ elderly ▪ health-conscious ▪ fitness-focused ▪ vegetarian and vegan ▪ pregnant ▪ infant ▪ consumers with allergies or food intolerance 	4			
<ul style="list-style-type: none"> chronically ill consumers, including people with the health conditions of obesity, heart disease, type 2 diabetes or diet-related 	5			

- cancer
- developing a design brief that clearly determines the specifications, including
 - nutrition consumer market needs or opportunities
 - principles of food science, food safety and legislation related to the context
 - essential features, characteristics and constraints of the problem
 - developing self-determined criteria to evaluate the proposed solution, including
 - design brief specifications
 - personal, social, ethical, economic, environmental, legal, sustainable and technological implications of the solution
 - quality, functionality and reliability of the solution
 - develop ideas, by – researching required knowledge and processes from primary and/or secondary sources about the food and nutrition problem, through methods such as
 - conducting interviews with target market consumers to collect primary data
 - experimenting with the processing of components to develop ideas and collect primary data
 - researching the latest trends, raw materials and processing techniques to develop possible ideas and collect secondary data
 - synthesising information and data to develop ideas for alternative solutions – determining whether formulation or reformulation ideas match design brief specifications
 - generate a solution to provide data, by
 - creating the solution
 - testing the quality, functionality and reliability of the solution, recording results in graphical or tabulated form
 - evaluate the solution, by – using self-determined criteria and generated data to make judgments about the feasibility of the solution
 - refining ideas and a proposed solution – making justified recommendations about the solution for future enhancement.

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The screenshot shows a web-based 'Course/Assessment Planner' interface. The main table lists topics and their corresponding assessments:

Term	Week	Topic	Unit	Assessment	Due Date
1	1				
1	2				
1	3				
1	4				
1	5				
1	6	Carbohydrates	3	Carbs - Checkpoint 1	Due: 04-Mar-2022
1	7	Carbohydrates	3	Carbs - Checkpoint 2	Due: 11-Mar-2022
1	8	Carbohydrates	3	Carbs - Checkpoint 3	Due: 18-Mar-2022
1	9	Carbohydrates	3	Carbs Inursion KLAB - 9.00am - 2.00pm	Due: 23-Mar-2022
1	10				
2	1	Formulations	3		
2	2	Carbohydrates	3	Carbs Inursion KLAB - 9.00am - 1.00pm	Due: 27-Apr-2022
2	3	Carbohydrates	3	Carbs FINAL COPY	Due: 06-May-2022
2	4				
2	5				
2	6				
2	7				
2	8				
2	9				
2	10				