

TEACHING AND LEARNING PROGRAM

Year: Preliminary 2000, HSC 2001

Course: FOOD TECHNOLOGY

RATIONALE

This program addresses the interests of its clientele with a practical, skills based focus.

In particular, the Preliminary course has been designed around four units of work of equal length. Each unit addresses outcomes from the three core strands in a suitable combination to allow practical work to be spread throughout the year, rather than be focused mainly on one strand.

The HSC is structured around Core strands outlined in the syllabus to provide a logical progression toward the HSC examination.

SCHOOL SITUATION

Food Tech High School opened in 1982 with an enrolment of students which in 1992 peaked at 1569 students. The current enrolment of the school is 950.

The school is committed to offering a wide range of courses in both junior and senior years and has a strong enrolment of students in Joint Secondary Schools TAFE courses. Dual accredited courses are popular at the school, with many students studying Hospitality CEC.

Food Technology is promoted in the school to senior students for its benefits in entitling students to accreditation in combination with Hospitality CEC, for Hospitality based courses at the local TAFE, which offers a wide range of courses in this area.

Students see the combination of the two courses as a stepping stone to a Hospitality based career.

This Food Technology program has been tailored to suit the interests of students who are interested in trade based careers in Hospitality, but also for those students who have enjoyed Junior Food Technology with its practical focus.

A number of students in past years have entered university to complete courses in Food Technology related areas.

RESOURCES

Food Tech High School has two fully equipped food laboratories which provide the opportunity for the course to be wholly taught within the confines of a practical learning space. This ensures the practical focus of the program is implemented without compromise.

In nearby learning spaces are clusters of 7 computers which provide opportunities to meet the outcomes of the course related to presenting ideas in written and graphic form using computer software. The school also has a well equipped library with internet access, and three computer rooms which are available for use by Food Technology students when the need arises.

The nearby TAFE college also provides for valuable extension experiences in a commercial kitchen setting.

SYNOPSIS

This program aims to develop an understanding about all aspects of food and decisions involving food which affect the wellbeing of the individual and also the social and economic future of Australia.

Students will develop knowledge and understanding of food systems and nutrition. They will gain skills in researching, analysing and communicating. Skills will also include experimenting with and preparing food, and designing, implementing and evaluating solutions to food situations.

The structure of the program is centred around practical work throughout four units of work in the Preliminary course, followed by four units of work which directly follow syllabus Core strands for the HSC course.

TABLE OF UNITS:

Notes:

Three core strands of the Preliminary course make up 100% of the course (see syllabus 1999, page 9).

In this program, four units of work have been designed by combining aspects of the three core strands into four units of work each of equal time. The aim in doing this has been to achieve meaningful and relevant practical application throughout the course and to relate practical work to all three core strands.

It is considered that the recommended percentages of each of the core strands have been addressed over the total course length of 26 weeks, allowing a total of 4 weeks for examinations.

Three core strands and one option strand make up 100% of the HSC course (see syllabus, page 9).

In this program, content for units of work duplicate exactly the core strands and the “Contemporary Food Issue: Nutrition” from the syllabus.

For the purposes of calculating length of units, the assumption has been made that, allowing for a total of 4 weeks for examinations, a total of 36 weeks is available.

TABLE OF UNITS
Preliminary

<p>UNIT ONE: Length 6-7 weeks FOOD AVAILABILITY AND SELECTION Factors affecting food selection - physiological - psychological</p>	<p>FOOD QUALITY Sensory characteristics of food - layout of food for visual appeal Safe preparation and storage of foods. FOCUS: fruits and vegetables.</p>	<p>NUTRITION Food Nutrients: Identification vitamins, minerals, water. - classes - sources - function in the body Significant inter-relationship between nutrients.</p>
<p>UNIT TWO: 6-7 weeks FOOD AVAILABILITY AND SELECTION Influences on food availability - historical - technological</p>	<p>FOOD QUALITY Safe preparation and storage of foods FOCUS: carbohydrate-rich foods role in food preparation</p>	<p>NUTRITION Carbohydrates - structure - sources - function in the body - digestion, absorption and metabolism</p>
<p>UNIT THREE: 6-7 weeks</p>	<p>FOOD QUALITY Safe preparation and storage of foods FOCUS: protein rich foods role in food preparation.</p>	<p>NUTRITION Proteins - structure - sources - function in the body - digestion, absorption and metabolism Diets for optimum nutrition - nutritional requirements - current food selection guides - preparation techniques</p>

<p>UNIT FOUR: 6-7 weeks</p> <p>FOOD AVAILABILITY AND SELECTION</p> <p>Factors affecting food selection</p> <ul style="list-style-type: none"> - social - economic <p>INFLUENCES ON FOOD AVAILABILITY</p> <ul style="list-style-type: none"> - social - economic - political 	<p>FOOD QUALITY</p> <p>Safe preparation and storage of foods</p> <p>FOCUS:</p> <p>lipid rich foods</p> <p>role in food preparation.</p>	<p>NUTRITION</p> <p>Lipids</p> <ul style="list-style-type: none"> - structure - sources - function in the body - digestion, absorption and metabolism
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**FOOD TECHNOLOGY
SCHOOL BASED ASSESSMENT SCHEDULE**

No.	Task Name/Description	Type	Value	Timing
1	Australian Staple: Trace history of production	ESSAY Research / analysis / communication	30%	Term 1 Week 10
2	Moist and dry heat on starches Individual experimental work	EXPERIMENT experimentation and preparation	30 %	Term 2 Week 3
3	Half yearly examination	WRITTEN RESPONSE knowledge and understanding	10%	Term 2 Week 6
4	Nutrition pamphlet design for issue to primary age children	DESIGN WORK design, implementation, and evaluation	20%	Term 3 Week 4
5	Yearly examination	WRITTEN RESPONSE knowledge and understanding	10%	Term 3 Week 8

Title: UNIT ONE

Timing: 6-7 WEEKS **Course:** PRELIMINARY

OUTCOMES:

A student:

- P1.2 accounts for individual and group food selection patterns in terms of physiological, psychological, social and economic factors
- P2.2 identifies and explains the sensory characteristics and functional properties of food
- P2.1 explains the role of food nutrients in human nutrition
- P4.1 selects appropriate equipment, applies suitable techniques, and utilises safe and hygienic practices when handling food
- P4.2 plans, prepares and presents foods which reflect a range of the influences on food selection
- P4.4 applies an understanding of the sensory characteristics and functional properties of food to the preparation of food products.

RESOURCES:

Texts

Burnett - Fell et al A Food Technology in Action@ 1994 Jacaranda
Commonsense Cookery Book One
Sullivan Food Technology Applications 1996 Heinemann
C.A.F.T.A. et al Case Studies in the Food Industry 1994 B.O.S.

Organisations

CSIRO Sensory Research Centre PO Box 52 Nth Ryde NSW 2113 ph. 02 98878333

Videos

Indiana Jones and the Temple of Doom (banquet scene)
The Famine Within
Selecting and Storing Fruit and Vegetables (VEA)
Enzymes, Pectin and Pigments (VEA)

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Safe preparation and presentation of food</p> <ul style="list-style-type: none"> – equipment and utensils to produce quality food products across a range of settings – safe and hygienic work practices 	<ul style="list-style-type: none"> • select appropriate equipment and utensils to produce quality food products across a range of settings • implement safe and hygienic work practices when handling food 	P4.2		<p>Practical Application</p> <p>Prepare a meal suitable for a child in nutrient content and visual appeal. Prepare a selection of garnishes using fruits and vegetables - Photograph finished garnish examples. Discussion – quality indicators for basic food types. Discussion/note taking – personal hygiene.</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<ul style="list-style-type: none"> • factors that affect the functional properties of fruits and vegetables, including <ul style="list-style-type: none"> – oxygen – temperature – acidity – agitation – enzymes – addition of other ingredients <p>Safe storage of food</p> <ul style="list-style-type: none"> • methods of storing food to maintain quality such as dry storage, cold storage and freezing • preparation methods to produce food products across a range of settings 	<ul style="list-style-type: none"> • investigate through experimentation the factors that affect the functional properties of foods • prepare a range of foods which demonstrate the functional properties of food • describe methods of storing foods to maintain sensory characteristics and ensure safety • select and apply suitable preparation methods to produce quality food products and plate meals for service across a range of settings 			<p>Experimental work</p> <p>Fruits and vegetables (videos to illustrate principles) Cooking methods suitable for – green vegetables – red vegetables</p> <p>Effects of oxidation and enzymes on fruits, vegetables Examination of ph levels of a selection of foods Storage methods – experimental work to determine desirable methods</p> <p>Fruit and vegetable dishes to illustrate principles – mixed vegetable stir fry – apple crumble</p>

Assessment

- Practical food display and photography exercise
- Case study exercise – nutritional requirements of different people
- Written report on personal hygiene and its relationship to food safety
- Results and conclusions from experimental work with vegetables and fruits
- Unit test including a case study about nutritional requirements at life cycle stages

Title: UNIT TWO

Timing: 6-7 WEEKS **Course:** PRELIMINARY

OUTCOMES:

A student:

P1.1 identifies and discusses a range of historical and contemporary factors which influence the availability of particular foods

P2.2 identifies and explains the sensory characteristics and functional properties of food

P4.1 selects appropriate equipment, applies suitable techniques and utilises safe and hygienic practices when handling food

P4.4 applies an understanding of the sensory characteristics and functional properties of food to the preparation of food products.

RESOURCES:

Texts

Burnett -Fell Food Technology in Action 1994 Jacaranda
Bush Foods

Sullivan Food Technology Applications 1996 Heinemann
Commonsense Cookery Book One

Guest Presenter

Bush Tucker Man

Field Trip

McDonalds Restaurant (Food safety)

Videos

- Quantum Heartlands Series - Rations to Rice Bubbles
- Bush Tucker Man (ABC TV)
- The Bread We Eat

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Influences on food availability</p> <ul style="list-style-type: none"> • historical changes to the availability of food, including: <ul style="list-style-type: none"> – global migration of cultural groups – use of foods native to Australia 	<ul style="list-style-type: none"> • outline the historical changes to food availability in Australia 	P1.1		<p>Use of world map to depict migration of different cultural groups – identify carbohydrate based staples used as the basis for foods eaten. Note taking and discussion about origins of humans as hunter, gatherers and progression to domestication of animals to the consumer society. Video – Quantum – Rations to Rice Bubbles Examination and use of aboriginal bush foods Guest presenter – “Bush Tucker Man” Interview a person born in the 1910-30 decades to gain a perspective on foods available then. Research to complete a time line of one Australian food industry eg wheat, sheep, beef.</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Safe preparation and presentation of food</p> <ul style="list-style-type: none"> • safe and hygienic work practices when handling food 	<ul style="list-style-type: none"> • implement safe and hygienic work practices when handling food 	P4.1		<p>Discussion and note taking – importance of hygiene by clean work areas related to the above practical work Practical Application to demonstrate correct hygiene and food handling methods in food production</p> <p>Practical Application</p> <p>Class assembly line for muffin production: students to discover possible points for food contamination on assembly line.</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Safe storage of food</p> <ul style="list-style-type: none"> • methods of storing foods to maintain quality such as dry storage, cold storage and freezing <p>Food nutrients</p> <ul style="list-style-type: none"> • digestion, absorption and metabolism of food 	<ul style="list-style-type: none"> • describe methods of storing foods to maintain sensory characteristics and ensure safety • describe the process of digestion, absorption and metabolism of food 	P4.1		<p>Practical Application</p> <p>Experimental work to examine aspects of safe storage of carbohydrate rich foods eg</p> <ul style="list-style-type: none"> - starch gels – factors influencing shelf life - natural contaminants for breads – storage methods to preserve - suitability of various methods to store/ preserve cooked, uncooked carbohydrate foods <p>Excursion – examine food safety measures employed at the local McDonalds restaurant – in food production, storage and service areas of restaurant.</p> <p>Discussion and note taking Kit with overhead transparencies</p> <ul style="list-style-type: none"> - Digestion Simplified - Digestion Specified

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Influences on food availability</p> <ul style="list-style-type: none"> • technological developments influential on food availability, including <ul style="list-style-type: none"> – production and manufacturing processes and equipment techniques – storage and distribution techniques – marketplace practices 		P1.1		<p>Video “The Bread We Eat” to depict change in technology use in food production. Students to research change in implements used to grow, harvest, produce a carbohydrate rich crop such as wheat. Note taking and discussion Text – Sullivan: Food Technology Applications (p.19)</p>

Assessment

- Research assignment – An Australian Staple – trace history of production
- Results and conclusions from experiments on carbohydrate rich foods
- Written report on video “The Bread We Eat” describing use of technology in food production
- Industry report on food safety policies and procedures employed by McDonalds
- Half yearly examination

Title: UNIT THREE **Timing:** 6-7 WEEKS **Course:** PRELIMINARY

OUTCOMES:

A student:

- P2.2 identifies and explains the sensory characteristics and functional properties of food
- P3.1 assesses the nutrient value of meals/diets for particular individuals and groups
- P3.2 presents ideas in written, graphic and oral form using computer software where appropriate
- P4.1 selects appropriate equipment, applies suitable techniques and utilises safe and hygienic practices when handling food
- P4.3 selects foods, plans and prepares meals/diets to achieve optimum nutrition for individuals and groups
- P4.4 applies an understanding of the sensory characteristics and functional properties of food to the preparation of food products
- P5.1 generates ideas and develops solutions to a range of food situations.

RESOURCES:

Texts

Burnett – Fell et al Food Technology in Action 1994 Jacaranda
Food Technology Applications 1996 Heinemann

Kits

Food: Your Choice (NSW Dairy Corporation 1989: Nutrition Education Service, 55 Grafton Street, Bondi Junction NSW 2022)
Digestion Simplified, Digestion Specified (Teaching Resources, Dept of Ed.)

Computer Software

Nutrivision

Journals

Australian Nutrition Foundation Monthly Newsletter "Pabulum" and relevant brochures ph. 02 9552 3081, 1-3 Derwent Street, Glebe
NSW 2037

Pamphlets

Food Safety at School and Work (AMLS toll free 1800 647 284) (Locked Bag 991 North Sydney NSW 2059)

Video

Buying and Storing Food Safely (VEA)

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Safe preparation and presentation of food</p> <ul style="list-style-type: none"> • equipment and utensils to produce quality food products across a range of settings • preparation methods to produce food products across a range of settings 	<ul style="list-style-type: none"> • select appropriate equipment and utensils to produce quality food products across a range of settings • select and apply suitable preparation methods to produce quality food products and plate meals for service across a range of settings 	<p>P5.1</p> <p>P4.1</p> <p>P4.3</p>		<p>Plan and prepare choice of meals to suit requirements listed above Present nutrient breakdown of chosen meal, using computer software. Present appropriate utensils and ingredients lists for meal to be prepared Research and evaluate chosen method(s) of cooking the food for its suitability to conserve nutrients, flavour, colour and texture eg stir fry vs deep fry, or steaming vs boiling Revise food presentation methods to promote appeal</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Safe storage of food</p> <ul style="list-style-type: none"> • methods of storing food to maintain quality such as dry storage, cold storage and freezing 	<ul style="list-style-type: none"> • describe methods of storing foods to maintain sensory characteristics and ensure safety 	P4.1		<p>Note taking and discussion about special requirements of protein-rich foods for safe storage Stimulus material – pamphlet “Food Safety at School and Work” Video – Buying and Storing Food Safely Practical Application Demonstrate correct hygiene procedures in a domestic situation eg Thai Beef Salad - combination of fresh flesh food and vegetables Write a report about safe storage of protein foods following a visit to a supermarket to observe correct storage in a commercial setting Visit a delicatessen/butcher area of a shopping plaza – investigate storage methods used for meats (fresh and processed)</p>

Assessment

- Food preparation of choice of a meal which illustrates adolescent nutritional needs
- Research assignment on nutritional educational aids such as the Target on Healthy Living
- Results and conclusions of experiments with protein rich foods
- Oral presentation of nutrition pamphlet design for primary age children*
- Industry report – visit to supermarket to examine food storage practices to ensure quality and safety

* denotes formal assessment task

Title: UNIT FOUR

Timing: 6-7 WEEKS **Course:** PRELIMINARY

OUTCOMES:

A student:

P1.2 accounts for individual and group food selection patterns in terms of physiological, psychological, social and economic factors

P2.2 identifies and explains the sensory characteristics and functional properties of food

P4.1 selects appropriate equipment, applies suitable techniques and utilises safe and hygienic practices when handling food

P4.4 applies an understanding of some functional properties of food to the preparation of food products.

RESOURCES:

Texts

Burnett – Fell “Food Technology in Action” 1994 Jacaranda
AGPS Australia’s Health 1994 AGPS (ISBN 0 644 349220)
Lester | Australia’s Food and Nutrition 1994 AGPS (ISBN 0 644 34881)
Sullivan Food Technology Applications 1996 Heinemann

Videos

Quantum Heartlands Series – The Hard Sell (ABC TV)
Supermarket Persuasion (VEA)

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Factors affecting food selection</p> <ul style="list-style-type: none"> • social factors, including: <ul style="list-style-type: none"> – traditions and culture – lifestyle eg employment, education, household structures, roles, geographic location, interests – social interaction eg peer group, family hospitality – media 	<ul style="list-style-type: none"> • investigate current food consumption and expenditure patterns in Australia 	P1.2		<p>Note taking and discussion Conduct research into factors affecting the health of Australians – present findings to class – choices may include:</p> <ul style="list-style-type: none"> excesses of <ul style="list-style-type: none"> – fats – refined carbohydrates – salt – sugar deficiencies of <ul style="list-style-type: none"> – fibre – vitamins / minerals <p>Examine current ABS statistics related to consumption of food groups, including current market basket survey (AGPS) Reference: current ABS Year Books, Australia’s Health, Australia’s Food and Nutrition Investigate and record messages conveyed through the media which promote or ignore good health practices. Evaluate findings. Video – Quantum Series – “The Hard Sell” Survey peer group to determine influences on eating patterns Select an alternative group to carry out similar research – for example, primary age children, a group of office workers</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<ul style="list-style-type: none"> • economic factors, including: <ul style="list-style-type: none"> – the marketplace (retail and purchasing practices) – resource availability such as food processing equipment and food preparation skill – occupation and finances 	<p>analyse the eating patterns of a selected group to identify influences on food selection</p>	<p>P1.2</p>		<p>Note taking and discussion Record family eating patterns for one week – analyse findings in terms of meals eaten with family or away from home, degree of cooking which occurs in the home, use of preprepared / convenience foods Analyse a weekly supermarket shopping docket for the family to construct a profile on family eating habits (Reference: Sullivan p.31-2)</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Influences on food availability</p> <ul style="list-style-type: none"> • social, economic and political influences on food availability, including – effects of poverty and affluence – type and state of the economy – government policy eg taxation, tariffs, embargoes, subsidies, war, export strategies 		P1.2		<p>Note taking and discussion on social, economic and political influences on food availability. Use relative poverty cycle to illustrate economic affects</p> <p>Guest speaker – St Vincent de Pauls Foundation, or Smith Family</p> <p>Collect and analyse newspaper articles related to economic and political influences on food production</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Functional properties of food</p> <ul style="list-style-type: none"> - the role of fats in emulsifying and aerating - structure of lipids - sources of lipids - functions of lipids in the body - digestion, absorption and metabolism of lipids 	<ul style="list-style-type: none"> • identify types of lipids • describe the process of digestion, absorption and metabolism of lipids 	<p>P2.2</p> <p>P4.4</p>		<p>Note taking and discussion – lipid molecule structure and lipid types Fatty acid types and necessity for all to be present in the body Note taking – functions of lipids in the body, food sources of lipids</p> <p>Practical Application</p> <p>Demonstration, experimental work and practical work to illustrate principles of lipid use in cookery eg emulsifying - mayonnaise aerating - sausage rolls (flaky pastry) apple pie (short crust pastry) fats in frying - corn fritters (shallow) - potato chips (deep)</p> <p>Discussion and note taking with use of overheads from Digestion simplified and Digestion specified</p>

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Safe preparation and presentation of food</p> <ul style="list-style-type: none"> • safe and hygienic work practices when handling food • preparation methods to produce food products across a range of settings <p>Safe storage of food</p> <ul style="list-style-type: none"> • methods of storing lipids to maintain quality such as dry storage, cold storage and freezing 	<ul style="list-style-type: none"> • implement safe and hygienic work practices when handling food • select and apply suitable preparation methods to produce quality food products and plate meals for service across a range of settings • describe methods of storing lipids to maintain sensory characteristics and ensure safety 	P4.1		<p>Illustrate dangers when using hot oils in food preparation Compare safety measures used commercially with those available in the domestic setting eg temperature cut out / control use of specific clothing for safety assurance</p> <p>Note taking and discussion about special requirements of lipid rich foods for storage Methods most suitable to prevent rancidity and off flavours from developing</p>

Assessment

<ul style="list-style-type: none"> • Class debate about lifestyle links to health – where do hereditary factors fit? • Case study report on peer group (or alternative) to assess influences on food selection • Results and conclusions from experiments on lipids • Oral presentation of family eating patterns based on data collected over one week • Media report – analysis of images of nutrition and health promoted in media
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Title: AUSTRALIAN FOOD INDUSTRY

Timing: 5-6 weeks

Course: HSC

OUTCOMES:

A student:

H1.2 describes the nature and extent of the Australian food industry

H3.1 investigates operations of one organisation within the Australian food industry.

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
Career opportunities and working conditions	<ul style="list-style-type: none"> identify career opportunities and working conditions, including gender issues within the Australian food industry 			Guest speaker Local TAFE teacher to explain career pathways to Food Industry Discussion and note taking (Reference: Case studies in the Food Industry pp.95-101) Outline of career paths available in food production, retail, service, management

Students learn about:	Students learn to:	Outcome No.	Register	Strategies and activities:
<p>Policy and legislation</p> <p>\$ advisory groups that have a role in formulating and implementing policy and legislation</p> <p>\$ government policies and legislation (local, state, federal) that impact on the Australian food industry</p>	<p>\$ identify significant government policies and legislation and explain their impact upon the Australian food industry</p>	<p>H1.2</p>		<p>Guest speaker – Local Environmental Health Surveyor to illustrate local and state government Health Policies and legislation – local examples can be used of breaches of policies</p> <p>Written report on guest speaker as an outline of legislation governing food production and service and impact on local food industry</p> <p>Note taking and discussion about</p> <ul style="list-style-type: none"> \$ The Food Act (1989) \$ Fair Trading Act (1987) \$ Trade Measurement Act (1989) \$ Trade Practices Act (1974) \$ Australian Quarantine and Inspection Service <p>Reference: Case Studies in the Food Industry (p.47) Karuma prawns</p> <p>Video: Our Food Regulators</p> <p>Note taking and discussion about the consultative role of the following in policy formation</p> <ul style="list-style-type: none"> \$ Australia New Zealand Food Authority (ANZFA) (Brochure: Service Charter, Australia New Zealand Food Authority) \$ Australian Consumers Association (ACA) \$ Council for Australian Food Technologists (CAFTA) \$ National Food Standards Council (NFSC)

Assessment – Australian Food Industry

- \$ Scrap book of articles relating to developments in the Australian Food Industry
- \$ * Research a catering or food service outlet and present a report
- \$ Debate issues related to Australian owned companies and foreign produced foods
- \$ Written report about activities of local environmental health surveyor related to food issues
- \$ Unit test to assess knowledge and understanding

* denotes formal assessment task