



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

FOOD SCIENCE AND TECHNOLOGY

ATAR COURSE

Year 12 syllabus

IMPORTANT INFORMATION

This syllabus is effective from 1 January 2017.

Users of this syllabus are responsible for checking its currency.

Syllabuses are formally reviewed by the School Curriculum and Standards Authority on a cyclical basis, typically every five years.

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Rationale

Food impacts every aspect of daily life and is essential for maintaining overall health and wellbeing. The application of science and technology plays an important role in understanding how the properties of food are used to meet the needs of consumers and producers. Food laws and regulations govern the production, supply and distribution of safe foods. Students develop food-related understandings and attitudes that enhance their problem-solving abilities and decision-making skills.

In the Food Science and Technology ATAR course, students explore innovations in science and technology and changing consumer demands. New and emerging foods have encouraged the design, development and marketing of a range of products, services and systems. Students investigate food issues and advertising strategies used to promote food products. They examine influences on the supply of food for the world's population and explore issues associated with food security, equity and sustainability.

This course enables students to develop their interests and skills through the design, production and management of food-related tasks. They develop knowledge of the sensory, physical, chemical and functional properties of food and apply these in practical situations.

Food and allied health sectors represent a robust and expanding area of the Australian and global employment markets. The Food Science and Technology ATAR course enables students to connect with further education and training, university and employment pathways and enhances employability and career opportunities in areas that include nutrition, health, food and beverage manufacturing, food processing, community services, hospitality, and retail.

Course outcomes

The Food Science and Technology ATAR course is designed to facilitate achievement of the following outcomes.

Outcome 1 – Understanding food

Students understand foods are used and processed to meet identified needs.

In achieving this outcome, students:

- understand the properties of foods and related equipment used to meet needs
- understand foods are used to meet the body's needs
- understand the nature and operation of food-related systems.

Outcome 2 – Developing food opportunities

Students apply the technology process to develop food-related products, services or systems.

In achieving this outcome, students:

- investigate issues, values, needs and opportunities
- devise and generate ideas and prepare production proposals
- organise, implement and manage production processes in food-related environments
- produce food products, services or systems
- evaluate plans, results and actions.

Outcome 3 – Working in food environments

Students apply skills and operational procedures to work in productive food-related environments.

In achieving this outcome, students:

- apply self-management and communication skills in food-related environments
- apply organisational skills when undertaking food-related challenges and activities
- apply operational procedures and practical skills to safely meet defined standards.

Outcome 4 – Understanding food in society

Students understand food products, systems and innovations in relation to current and future development.

In achieving this outcome, students:

- understand that beliefs and values of consumers and producers impact on food-related technologies
- understand that resource management decisions affect developments in food-related industries
- understand the importance of safe, sustainable practices when developing and using food-related technologies.

Organisation

This course is organised into a Year 11 syllabus and a Year 12 syllabus. The cognitive complexity of the syllabus content increases from Year 11 to Year 12.

Structure of the syllabus

The Year 12 syllabus is divided into two units which are delivered as a pair. The notional time for the pair of units is 110 class contact hours.

Unit 3 – Food diversity and equity

This unit focuses on the relationships between food science and technology, food consumption patterns and issues of food diversity and equity in Australian society. Students investigate biotechnology and the process of genetic modification and determine the benefits and risks involved. They analyse factors that influence food selection, including advertising and marketing practices. Influences on the development and production of functional foods, food products, services and systems are examined.

Students investigate the principles of the Hazard Analysis Critical Control Point (HACCP) system to manage food safety, and the associated laws and regulatory codes to ensure food for sale is safe and suitable for human consumption. Using the technology process, students trial and adapt recipes and processing techniques to devise and produce food products that demonstrate functional properties of food. Students evaluate and analyse processes and results, justifying choices and drawing conclusions. They make recommendations to adjust and improve processing techniques.

Unit 4 – The future of food

In this unit, students explore how food production systems can provide a sustainable supply of food for current and future world populations. They examine technologies that create innovative food products and investigate influences on global food supply, unequal distribution of food resources and consequences of global food inequity. Influence of food innovation in the development of food products and the impact of food availability, selection, consumption and the nutritional value of food for specific demographic groups are investigated.

Students examine the role and responsibility of organisations that control foods imported into Australia and the advertising and marketing laws related to food and beverages. Using the technology process, students collect, interpret and analyse data to examine practices used to develop new food products. They trial and adapt recipes and processing techniques to develop a food product. Students evaluate, analyse, draw conclusions and make recommendations when assessing the features and suitability of new food products.

Each unit includes:

- a unit description – a short description of the focus of the unit
- unit content – the content to be taught and learned.

Organisation of content

For each unit, the content is organised into:

- Nature of food
- Processing food
- Food in society.

Nature of food

Food as a commodity

Environmental issues of water, land, chemical and energy use, and waste disposal impact sustainable practices in the production of food commodities. Innovative developments in value-adding, functional food, improved safety procedures and packaging increase the availability of food. Use of biotechnology in food systems has the potential to increase food production and provide a sustainable supply of food for current and future world populations. Genetic modification provides opportunities to improve yield, nutrition and sensory properties, resistance to environmental conditions and lower commodity prices for the consumer.

Properties of food

Foods are complex mixtures of substances composed of nutrients and chemical compounds. These mixtures and how they are combined and processed give foods their sensory, physical and chemical properties. The changes that occur during food preparation, processing and storage are described as the functional properties of foods, not all of which are desirable. The functional properties of foods determine the way foods are selected, stored, prepared and presented. Processing techniques, ingredients and additives impact the properties of food and use in developing food products. Various filtration methods, high pressure processing, use of micro-encapsulation, nanotechnology and packaging technologies are applied to create innovative foods and products for consumers.

Nutrition

Ensuring a balanced diet appropriate to individual needs and optimal health requires an understanding of food values, the food source, and the role of specific macronutrients and micronutrients in the body. Nutrition-related health conditions, such as the effect of under-consumption of nutrients on health, including anaemia, osteoporosis, malnutrition and constipation and the over-consumption of nutrients, including obesity, cardiovascular disease and Type 2 diabetes are explored. Food selection models, dietary guidelines and goal setting are used to achieve and evaluate nutritional health.

Processing food

Food products and processing systems

The technology process is used to create food products, services and systems. The process involves investigating, devising, producing and evaluating the functional properties of food to develop a range of food products. Product proposals are used to guide the technology process and analyse the final outcome. Development of new, innovative food products is managed by organising, implementing and adjusting processes in response to constraints, challenges and feedback. A range of methods is used when testing, reporting, evaluating and analysing food products.

Food in society

Food issues

Beliefs and values that relate to needs, wants, lifestyles, health and living standards underpin food issues of individuals and communities. Solutions to issues often trigger innovations and trends in foods and related industries. These, however, may have unforeseen ethical, environmental, economic, social and health consequences that in turn create new and different issues. Informed consumers understand concepts, such as planning, pricing, placement, packaging, distribution, sales and advertising when making decisions about product selection.

Laws and regulatory codes

Legal processes regulate the interaction between consumers and food-related enterprises. Industry and consumer associations work to influence policy, legislation and practices impacting systems that regulate food availability, safety and quality. Food handling and related risk management systems, advertising, labelling, processing and production practices, occupational safety and health requirements are regulated in Australia.

Representation of the general capabilities

The general capabilities encompass the knowledge, skills, behaviours and dispositions that will assist students to live and work successfully in the twenty-first century. Teachers may find opportunities to incorporate the capabilities into the teaching and learning program for the Food Science and Technology ATAR course. The general capabilities are not assessed unless they are identified within the specified unit content.

Literacy

Students develop literacy capability as they communicate ideas, concepts and detailed proposals for a variety of audiences. They comprehend and compose a range of visual and digital texts, read and interpret detailed written instructions, such as product proposals and recipes for devising, producing and analysing food products and processing systems. They prepare detailed specifications for production, analyse sources of information that influence food choices and the health and wellbeing of individuals, families and communities in an organised, logical and coherent manner. They learn to understand and use language to discuss and communicate information, concepts and ideas related to food, for example, food diversity and security.

Numeracy

Students develop and apply numeracy knowledge and skills to gather, analyse, interpret and present information in numerical and graphical form, draw conclusions and make recommendations. They identify patterns and relationships in data and use these to identify trends in consumer choices, food innovation and food production practices. Students use numerical skills to calculate and estimate quantities and costings, and measure and record throughout the process of developing food products and production processes.

Information and communication technology capability

Students develop information and communication technology (ICT) capability as they learn to use and apply ICT effectively and appropriately to access, create and communicate information and ideas, solve problems and work collaboratively. They develop the knowledge and skills to use digital technologies to locate, organise, analyse, represent and present information to create prototypes, and control and monitor processes. Students develop design ideas, generate production plans and communicate solutions when producing safe, quality food.

Critical and creative thinking

Students develop capability in critical and creative thinking as they learn to generate and evaluate knowledge, clarify concepts and ideas, seek possibilities, consider alternatives and solve problems. They learn how to critically evaluate evidence, explore alternatives and share ideas by engaging in innovative practices in the provision of food products and food services for consumers.

Personal and social capability

Students develop personal and social capability as they learn to understand themselves and others, manage their relationships, appreciate their own strengths and abilities and develop a range of self-management and interpersonal skills. Students learn to work collaboratively and use management strategies that recognise strengths, promote negotiation, enhance leadership, personal and social resilience and encourage effective relationships within the workspace and in project management roles.

Ethical understanding

Students develop ethical understanding as they identify and investigate the nature of ethical concepts, values and principles, and understand how reasoning can assist ethical judgement. They learn the importance of treating others with integrity, compassion and respect, value diversity and reflect on ethical principles of food choices considering animal welfare, fair trade and resource use. Students are encouraged to develop informed values and attitudes.

Intercultural understanding

Students develop intercultural understanding as they learn about, and engage with, diverse cultures in ways that recognise commonalities and differences, and cultivate mutual respect, particularly when making food decisions. They develop an understanding of how culture shapes personal and social perspectives, and appreciate differences in beliefs and perspectives that may cause tension between individuals and groups. Students develop strategies to maintain and foster cultural diversity in the preparation, processing, storage, and presentation of food and during food service.

Representation of the cross-curriculum priorities

The cross-curriculum priorities address contemporary issues which students face in a globalised world. Teachers may find opportunities to incorporate the priorities into the teaching and learning program for the Food Science and Technology ATAR course. The cross-curriculum priorities are not assessed unless they are identified within the specified unit content.

Aboriginal and Torres Strait Islander histories and cultures

This course provides an opportunity for students to learn about, and appreciate, Aboriginal and Torres Strait Islander histories and cultures through similarities and differences in food sources, preparation methods and environmental practices. Students may explore a range of practices and strategies used within different communities to manage, maintain and promote healthy lifestyles and wellbeing of all members and ensure the sustainability of food sources from one season to the next.

Asia and Australia's engagement with Asia

This course provides an opportunity to learn about the uniqueness and diversity of social structures and systems, ethnic backgrounds, cultures and food choices in communities within the Asia region. An understanding of Asia underpins the capacity of Australian students to be active and informed citizens, working together to build harmonious local, regional and global communities. Students reflect on traditional, contemporary and emerging technological achievements in the supply, processing and development of varieties of fresh produce and influences on food choices, such as culture, traditions, lifestyle and ethical issues; all of which impact on Asia and Australia's engagement with Asia.

Sustainability

This course provides an opportunity for students to learn how changes in Australian and global demographics, trends in life expectancy, the diversity and nature of society, technological advances and social, economic and environmental factors are related to sustainable development and supply of safe, fresh food. The sustainability priority provides insights into future generations and promotes sustainable farming and processing practices to meet the needs of the present population without compromising the ability of future generations to meet their food needs. Students evaluate the extent to which the process of supplying food embraces sustainability. They reflect on past and current farming and processing practices and assess new and emerging technologies from a sustainability perspective.

Unit 3 – Food diversity and equity

Unit description

This unit focuses on the relationships between food science and technology, food consumption patterns and issues of food diversity and equity in Australian society. Students investigate biotechnology and the process of genetic modification and determine the benefits and risks involved. They analyse factors that influence food selection, including marketing practices. Influences on the development and production of functional foods, food products, services or systems are examined.

Students investigate the principles of the Hazard Analysis Critical Control Point (HACCP) system to manage food safety and associated laws and regulatory codes to ensure food for sale is safe and suitable for human consumption. Using the technology process, students trial and adapt recipes and processing techniques to devise and produce food products that demonstrate functional properties of food. Students evaluate and analyse processes and results, justifying choices and drawing conclusions. They make recommendations to adjust and improve processing techniques.

Unit content

An understanding of the Year 11 content is assumed knowledge for students in Year 12. It is recommended that students studying Unit 3 and Unit 4 have completed Unit 1 and Unit 2.

This unit includes the knowledge, understandings and skills described below. This is the examinable content.

Nature of food

Food as a commodity

- environmental issues that impact sustainable production of food commodities
 - water use
 - land use
 - chemical use
 - energy use
 - waste disposal
- biotechnology in food systems
 - microorganisms
 - yeasts
 - genetic modification
- the process of genetic modification in food production
- benefits of genetic modification
 - improved yield
 - improved nutrition
 - resistance to environmental conditions
 - improved sensory properties
 - lower commodity prices for the consumer

- risks of genetic modification
 - impact on health
 - impact on environment
 - antibiotic resistance

Properties of food

- the effect of preservation methods on food
 - sensory properties
 - physical properties
 - chemical properties
- the function of natural food components in food processing
 - protein – albumin, gluten
 - carbohydrates – starch, sugar
 - lipids – fats, oils
- functional properties and how they determine the performance of food
 - dextrinisation
 - caramelisation
 - crystallisation
 - emulsification
 - gelatinisation
 - oxidation
 - denaturation
 - coagulation
 - leavening
 - aeration
 - rancidity

Nutrition

- use of food selection models and the *Australian Dietary Guidelines* to evaluate the nutritional needs of population groups
 - anaemia
 - osteoporosis
 - malnutrition
 - obesity
 - cardiovascular disease
 - diabetes
- food sources and impact of macronutrient and water intake on health
 - protein – complete and incomplete
 - carbohydrates – starches, sugars, and fibre or cellulose
 - lipids – saturated fats and oils, and unsaturated fats and oils
- food sources and impact of micronutrient intake on health
 - fat-soluble vitamins – A, D, E and K
 - water-soluble vitamins – B2 (riboflavin), B9 (folate), B12 (cobalamin) and C
 - minerals – calcium, iron, sodium and potassium

- influences on health and wellbeing
 - genetics – gender, race, family history
 - lifestyle – exercise, smoking, illicit drugs
 - diet
- the effect of the consumption of functional foods on health
 - digestive system
 - cardiovascular system
 - neural development
 - skeletal structure
 - blood sugar levels glycaemic index
- diet-related health conditions
 - food allergies – nuts, eggs, seafood
 - food intolerances – gluten, lactose

Processing food

Food products and processing systems

- how and why food processing techniques are used to control the performance of food
 - application of heat
 - application of cold
 - exposure to air
 - addition of acid
 - addition of alkali
 - manipulation
- recipe adaptation
 - commodities
 - nutrition
 - processing techniques
 - portions
 - presentation or packaging
 - cost
- product proposal
 - consumer profile
 - product purpose
 - product specifications that include at least two functional properties
- the technology process to produce a food product with at least two functional properties that meet product proposal specification
 - investigate
 - devise
 - produce
 - evaluate

- analysis of food product
 - product's compliance with the proposal
 - product's sensory properties
 - effectiveness of the processing techniques selected
 - purpose of the functional properties selected
- analysis of the marketing mix used to promote a food product
 - product
 - price
 - place
 - promotion

Food in society

Food issues

- factors that influence food consumption patterns in Australia
 - social
 - economic
 - environmental
 - ethical
 - political
- the impact of commercially processed food on the consumer
 - food safety
 - food availability
 - extend shelf life
 - convenience
 - alter sensory properties
 - health
 - distribution and storage
 - price
- Australian Standard metric measurement
- mathematical concepts – data, graphs, tables, simple ratio, percentages
- marketing mix strategies and the influence on consumers
 - product
 - price
 - place
 - promotion
- consumer concerns related to food promotion
 - advertising directed at children
 - product placement in supermarkets

Laws and regulatory codes

- *Australia New Zealand Food Standards Code* for food produced using gene technology
- apply the principles of the HACCP system to manage food safety
 - 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
- *Food Act 2008* (WA) and the role of state and local authorities to ensure food for sale is safe and suitable for human consumption
- *Occupational Safety and Health Act 1984* and the consequences of unsafe work environments and practices for employers and employees
 - economic
 - social

Unit 4 – The future of food

Unit description

In this unit, students explore how food production systems can provide a sustainable supply of food for current and future world populations. They examine technologies that create innovative food products and investigate influences on global food supply, unequal distribution of food resources and consequences of global food inequity. Influence of food innovation in the development of food products and the impact of food availability, selection, consumption and the nutritional value of food for specific demographic groups are investigated.

Students examine the role and responsibility of organisations that control foods imported into Australia and the advertising and marketing laws related to food and beverages. Using the technology process, students collect, interpret and analyse data to examine practices used to develop new food products. They trial and adapt recipes and processing techniques to develop a food product. Students evaluate, analyse, draw conclusions and make recommendations when assessing the features and suitability of new food products.

Unit content

This unit builds on the content covered in Unit 3.

This unit includes the knowledge, understandings and skills described below. This is the examinable content.

Nature of food

Food as a commodity

- innovative developments that increase the availability of food
 - value-added food
 - functional food
 - genetically modified food
 - food safety procedures
 - packaging

Properties of food

- factors that impact on the properties of food
 - processing techniques
 - equipment and storage
 - environment
 - ingredients
 - additives – thickeners, anti-caking agents, humectants, colourings and flavourings, preservatives, and artificial sweeteners
- technologies used to develop new food products
 - ultrafiltration
 - micro-encapsulation
 - nanotechnology
 - high pressure processing

- membrane technology
- packaging – modified atmosphere (vacuum, gas, barrier specific), aseptic, active and intelligent

Nutrition

- purpose of the Nutrient Reference Values (NRV) and the Recommended Daily Intakes (RDI)
- national health priority areas and role in improving health in Australia
- advantages and disadvantages of the consumption of micronutrient supplements
- role of phytochemicals in promoting health
 - phytoestrogens
 - antioxidants
 - probiotics
- modification of food to meet the nutritional needs of individuals with a diet-related health condition
 - food allergies
 - food intolerances
- digestion of macronutrients
 - digestive tract
 - associated organs of digestion
 - mechanical digestion
 - chemical digestion
- health conditions caused by the inability of the body to digest or absorb or metabolise nutrients
 - diabetes
 - coeliac
 - lactose intolerance

Processing food

Food products and processing systems

- product development using line extensions, 'me too' products and innovative products
- adaptations used to produce new products
 - commodities
 - processing techniques
 - presentation or packaging
 - equipment and technology
 - quantities
- devise a product proposal for a new food product
 - consumer profile
 - product purpose
 - product specifications
- the technology process to produce a new food product that responds to a consumer need
 - investigate
 - devise
 - produce
 - evaluate

- analysis of food product in relation to product proposal
 - features of the product and its suitability to the consumer group
 - quantitative method (survey)
 - qualitative method (sensory evaluation)
 - draw conclusions
 - make recommendations

Food in society

Food issues

- factors that influence the development of new food products
 - population growth
 - changing demographics
 - health
 - convenience
 - cost
 - technology
- factors affecting food supply in Australia and globally
 - trade restrictions – embargos, tariffs, subsidies
 - government policies – free trade agreements, fair trade
 - ownership concentration within the food industry
 - natural disasters and the potential loss of infrastructure
 - production of biofuels
 - population growth and population distribution
 - food production and distribution
 - land ownership
 - food prices
 - demand for meat and dairy
- consequences of global food inequity
 - under-nutrition
 - over-nutrition
 - political instability
- environmental influences on the sustainability of food production in Australia
 - farming practices
 - climate changes
 - water availability
 - land degradation

Laws and regulatory codes

- *Australia New Zealand Food Standards Code* requirement for the use of additives in food and for product recall
- implications of the *Australian Association of National Advertisers (AANA) Code for Advertising and Marketing Communications to Children*, on advertising and marketing food and beverage products in Australia

School-based assessment

The Western Australian Certificate of Education (WACE) Manual contains essential information on principles, policies and procedures for school-based assessment that needs to be read in conjunction with this syllabus.

Teachers design school-based assessment tasks to meet the needs of students. The table below provides details of the assessment types for the Food Science and Technology ATAR Year 12 syllabus and the weighting for each assessment type.

Assessment table – Year 12

Type of assessment	Weighting
<p>Investigation</p> <p>Directed research in which students plan, conduct and communicate an investigation of an issue related to Food Science and Technology. They apply processes to food-related practices, use a variety of investigative approaches to individually and/or collaboratively collect and interpret primary sources and produce secondary sources. Processes include testing, analysing, evaluating and communicating findings. The investigation can be presented as a written report or a multimedia presentation.</p> <p>Other evidence can include: practical investigations, investigation plans, self or peer evaluations and/or journal reflections.</p>	25%
<p>Production analysis</p> <p>A production project in which students explore ideas, design products and/or implement production processes.</p> <p>Students manage a range of production processes, evaluating and modifying them as necessary. This includes making products, prototypes or implementing processes and systems in response to a proposal and evaluating design ideas while managing a range of production processes.</p> <p>Evidence can include: analysis of survey results, design ideas, recipes, nutritional values, sensory properties, food products, production plans, production processes, and/or food systems; modifications used to manage quality control, product test results, evaluation tools (target market group) and/or journal reflections.</p>	15%
<p>Response</p> <p>Students respond to questions which can require them to refer to stimuli or prompts, such as production practices, case studies, scenarios and primary and secondary sources.</p> <p>Tasks can be conducted inside or outside class time. Students apply their understandings and skills to analyse, and/or interpret information, solve problems and/or answer questions. Formats can include short and extended written responses and/or oral presentations.</p> <p>Other evidence can include: situation analysis exercises, observation records and checklists, journal entries and/or self, peer or target group evaluations.</p>	20%
<p>Examination</p> <p>Typically conducted at the end of each semester and/or unit and reflecting the examination design brief for this syllabus.</p>	40%

Teachers are required to use the assessment table to develop an assessment outline for the pair of units.

The assessment outline must:

- include a set of assessment tasks
- include a general description of each task
- indicate the unit content to be assessed
- indicate a weighting for each task and each assessment type

- include the approximate timing of each task (for example, the week the task is conducted, or the issue and submission dates for an extended task).

In the assessment outline for the pair of units, each assessment type must be included at least twice. At least two response tasks should be completed in class under test conditions.

The set of assessment tasks must provide a representative sampling of the content for Unit 3 and Unit 4.

Assessment tasks not administered under test/controlled conditions require appropriate validation/authentication processes. For example, student performance for a production could be validated by a task (such as a structured essay, extended answer or analysis of the processes used in the production) which is completed in class after the final production process is completed.

Grading

Schools report student achievement in terms of the following grades:

Grade	Interpretation
A	Excellent achievement
B	High achievement
C	Satisfactory achievement
D	Limited achievement
E	Very low achievement

The teacher prepares a ranked list and assigns the student a grade for the pair of units. The grade is based on the student's overall performance as judged by reference to a set of pre-determined standards. These standards are defined by grade descriptions and annotated work samples. The grade descriptions for the Food Science and Technology ATAR Year 12 syllabus are provided in Appendix 1. They can also be accessed, together with annotated work samples, through the Guide to Grades link on the course page of the Authority website at www.scsa.wa.edu.au

To be assigned a grade, a student must have had the opportunity to complete the education program, including the assessment program (unless the school accepts that there are exceptional and justifiable circumstances).

Refer to the WACE Manual for further information about the use of a ranked list in the process of assigning grades.

ATAR course examination

All students enrolled in the Food Science and Technology ATAR course Year 12 are required to sit the ATAR course examination. The examination is based on a representative sampling of the content for Unit 3 and Unit 4. Details of the ATAR course examination are prescribed in the examination design brief on the following page.

Refer to the WACE Manual for further information.

Examination design brief – Year 12

Time allowed

Reading time before commencing work: ten minutes

Working time for paper: three hours

Permissible items

Standard items: pens (blue/black preferred), pencils (including coloured), sharpener, correction fluid/tape, eraser, ruler, highlighters

Special items: non-programmable calculator approved for use in the ATAR course examinations

SECTION	SUPPORTING INFORMATION
<p>Section One</p> <p>Multiple-choice</p> <p>15% of the total examination</p> <p>15 questions</p> <p>Suggested working time: 15 minutes</p>	<p>Questions can require the candidate to respond to stimulus material. Stimulus material can include: text, diagrams, data, tables, graphs and/or photographs.</p>
<p>Section Two</p> <p>Short answer</p> <p>55% of the total examination</p> <p>6–8 questions</p> <p>Suggested working time: 95 minutes</p>	<p>Questions can be in parts or scaffolded and can require the candidate to respond to stimulus material. Stimulus material can include: text, diagrams, data, tables, graphs, media images and messages, photographs, case studies and/or scenarios.</p> <p>The candidate can respond using short paragraphs, dot points, diagrams or tables.</p>
<p>Section Three</p> <p>Extended answer</p> <p>30% of the total examination</p> <p>Two questions from a choice of three</p> <p>Suggested working time: 70 minutes</p>	<p>Questions can require the candidate to respond to stimulus material. Stimulus material can include: text, data, diagrams, media images and messages, photographs, case studies and/or scenarios.</p> <p>Questions can require the candidate to link theory with practice.</p> <p>Questions can have parts, which can be of increasing complexity.</p>

Appendix 1 – Grade descriptions Year 12

A	<p>Investigation Effectively and accurately communicates ideas and issues, and justifies opinions. Presents relevant research in a detailed, comprehensive and logical format. Interprets, analyses, applies and accurately adapts appropriate food-related practices or food processing systems and organises research findings to develop relevant resources and make logical, informed decisions. Accurately interprets, records and evaluates reliable and relevant information from a wide variety of primary sources and practical investigations to produce appropriate secondary sources.</p>
	<p>Production analysis Assesses and analyses, in detail, quantitative and qualitative data to clarify and determine features of the proposed product. Draws conclusions and validates suitable recommendations. Extracts and examines relevant information, data and observations, and provides a detailed analysis of the impact of food processing techniques, features of product development and marketing strategies to explain a range of food-related practices. Provides an accurate, detailed and comprehensive analysis for the use and adaptation of a variety of food processing techniques to control the performance of food and explain the impact on the food produced in relation to the product proposal.</p>
	<p>Response Provides an accurate interpretation and detailed explanation of the interrelationship between food consumers, producers and marketers to clarify specific points of view and develop appropriate, informed solutions. Justifies, in detail, the correct and appropriate application of laws and regulatory codes for a variety of food environments, and provides valid explanations of ways to ensure safe food for consumers. Provides detailed, accurate and well-structured analysis of collated evidence to develop valid, coherent arguments, critically evaluate and compare various points of view for a range of diet-related health conditions, specific nutritional needs and a sustainable food supply; correctly applies concise course terminology.</p>
B	<p>Investigation Accurately communicates ideas and issues, and validates opinions. Presents research in a detailed and logical format. Applies and adapts appropriate food-related practices or food processing systems and gathers research findings to develop resources and make informed decisions. Interprets, records and evaluates relevant information from primary sources and practical investigations to produce secondary sources.</p>
	<p>Production analysis Assesses and analyses quantitative and qualitative data to explain features of the proposed product. Draws conclusions and makes suitable recommendations. Examines relevant information, data and observations, and provides an explanation for the impact of food processing techniques, features of product development and marketing strategies to discuss a range of food-related practices. Provides an accurate analysis for the use and adaptation of food processing techniques to control the performance of food and describe the impact on the food produced in relation to the product proposal.</p>
	<p>Response Provides an interpretation and explanation of the interrelationship between food consumers, producers and marketers to explain various points of view and develop informed solutions. Justifies the correct and appropriate application of laws and regulatory codes for food environments, and provides explanations of ways to ensure safe food for consumers. Provides accurate and structured analysis of evidence to develop valid arguments, evaluate and compare various points of view for diet-related health conditions, specific nutritional needs and a sustainable food supply; applies course terminology.</p>

C	<p>Investigation</p> <p>Generally communicates ideas and issues, and presents some related research in an organised format.</p> <p>Applies some appropriate food-related practices or food processing systems and research findings to develop resources and make decisions.</p> <p>Records and generally evaluates relevant information from some primary sources to produce secondary sources.</p>
	<p>Production analysis</p> <p>Assesses, in general terms, quantitative and qualitative data to describe features of the proposed product. Draws broad conclusions and makes some recommendations.</p> <p>Examines some relevant information and provides a general description of the impact of food processing techniques, features of product development and marketing strategies to outline a range of food-related practices.</p> <p>Provides a general analysis for the use of food processing techniques to control the performance of food and outlines the influence on the food produced in relation to the product proposal.</p>
	<p>Response</p> <p>Provides a general interpretation of the relationship between food consumers, producers and marketers to discuss some points of view and develop solutions.</p> <p>Justifies generally the application of laws and regulatory codes for some food environments, and provides broad descriptions of ways to ensure safe food for consumers.</p> <p>Provides a wide-ranging analysis of evidence to develop generalised arguments and considers some points of view for diet-related health conditions, overall nutritional needs, and a sustainable food supply; generally applies course terminology.</p>
D	<p>Investigation</p> <p>Communicates in a simple manner, often with repetition of issues and ideas, and/or omits key concepts.</p> <p>Seldom applies appropriate food-related practices, food processing systems or research findings to develop simple resources or make decisions.</p> <p>States some information, which is often irrelevant, from primary sources to produce simplified secondary sources.</p>
	<p>Production analysis</p> <p>Uses limited quantitative and qualitative data to state features of the proposed product and gives a personal preference.</p> <p>Examines limited information and provides a brief statement of the impact of food processing techniques, features of product development and/or marketing strategies with little or no connection to food-related practices.</p> <p>Provides a limited analysis of food processing techniques and states the influence on the food produced with little relation to the product proposal.</p>
	<p>Response</p> <p>Provides a brief statement with limited reference to the relationship between food consumers, producers and marketers to state an opinion and give a solution.</p> <p>Justifies, in simple ways, the application of laws and regulatory codes, and states ways to keep food safe.</p> <p>Provides a brief and limited analysis of evidence to state a personal point of view for diet-related health conditions, nutritional needs and a food supply; shows limited application of course terminology.</p>
E	<p>Does not meet the requirements of a D grade and/or has completed insufficient assessment tasks to be assigned a higher grade.</p>