2016 Suite

OCR
Oxford Cambridge and RSA

Cambridge **TECHNICALS LEVEL 3**

Cambridge TECHNICALS 2016

APPLIED SCIENCE

Unit 17

Food technology

Y/507/6164

Guided learning hours: 60

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LEVEL 3

UNIT 17: Food technology

Y/507/6164

Guided learning hours: 60

Essential resources required for this unit: A functioning laboratory for the purposes of testing food samples

This unit is internally assessed and externally moderated by OCR.

UNIT AIM

Food technology is an important branch of food science that deals with the production processes that make foods. This unit will allow you to investigate a selected range of food manufacturing sectors appropriate to your needs and resources available within your educational establishments.

The aim of this unit is to allow you the opportunity to investigate the fundamental and generic aspects of food manufacture and the links between sectors.

To underpin this, you will develop knowledge of food manufacturing operations, generic stages of food production and quality including food safety whilst further investigation will allow a greater knowledge base of one of the food manufacturing sectors.

You will prepare and test real product samples in the laboratory following correct health and safety procedures and using appropriate sampling techniques. You will report your findings as if to a relevant authority such as the manufacturer or regulatory agency.

TEACHING CONTENT

The teaching content in every unit states what has to be taught to ensure that learners are able to access the highest grades.

Anything which follows an i.e. details what must be taught as part of that area of content. Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples in their work, although these do not need to be the same ones specified in the unit content.

For internally assessed units you need to ensure that any assignments you create, or any modifications you make to an assignment, do not expect the learner to do more than they have been taught, but must enable them to access the full range of grades as described in the grading criteria.

Learning outcomes The Learner will:	Teaching content Learners must be taught:
1 Understand the main features of food manufacturing operations	1.1 Manufacturing food sectors i.e.: • fish • cereal • fruit and vegetable • dairy • meat • confectionary • chilled • frozen 1.2 Considerations in food manufacturing operations i.e.: • product development • product specifications • process control • quality assurance/control • costing • procurement • storage and distribution • human resources 1.3 Stages in manufacturing food products i.e.: • preparation for the manufacturing process (e.g. selection of raw materials, storage) • processing (e.g. combining, mixing, blending of raw materials, heating, freezing, dehydrating, packaging, preserving)
2 Understand the importance of food safety in food manufacture	2.1 Food safety definitions (e.g. food hygiene, food poisoning, high risk foods, contamination, pathogens, incubation periods, food borne diseases) 2.2 Legislation and codes of practice (e.g. Food Standards Agency) 2.3 Traceability (e.g. sources of raw materials, processors, forensics) 2.4 Hygiene (e.g. physical, bacterial and chemical contamination of foods) 2.5 Safety Management Systems (e.g. HACCP systems (Hazard Analysis Critical Control Points)

Learning outcomes The Learner will:	Teaching content Learners must be taught:
3 Understand the importance of quality control in food manufacture	3.1 Reasons for implementing quality control in production, i.e.: • early intercept (e.g. problems in production) • waste management (e.g. reduce production waste) • consistency (e.g. finished products) • reduce costs (e.g. materials – time) • conformity (e.g. industry standards – regulations) • reduce returns (e.g. reputation – customer perception) 3.2 Quality procedures, i.e.: • quality control • quality standards • quality assurance • total quality management
4 Be able to test product samples	4.1 Sample preparation i.e.: • prepare sampling resources (e.g.: gather and clean equipment) • label samples for traceability • document sample information • maintain hygiene • store sample following manufacturer's instructions • protect the sample from sources of contamination 4.2 Testing of samples i.e.: • perform tests within agreed specification • record test results • analyse results • investigate out of specification results (outliers) • report results of testing

GRADING CRITERIA

LO	Pass	Merit	Distinction
	The assessment criteria are the Pass requirements for this unit.	To achieve a Merit the evidence must show that, in addition to the Pass criteria, the candidate is able to:	To achieve a Distinction the evidence must show that, in addition to the pass and merit criteria, the candidate is able to:
1. Understand the main features of food manufacturing operations	*P1: Outline food manufacturing sectors		
	*P2: Explain the stages in food manufacture for one food sector		
2. Understand the importance of food safety in food manufacture	*P3: Describe how food contamination is controlled through legislation and hygiene practice	M1: Explain the preventative measures required to ensure food safety	D1: Evaluate the concept of high risk foods in terms of increased risk to customer safety
3. Understand the importance of quality control in food manufacture	*P4: Describe the reasons for implementing quality control	M2: Explain how industry standards and regulations can impact on food manufacture	
4. Be able to test product samples	*P5: Carry out product testing	M3: Present results from testing process	D2: Analyse results from testing process

ASSESSMENT GUIDANCE

A variety of strategies should be used to provide opportunity to explore the concept of food technology. These should include teacher controlled guided learning, learner controlled guided learning, assignments/projects, industrial visits and practical work where possible. It is intended that a generic approach be used in the delivery of learning outcomes 1, 2, and 3 and offering an insight into a range of manufacturing sectors. Reference to specific products or product groups should be used to illustrate and contrast differences.

Learning outcome 3 should be assessed using a combination of theoretical and practical based learning and should also include research and interpreting up to date information. This can involve purchasing samples to consider quality e.g. value, standard and high value alternatives from a supermarket or supermarket competitors.

Learning outcome 4 should be assessed in a practical environment and include aspects of learning outcomes 1, 2 and 3 within its delivery. Sampling and testing should be related to identified products/manufacturing sectors and should follow requirements from a given specification/attributes sheet. Practical activity should include the analysis of product information from labelling to ensure that the themes of quality and traceability are clearly understood. The testing conducted will depend on practical facilities available and specific products chosen. The scope of testing should be wide enough to allow an analysis of results to take place. E.g. Pizza testing could include temperature control, shelf life confirmation, organoleptic sampling against a range of parameters, size confirmation, ingredient breakdown (weighing of individual components against given weight declaration percentages).

Where appropriate learning should be linked to best industry practices. A visit to a factory/guest speaker or interactive media usage all can provide insight into the topic being discussed. Information should be sought from currently marketed foods, new products and real life scenarios from the industry. This may include a supermarket visit or session looking at online shopping choices. Learners should be given ample variety and choice to contextualise their knowledge and understanding.

The diverse role of quality should be studied to emphasise the importance to learners of food safety and quality as well as being based on legal controls and customer demands from the food industry.

Feedback to learners: you can discuss work-in-progress towards summative assessment with learners to make sure it's being done in a planned and timely manner. It also provides an opportunity for you to check the authenticity of the work. You must intervene if you feel there's a health and safety risk.

Learners should use their own words when producing evidence of their knowledge and understanding. When learners use their own words it reduces the possibility of learners' work being identified as plagiarised. If a learner does use someone else's words and ideas in their work, they must acknowledge it, and this is done through referencing. Just quoting and referencing someone else's work will not show that the learner knows or understands it. It has to be clear in the work how the learner is using the material they have referenced to inform their thoughts, ideas or conclusions.

For more information about internal assessment, including feedback, authentication and plagiarism, see the centre handbook. Information about how to reference is in the OCR Guide to Referencing available on our website: http://www.ocr.org.uk/i-want-to/skills-guides/.

SYNOPTIC LEARNING AND ASSESSMENT

It will be possible for learners to make connections between other units over and above the unit containing the key tasks for synoptic assessment. Please see Section 6 of the Qualification Handbook for more details. We have indicated in the unit where these links are with an asterisk.

Name of other unit and related LO	This unit:
Unit 2 Laboratory techniques LO1 Understand the importance of health and safety and quality systems to industry LO2 Be able to separate, identify and quantify the amount of substances present in a mixture LO3 Be able to determine the concentration of an acid or base using titration LO4 Be able to examine and record features of biological samples	LO2 Understand the importance of food safety in food manufacture (P3) LO4 Be able to test product samples (P5)

Name of other unit and related LO	This unit:
Unit 3 Scientific analysis and reporting LO1 Be able to use mathematical techniques to analyse data LO2 Be able to use graphical techniques to analyse data LO4 Be able to analyse and evaluate the quality of data LO5 Be able to draw justified conclusions from data LO6 Be able to use modified, extended or combined laboratory techniques in analytical procedures LO7 Be able to record, report on and review scientific analyses	LO3 Understand the importance of quality control in food manufacture (P4) LO4 Be able to test product samples (P5)
Unit 6 Control of hazards in the laboratory LO1 Understand the types of hazard that may be encountered in a laboratory LO2 Be able to use health and safety procedures to minimise the risk presented by hazards in a laboratory LO3 Be able to design a safe functioning laboratory to manage the risk presented by hazards	LO1 Understand the main features of food manufacturing operations (P1, P2) LO2 Understand the importance of food safety in food manufacture (P3) LO3 Understand the importance of quality control in food manufacture (P4) LO4 Be able to test product samples (P5)
Unit 10 Testing consumer products LO1 Understand the influence of regulatory bodies on development of consumer products LO2 Understand how product testing determines the development of consumer products LO3 Be able to use quantitative titration techniques on consumer products LO4 Be able to use extraction and separation techniques on consumer products LO5 Be able to test the effectiveness of consumer product tests	LO1 Understand the main features of food manufacturing operations (P1, P2) LO2 Understand the importance of food safety in food manufacture (P3) LO3 Understand the importance of quality control in food manufacture (P4) LO4 Be able to test product samples (P5)
Unit 13 Environmental surveying LO1 Understand environmental impacts of human activity and natural processes	LO3 Understand the importance of quality control in food manufacture (P4)

Name of other unit and related LO	This unit:
Unit 14 Environmental management LO2 Be able to identify pollution in the environment LO3 Understand how legislation, regulation and agreements impact on managing natural and built environments LO4 Understand environmental management assessments LO5 Be able to carry out an environmental management study	LO1 Understand the main features of food manufacturing operations (P1, P2) LO3 Understand the importance of quality control in food manufacture (P4)
Unit 16 Waste management LO1 Understand how to manage waste LO2 Understand how to manage air emissions LO3 Understand how waste water is managed LO4 Be able to carry out a waste management audit	LO1 Understand the main features of food manufacturing operations (P1, P2) LO3 Understand the importance of quality control in food manufacture (P4)
Unit 18 Microbiology LO1 Be able to classify and identify microorganisms LO2 Understand the use of microorganisms in agriculture LO3 Be able to use microbiology in food production LO4 Understand the action of antimicrobials on microorganisms	LO1 Understand the main features of food manufacturing operations (P1, P2) LO2 Understand the importance of food safety in food manufacture (P3) LO3 Understand the importance of quality control in food manufacture (P4) LO4 Be able to test product samples (P5)
Unit 19 Crop production and soil science LO1 Understand how common crops are grown for commercial production in the UK LO2 Understand factors affecting the growth of crops LO3 Be able to monitor the growth of a crop plant species	LO1 Understand the main features of food manufacturing operations (P1, P2) LO2 Understand the importance of food safety in food manufacture (P3) LO3 Understand the importance of quality control in food manufacture (P4) LO4 Be able to test product samples (P5)

To find out more
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Alternatively, you can email us on **vocational.qualifications@ocr.org.uk**

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