



MCAST

Malta College of Arts, Science & Technology

MQF Level 4

TC4-01-16

MCAST Advanced Diploma in Food Technology

Course Specification

Course Description

The food and beverage industry is a progressive sector which requires a number of highly skilled technical people to cope with constantly changing customers' demands and new innovative production technologies. In such companies food technologists monitor day-to-day manufacturing activities; ensure that safety and quality standards are met; improve existing products and design new and innovative foods and drinks.

The Advanced Diploma in Food Technology is a multidisciplinary programme offered across four institutes and includes topics on food analysis, product manufacturing, food safety, cost accounting and product design. The programme provides learners with the opportunity to gain knowledge, about the industry and insight fo the relevant tools an skills through work-based elements and practical based modules. This programme prepares learners for employment within SMEs as well as medium to large organizations that produce a range of food and drink products.

Programme Learning Outcomes

At the end of the programme the learner will be able to:

- 1. Understand how food and beverage organizations operate.*
- 2. Understand the importance of food safety and apply Hazard Analysis and Critical Control Point (HACCP) principles.*
- 3. Apply scientific methods and use fundamental scientific principles to food manufacturing problems.*
- 4. Assist in the development of new innovative food and beverage products.*

Entry Requirements

MCAST Diploma in Applied Science

or

MCAST Diploma in Mechanical Engineering

or

MCAST Diploma in Engineering (Electronics)

or

4 SEC/O-Level/SSC&P (Level 3) passes

Preferred: English, Mathematics, Home Economics, Physics, Chemistry, Biology, Design and Technology

Current Approved Programme Structure

Unit Code	Unit Title	ECVET/ECTS
ASASC-406-1601	Fundamentals of Science	6
ASFDT-406-1601	Working in the Food and Beverage Industry	6
ASCHM-406-1602	Food Chemistry and Nutrition	6
ASBIO-406-1603	Safe Food Handling & Applied Microbiology	6
ASFDT-406-1602	Process Engineering for Food Technology Specialists	6
ASFDT-406-1603	Food Product Manufacturing	6
ASFDT-406-1604	Food Innovation	6
ASFDT-406-1605	Quality Assurance and Quality Control	6
ASFDT-406-1606	Food Analysis	6
ASFDT-406-1607	Decontamination Techniques	6
ASFDT-406-1608	Food Product Design	6
ASFDT-406-1609	Food Processing and Preservation	6
ASFDT-406-1610	Cost and Profitability Estimation in the Food Industry	6
ASPRJ-406-1603	Food Technology Project	6
ASWBL-412-1601	Work Based Module	12
CDKSK-406-1602	Mathematics	6
CDKSK-406-1601	Information Technology	6
CDKSK-406-1603	Entrepreneurship	6
ASWBL-406-1606	Industry Based Experience in the food and Beverage Sector	6
Total ECVET/ECTS		120

Unit: ASASC-406-1601-Fundamentals of Science

Unit level (MQF): 4
Credits: 6

Unit description

The aim of this unit is to enable learners to gain a broad theoretical and practical knowledge of chemistry, biology and physics. These key scientific skills would enable learner taking the level 4 qualification of food technology to understand scientific and technical information that will be useful for the learner.

The focus of this unit is on linking scientific principles with practical applications in engineering, food technology and other scientific fields. Learners will know the structure of atom and ionic bonding to form molecules. They will understand the chemical reactions and ionic bonding of atoms. Learners will know the structure and function of cell membrane, cell wall, nucleus and nucleolus. They will understand the nature of tissues and their functions.

Students will study different forms of energy and differentiate between potential energy and kinetic energy. They will learn how energy changes from one form to another and understand the nature of heat and transfer of heat. Learners will know the nature of electric charge, electric current and electric circuits. They will know the electromagnetic spectrum, nature of light, sound, ultrasound and uses of X-rays.

Learners will perform experiments in chemistry, biology and physics. They will do titrations, use microscope to identify cells and communicate results in their own work place as well as in other organizations to share the knowledge by means of reports and scientific papers.

Learning Outcomes

On completion of this unit the learners will be able to

1. Use chemicals safely in a scientific and industrial setting
2. Understand the functions of cells, tissues, organs and body systems
3. Use different types of energy efficiently when working on food technology and production
4. Communicate using appropriate formats to share scientific information gained from own experiments and research.

Unit: ASFDT-406-1601-Working in the Food and Beverage Industry

Unit level (MQF): 4
Credits: 6

Unit description

The general aim of this Unit is to provide learners with an overview of the food and drink manufacturing industry. It will offer the opportunity to learners to demonstrate they have the necessary skills to be able to work effectively, efficiently and safely in a Food and Beverage company. Learners will be able to identify and carry out standard procedures in the workplace safely in well-designed and operated work spaces and to communicate all aspects of the day-to-day running and data handling requirements of a variety of Food and Beverage workplaces. In this unit learners will be introduced to the stages within the manufacturing process of food and beverage products and they will be given an opportunity to understand the routes that food and drink products take from field to table. Students will also familiarize themselves with the regulatory and legislative requirements placed to protect individuals and the environment.

Learning Outcomes

On completion of this unit the learners will be able to

1. Explain the importance of the food and beverage industry in Malta and beyond.
2. Understand how the food and beverage manufacturing industry operates.
3. Explain how procedures are followed and communicated in the workplace.
4. Identify key regulations and legislation related to food production.

Unit: ASCHM-406-1602-Food Chemistry and Nutrition

Unit level (MQF): 4
Credits: 6

Unit description

This unit is mainly theory based and its main objectives are to introduce the learners to the chemistry of the main food components including carbohydrates, lipids and proteins, and to introduce the fundamental principles related with nutrition such as basic concepts, diet-related conditions, food allergies and intolerances, and guidelines related to dietary intake.

Learners will be introduced to basic organic chemistry concepts so as to be able to understand reactions that occur in living organisms. This will also enable them to recognize different classes of biomolecules and relate their structure with their functions in living organisms. The part related to nutrition will enable learners to develop their knowledge and understanding about the link between nutrition and health.

This unit is significant for learners who wish to pursue their studies in the food sector. It also complements other units, such as food analysis.

Learning Outcomes

On completion of this unit the learners will be able to

1. Describe the relationship between the structure and function of food carbohydrates,
2. Describe the relationship between the structure and function of food proteins and enzymes
3. Describe the relationship between the structure and function of lipids
4. Outline the basic nutritional concepts and requirements for a well-balanced healthy diet

Unit: ASBIO-406-1603-Safe Food Handling & Applied Microbiology

Unit level (MQF): 4
Credits: 6

Unit description

When producing food and beverage products it is an utmost priority to ensure that these would be safe for human consumption. The general aim of the unit is to give learners an insight into the safety requirements that govern the food and beverage manufacturing industry.

This unit will introduce learners to the world of food microbiology. It will highlight the importance of micro-organisms in food production in terms of food spoilage and food poisoning, whilst highlighting the important uses of certain micro-organisms for the production of particular food products. By the end of the unit it is envisaged that learners will be able to understand the conditions that govern micro-organisms growth and would be able to develop an understanding of the effect on micro-organisms on processing, preservation and storage techniques used in food production.

The learner will be exposed to a number of different microbiological techniques used in industry to identify and enumerate micro-organisms. This part of the unit is highly practical in nature and students will be able to appreciate the importance aseptic techniques.

This unit focuses on the techniques used to minimize micro-organisms in critical areas of the food production and storage facilities. Learners will develop an appreciation of the need for health and safety industry standards together with compliance with legislation with particular reference to food safety, and health and safety when manufacturing food and beverage products

Learning Outcomes

On completion of this unit the learners will be able to

1. Understand the importance of micro-organisms in food production, food spoilage and food borne diseases
2. Identify the instruments, techniques and data collection methods used in microbiological investigations
3. Use treatments to decrease pathogens in food and beverage products
4. Apply the basic principles of HACCP in the food and beverage sector

Unit: ASFDT-406-1602-Process Engineering for Food Technology Specialists

Unit level (MQF): 4
Credits: 6

Unit description

It is important that those working in food and beverage production areas are able to relate to the general manufacturing principles that are used within industry. This unit is intended to support learners with the necessary key engineering and Processing knowledge, skills and competences to be able to work in food and beverage manufacturing areas. It is targeted towards those learners that do not have an engineering background but would like to work in the food and beverage industry.

During this unit learners will be exposed to the different Control Processing. They will be given the opportunity to identify key components of control systems available for steady production with minimum variation.

Learners will be exposed to different plant layouts. With the use of practical examples learners will learn which layout to use in different situations.

Finally learners will be exposed to inventory and classifying coding system.

Learning Outcomes

On completion of this unit the learners will be able to

1. Outline different tools to assist a company in the continuous improvement process.
2. Demonstrate how to keep a manufacturing process under continuous control.
3. Recognise different process layouts and methods of classifying in a food production facility
4. Understand the fundamentals of inventory management and control

Unit: ASFDT-406-1603-Food Product Manufacturing

Unit level (MQF): 4
Credits: 6

Unit description

It is important that those working in food and beverage production areas are able to relate to the general manufacturing principles that are used within industry. This unit is intended to support learners with the necessary key engineering and manufacturing knowledge, skills and competences to be able to work in food and beverage manufacturing areas. It is targeted towards those learners that do not have an engineering background but would like to work in the food and beverage industry.

During this unit learners will be exposed to the different machinery used in food and beverage production. They will be given the opportunity to identify key components of the machinery and understand how these operate and how these should be maintained in accordance to standard protocols and established maintenance schedules. Learners will also be able to relate to the basic manufacturing principles and practices used in engineering workshops. The unit is not intended to go into depths which are expected to be achieved in specific engineering oriented qualifications.

Strong emphasis would be placed on the importance, impact and effect of using a range of different equipment to produce food items of quality and consistency. However, the importance of selecting the right raw materials to ensure quality and consistency will also be investigated through unit

Learning Outcomes

On completion of this unit the learners will be able to

1. Understand the different categories of food products, the raw materials, machinery and processes used to produce them.
2. Outline the basic equipment constituents used in food production areas.
3. Recognize the basic manufacturing principles and practices used in engineering workshops.
4. Maintain machinery found in food and beverage manufacturing industries in accordance to maintenance schedules.

Unit: ASFDT-406-1604-Food Innovation

Unit level (MQF): 4

Credits: 6

Unit description

Man's management of food resources has been the basis of all his achievements ever since he realised that, by working as a team, he could hunt big game that he had, previously, considered as too big for him to handle on his own, or else was considered a predator to be avoided and feared. Instead of going out to hunt on his own and risk getting injured or even killed, man extracted himself from the food chain and became the top boss, the overseer of everything else. Another food innovation introduced by man was that of using fire to cook his food which rendered it -especially meat - much more digestible and easier to chew.

It took him quite a few more millennia before he brought about yet another major innovation in food collection. This innovation was the domestication of wild animals that could then be kept confined inside enclosures to be slaughtered for meat or exploited for other uses. This not only eliminated the risks associated with going out into the wilderness to hunt but also saved immense amounts of time and energy which could thus be employed for more creative activities and further innovations.

As we can see, innovation in relation to food has been a constant motif in man's existence since time immemorial.

Today we have to address the theme of food innovation through many perspectives. Food production, processing, preservation, distribution, retailing, consumption and promotion has become such a complex and sophisticated activity that we cannot deal with food innovation as a monolithic concept. Each phase of the food chain has its own set of innovation potentials and challenges and we need to address those different phases separately.

This particular unit will provide a general overview of how innovation inputs can impact the food industry but its main focus will be on the innovative modes of presenting the food items produced by primary producers - farmers - to the consumer whether it be a home consumer concocting healthy, appetizing meals for the family or a catering establishment that is anxious to add something exciting to the menu.

Innovation and Diversification often go hand-in-hand. Sometimes, the innovative aspect aims at appealing to the health conscious consumer who is in search for meals

that incorporate consistent amounts of fruits and vegetables while at the same time presenting a very appetising appearance and aroma. On the other hand, innovation could focus on the efficient harvesting, packaging and delivery of fresh produce that renders the product attractive to the consumer because of its manifestly fresh appearance while carrying an economic price tag.

In today's global economy, food innovation involves the design and development of new food products, the improvement or combination of existing food products, research into food trends and food management.

Food innovation invariably goes hand in hand with food technology and covers a very wide field, from companies using science to improve the yields or composition of produce, to businesses focusing on reducing time to market and simplifying the supply chain, through to the online market places, delivery services and in-house gadgets in the hands of the consumers.

There are many possible innovation opportunities in the food industry. One of the tests that learners will need to undergo is to see how many innovative ideas they can come up with related to the food production dimension that they are familiar with, or have chosen to explore. The easiest approach in this respect is to identify one major challenge facing the primary food sector they are familiar with and examine the situation carefully to see how they could transform that challenge into an opportunity.

This unit has is characterised by a strong component of creativity and imagination which, at the same time, depends on a well-developed skills base. Food innovation techniques require a developed understanding of consumer tastes, needs, and such constraints as purchasing power, time availability for buying and preparation, storage and refrigeration space. But food innovation is also directed at commercial outlets such as restaurants, delicatessens, kiosks, travel services such as airlines and cruise liners, industrial and military kitchens and canteens, as well as whole variety of convenience **outlets**

Learning Outcomes

On completion of this unit the learners will be able to

1. Discuss a range of major food innovations that have been introduced over the past century at different phases of the food chain.
2. Identify a range of food innovations which could be applied to the primary food production stage to improve market share or obtain value added
3. Assess the role of technology on a range of food innovations in this country.
4. Discuss how, and to what extent can food technology and innovation contribute towards developing a sustainable global food industry.

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Unit: ASFDT-406-1605-Quality Assurance and Quality Control

Unit level (MQF): 4
Credits: 6

Unit description

The unit reviews quality control and quality assurance measures taken in order to ensure the quality of food products. Food quality and safety is important since it ensures that the consumer is not susceptible to any form of contamination, illness or reaction following the ingestion of a food product. In this unit, learners are provided with an understanding of quality assurance and quality control procedures, tools for quality improvements and the importance of regular internal and external audits.

In this unit, different quality management standards will be examined along with their implementation. The implications of poor quality standards will also be examined and learners will be exposed to different tools which lead to quality improvements. Finally, the benefits of internal and external audits are reviewed.

Learning Outcomes

On completion of this unit the learners will be able to

1. Outline the concepts of food product quality and the method by which it is achieved.
2. Understand the relative merits of different types of Quality Control tests.
3. Understand the intrinsic principles of Quality Assurance and Quality Control.
4. Explain the value of audits and the way these promote continuous improvement in the quality cycle.

Unit: ASFDT-406-1606-Food Analysis

Unit level (MQF): 4
Credits: 6

Unit description

This is a practical unit which is designed to enable learners to enhance their knowledge, skills and competences in order to be able to work in a food and beverage laboratory. Furthermore, learners will be provided with a theoretical and practical understanding of analytical methods to investigate the food properties, such as chemical composition. Learners will develop the necessary laboratory skills to work in a laboratory following GLP principles and use different apparatus and equipment to analyze food and carry out investigations in a specialized laboratory. In a laboratory, it is essential to work accurately and safely, thus, through this unit, learners will also develop confidence and manipulative skills to handle chemicals safely, set up and operate equipment, and understand procedures followed in the laboratory. Learners will also be provided with opportunities to work as a team, and apply theoretical concepts to problem solving by planning an investigation, selecting the appropriate analytical techniques followed by food analysis.

This unit is essential for learners who would like a career as a laboratory analyst in the food and beverage sector

Learning Outcomes

On completion of this unit the learners will be able to

1. Carry out various tasks in a food laboratory safely and effectively
2. Understand the principles associated with analytical techniques which are related with food analysis
3. Use common qualitative and quantitative analytical techniques associated with food analysis
4. Select the appropriate analytical technique when presented with a practical problem

Unit: ASFDT-406-1607-Decontamination Techniques

Unit level (MQF): 4
Credits: 6

Unit description

Consumers' demands for good quality and safe food and beverage products has led to an increasing awareness about the importance of hygiene during various stages of food production, and to an increasing interest in novel physical and chemical decontamination technologies in the food and beverage industry.

The first part of this unit will deal with health and safety issues such as hazards, importance of health and safety in different sectors of the food and beverage industry, such as, during processing, manufacturing and packaging, and occupational health and safety. This will be followed by awareness about the sources of food contamination, an overview of hygiene development in this industry, and different hygiene control measures that must be followed rigorously to ensure that the final product is safe for human consumption. One cannot appreciate the importance of decontamination techniques if s/he is not aware about the microorganisms responsible for food poisoning.

As a result, in the second part of this unit, students will gain knowledge about different microorganisms that are relevant for the food and beverage industry, including pathogenic microorganisms that cause food poisoning and food spoilage microorganisms that affect the quality of the product.

Case studies on food poisoning and food deterioration by food spoilage microorganisms will also be included in this part. In the third and fourth part of this unit, students will be exposed to various physical and chemical decontamination techniques used in the food and beverage industry to ensure food safety and meet food safety regulatory requirements.

Learning Outcomes

On completion of this unit the learners will be able to

1. Understand the importance of health and safety, and hygiene in the food and beverage industry
2. Understand the role of microorganisms in food spoilage and food poisoning
3. Demonstrate physical decontamination techniques used on an industrial level in the food and beverage industry
4. Demonstrate chemical decontamination techniques used on an industrial level in the food and beverage industry

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Unit: ASFDT-406-1608-Food Product Design

Unit level (MQF): 4
Credits: 6

Unit description

This unit is intended to introduce learners to a number of both functional and commercial considerations related to food packaging and its role beyond safe containment and transport. Learners shall familiarise themselves with the knowledge and skills necessary to handle and package various types of food and develop values about the safety and environmental impact of packaging before studying how to best promote specific food items to a target audience. A basic study of packaging materials, printing processes and marketing strategy will play a key role in the learners' development throughout this unit.

This unit is particularly relevant to learners studying food technology who wish to develop a working knowledge of point of sale promotion and marketing, or engage in entrepreneurial pursuits.

On completion of this unit learners will be able to successfully discern between various food packaging materials and processes and select appropriate solutions for different scenarios. They will also gain an understanding of how to communicate desirable characteristics of a food product to consumers via its packaging's appearance by using colour, typography and imagery in a conscientious and intelligent manner. Assessment shall take place based on learners' research and practical outcomes.

Learning Outcomes

On completion of this unit the learners will be able to

1. Identify and evaluate a range of packaging examples in the marketplace.
2. Describe different printing and finishing processes related to packaging.
3. Apply suitable graphic elements to a food packaging solution for promotion.
4. Present and evaluate a food packaging solution

Unit: ASFDT-406-1609-Food Processing and Preservation

Unit level (MQF): 4
Credits: 6

Unit description

Food processing and food preservation are two techniques that go hand-in-hand and constitute methods of converting raw food items into well-preserved and tasty food items, condiments, and side dishes that complement main dishes. Basically every form of food preservation involves some form of processing even if it is only a matter of drying or desiccating a fruit, vegetable or flesh. The process of preparing the food item and exposing it to the desiccating element, even at its most rudimentary level, is in itself a form of processing.

Methods of Food preservation and processing were originally devised to render a variety of foodstuffs to be available all year round under one form or another. Different regions developed their own particular methods and processes and concentrated on particular food items which, in time, became renowned as the specialities of those regions. Another very important motive behind the preservation and processing of raw food items was that of utilising and adding value to surplus agricultural production or to render the product easier to handle and to transport.

Some products are processed in order to reduce their water content drastically and produce a very concentrated form rendering it more convenient for use and for transportation and storage.

This is a hands-on, skilled based unit that will familiarise learners with the various primary food products produced by the Maltese agricultural sector and other rural enterprises. The unit will provide learners with the necessary skills and techniques to demonstrate that they are able to select, prepare, investigate and test a range of local processed and/or preserved food and beverage products. They will also familiarise themselves with the industrial and commercial application of these processes and recognise the fundamental similarities and differences between industrial and artisanal methods of processing and preserving raw food items.

The unit is composed of two distinct sections that could be delivered separately or jointly. One section focuses on simple preservation of food products as a form of extending the lifetime of specific primary food products. The other section involves the transformation of primary food products through such processes as fermentation, baking, casefying, distillation, and other processes that totally transform the product into a completely different food or beverage. This section, however, also requires a

further preservation intervention to ensure that the finished transformed product can keep at optimal condition for the required or desired interval. There are clear advantages in delivering the two sections in tandem because of the various parameters that are common to both and which could provide important advantages if proper focus is maintained on the linkages that exist between them. Another important linkage is the opportunity that such processes provide for food diversification and innovation which is covered in a separate unit.

Learners will subsequently have the opportunity to analyse and assess the prepared products in the laboratory and determine how different processes and different forms of preservation affect the finished products. A further exercise is geared to enable learners to appraise their product to establish whether they have achieved the desired outcome and to obtain feedback from third parties regarding the preservation element as well as the organoleptic characteristics of the finished product.

Learners will be provided with ample opportunity to work in a food production facility and a lab environment.

Learners will carry out independent reflective research and study to obtain essential inductive insight into the work-based experience in the food and beverage sector.

Learning Outcomes

On completion of this unit the learners will be able to

1. Discuss principles and application of food preservation and processing methods employed in the food and beverage industry and compare them with artisanal processes
2. Prepare a range of food and/or beverage products using artisanal processes and preservation methods while adhering to established food safety and health and safety regimes
3. Carry out a HACCP procedure of both the artisanal and the industrial preservation and processing of local food and beverage items and carry out tests on finished products
4. Discuss how, and which, preservation and processing initiatives could enhance the market for local agricultural products

Unit: AASFDT-406-1610-Cost and Profitability Estimation in the Food Industry

Unit level (MQF): 4
Credits: 6

Unit description

For anyone considering a career in food technology, it is important to have a good understanding how a food and beverage manufacturing organisation operates and have a basic understanding of the internal and external factors that would affect the commercial viability of a food or drink product. This unit will develop the learners' understanding of cost accounting. Furthermore, the unit will help give learners a firm foundation for employment in the food and beverage sector and an understanding of the organisational, financial and social constraints within which a food and beverage organisation operates.

This is a hands on unit whereby learners, through the use of a number of case studies, will be given the opportunity to use cost accounting techniques to determine the accurate cost information of food and beverage products to decide on which products to keep and which products to discontinue, for assessing productivity improvements and for performance evaluation and control. This data is vital for food and beverage manufacturing organisations as improperly designed cost accounting system can lead to costly errors in decision-making.

The aim of the unit is to provide aspiring food technologists with an appreciation of financial implications of decisions taken in food manufacturing assembly lines. At the end of the unit learners are expected to relate the technical aspects learnt in other units to the financial aspects and would be able to provide the most cost effective technical solutions.

Learning Outcomes

On completion of this unit the learners will be able to

1. Understand the fundamental principles of costing systems within a food and beverage manufacturing environment

2. Use costing techniques to determine the product costs and profitability of a food and beverage manufacturing organisation
3. Use information gathered from costing systems to assist decision-making within a food and beverage manufacturing organisation
4. Discuss how external factors and the economic environment affect the operation of a food and beverage manufacturing organisation

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Unit: ASPRJ-406-1603-Food Technology Project

Unit level (MQF): 4
Credits: 6

Unit description

The aim of this study unit is to train learners in all the processes involved in proposing and undertaking an extended investigative project in the food and beverage sector. Through this unit the learners will be able to conduct a literature review, compile a proposal, identify, plan, carry out an investigative project, and analyse and present the results of the project.

The topics investigated during the project will, wherever possible, relate to real life issues and will simulate situations likely to be encountered in a working environment. Learners should carry out the investigative project within an organisation, be it a local authority, a charity or voluntary organisation, an industry organisation, or a local community group. The project can be carried out over a single stretch of a few weeks, or else during weekends or recess periods. The project will help the learners to develop project management and communication skills by investigating a topic of their choice.

It is suggested that the learners explore three topic areas that interest them and are relevant to their field of study. Subsequently, and following supervisors' advices, they should reduce these to one area of study that form the basis of their investigative project.

Learners will develop this skill of taking responsibility of their own learning by choosing independently their own research problem to be solved. They should produce a breakdown of resources and a project action plan including intermediate deadlines. This unit will provide learners with an excellent opportunity to apply knowledge attained during other units to solve real life issues in the Food and Beverage sector.

Learning Outcomes

On completion of this unit the learners will be able to

1. Conduct a literature review related to a topic in food technology.
2. Write a proposal for an investigative project in the food and beverage sector.
3. Design and produce a detailed plan for an investigative project in the food and beverage sector.
4. Construct an investigative project in the food and beverage sector and monitor all the phases involved.

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Unit: ASWBL-412-1601-Work Based Module

Unit level (MQF): 4
Credits: 12

Unit description

This is a skills based unit that will expose learners to the work carried out in the food and beverage industry. The unit will allow learners to demonstrate that they are able to prepare, investigate and test a range of food and beverage products

This unit is divided into two main sections which should be delivered in tandem and the linkages between the two should be clearly highlighted during the delivery of the unit. In the first part of the unit the learners are to prepare a range of food and beverage products in accordance to given formulations. Learners will be then asked to analyse and investigate the prepared products in a laboratory to be able to understand how different nutrients and ingredients affect finished products. In addition, learners will appraise their product to ensure that they have achieved desired outcome. In the second part of the unit learners will focus on the preservation of food and beverage products. Learners will be given ample opportunity to work in a food production area and a Lab environment.

Learners will carry out independent reflective research and study to obtain important inductive insight into work-based experience in the food and beverage sector.

Learning Outcomes

On completion of this unit the learners will be able to

1. Prepare a range of food and beverage products.
2. Investigate the functional properties of given or produced food and beverage products.
3. Follow procedures to preserve a range of food and beverage products.
4. Investigate different preservation methods on given or produced foods and beverages.