MCAST

Malta College of Arts, Science & Technology

# MQF Level 4

## MCAST Advanced Diploma in Aviation Operations
## Course Specification

ME4-A6-19

# Course Description

This course is designed to equip individuals with the necessary understanding and an all-round introduction to the aviation industry for those who wish to further their career in one of its occupational areas. It may lead to roles in airports such as passenger liaison, ramp work, cargo operations and ground handling, aircraft operations and customer service.

The course is structured to give learners an overview and preparation to specialized areas that interest career aspirations within aviation. The course covers the appropriate fundamentals for progression onto further aviation specialization in the sector. The theoretical elements are supplemented with practical elements. Successful students can progress to the Bachelor of Arts(Honours) in Business Enterprise.

## Programme Learning Outcomes

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

1. *Understand the basic operations in the aviation industry.*
2. *Apply the necessary theoretical and practical understanding of operation in airport terminals and aircraft operation environments.*
3. *Understand the legal requirements in the aviation industry.*
4. *Gain competence and develop skills in the principal areas of the Aviation Operation Industry.*

## Entry Requirements

- 4 SEC/O-Level/SSC&P (Level 3) passes
  Compulsory: Mathematics, English Language
  or
  Any MCAST Level 3 course

## Other Entry Requirement

Applicants will have to sit for an interview and/or Aptitude Test in Technical Understanding and Technical English. A pass in the Aptitude Test is a pre-requisite for entry.

## Current Approved Programme Structure

| Unit Title | ECVET/ECTS |
|---|---|
| Health, Safety and Security | 6 |
| International Aviation Network | 6 |
| Civil Aviation Regulation and Air Law | 6 |
| Management Skills | 6 |
| Marketing and Economics | 6 |
| Aircraft Fundamentals and Characteristics | 6 |
| Weather and Environment | 6 |
| Customer Service in the Aviation Industry | 6 |
| Air Passenger and Baggage Management | 6 |
| Communication in the Aviation Environment | 6 |
| General Operations-Aircraft Dispatch | 6 |
| General Operations Ramp Handling | 6 |
| Cargo Operations | 6 |
| Cabin Operations | 6 |
| Basic Fundamentals of Aircraft Operations | 6 |
| Fundamentals of Finance and Costings | 3 |
| Aircraft Handling | 3 |
| Mathematics | 6 |
| English | 6 |
| Entrepreneurship | 6 |
| Critical Thinking | 6 |
| **Total ECVET/ECTS** | **120** |

# Unit: Health Safety and Security

## Unit level (MQF): 4

## Credits: 6

## Unit Description

In this unit learners will develop fundamental knowledge related to Health and Safety practices and Security in the Aviation business. They will begin to understand how Occupational Health and Safety legislation regulates and integrates within an Aviation framework that renders the business so safe thus promoting the highest quality of service, and the importance of security as one of the core functions in an airport to secure passenger and airport infrastructure protection from malicious crime, threats, and terror.

The learners will develop essential information about managing Airside/Terminal Safety and Security that will help them understanding the risks one will encounter in the aviation industry and how safety standards and security procedures should be maintained throughout all aviation operations. This includes the Turnaround and other aviation operations, Hazard Identification and control measures, Safety Management System, Airside Safety awareness, Identification of accidents' root causes, reporting adverse events such as near miss, Fire safety and evacuation procedures, and introduction to first aid and maintaining a secure airport environment within local and European legislation.

## Learning Outcomes

**On completion of this unit the student will be able to:**

1. *Understand the importance of Health, Safety and Security in an aviation setting.*
2. *Identify root causes of accidents in an aviation setting.*
3. *Follow the emergency procedures and practices during an aircraft accident*
4. *Determine how security is regulated at the various levels of airport and passenger and staff movements in the air terminal.*
5. *Discuss the way systems and procedures are applicable to monitor, control and improve aviation security.*

# Unit: International Aviation Network

## Unit level (MQF): 4

## Credits: 6

## Unit Description

The aviation industry is a large and growing industry. It facilitates economic growth, world trade, international investment and tourism. International aviation is therefore, central to the globalization taking place in many other industries.

Some of the priorities for the industry have changed yet, the spirit and passion remain. Even though, some of the priorities are not new such as: safety, the need for efficient operations, adequate capacity to meet growth and customer satisfaction, other priorities have gained prominence; such as security and environmental concerns. However, the industry cannot function without the vast array of ancillary services that in turn provide services to the commercial airlines and the aviation industry in general. Therefore, this unit will provide learners with knowledge about the diverse nature of the airline industry and the other stakeholders.

The aviation industry is governed and supported by strict regulatory regimes covering safety and security issues. These regulatory organisations are also backed up by a number of trade associations. In addition, airports, like the other stakeholders, play a very important role in the success of the aviation industry. Their location, governance, facilities and their functions are important and learners interested in this sector must explore these in some detail.

Learners will investigate the development of the industry in order to determine how it has changed over the years, including its major milestones and achievements. Many of these milestones have led to the development of organisations that regulate and/or facilitate the industry's development, growth and success. This unit will also provide learners with the knowledge and understanding of the extent of the Industry and the role of the organisations within this industry. In addition, learners will learn about the different characteristics of the commercial airlines. This unit is an interesting starting point for learners, who will be working in aviation, as it enables learners to investigate the industry holistically.

## Learning Outcomes

**On completion of this unit the learner will be able to:**

1. *Understand the development of the International Aviation Industry and the way the industry contributes to the world economy.*
2. *Distinguish the effects of deregulation, liberalisation and economic development on the aviation industry.*
3. *Identify the operating characteristics of commercial airlines and airports*
4. *Outline the structure of the International Aviation Industry and the role of the organisations that support the aviation industry.*

# Unit: Civil Aviation Regulation and Air Law

## Unit level (MQF): 4

## Credits: 6

## Unit Description

The aviation industry is considered as a vital infrastructure in today's world, providing for the transport of passengers and goods. As a result, the aviation industry has always been concerned with the safety and security of airports and aircraft. Consequently, international air transportation is governed by various laws, on a National, European and International level, to provide for safety and security.

During this unit, one will become familiar with the historical background and development of such aviation legislation and students will be provided with a global perspective of the legislative framework within civil aviation, including the legislative aspect on threats such as hijacking of aircraft, missile attacks, drones, armed attacks on airports, terrorism, cyber threats, as well as disruptive passengers.

This unit will also introduce the students to the various regulatory bodies and agencies that play an important role in civil aviation, and their respective functions within the industry.

## Learning Outcomes

**On completion of this unit the student will be able to:**

1. *Understand the concept of laws and regulations, and the circumstantial realities and challenges that the aviation industry faces daily.*
2. *Recognise the bodies within international civil aviation, including the International Civil Aviation Organization and the European Aviation Safety Agency.*
3. *Analyse various laws, regulations and international conventions related to aviation and their application.*
4. *Identify the risk and security threats that the aviation sector faces continuously.*

# Unit: Management Skills

## Unit level (MQF): 4

## Credits: 6

## Unit Description

In this unit learners will develop fundamental knowledge related to management skills and will understand the concept of managerial effectiveness and leadership within aviation organizations. Learners will gain valuable insights into the airport scenario to understand the principles and practice of managing the performance of individuals in such an organization.

The unit introduces the learners to the principles and practice of human factors and team leadership and will also have the possibility to understand how different leadership styles impact on team performance.

In addition, leaners will be able to recognize the nature and value of the airport business performance measurement and will also focus on the understanding of different types and levels of management, accountability, and achieving performance satisfaction within a managerial position in the aviation industry.

## Learning Outcomes

**On completion of this unit the learner will be able to:**

1. *Understand the nature and role of management work in the aviation environment.*
2. Ensure using the appropriate management tools and techniques that processes under own responsibility are operating effectively.
3. *Manage effectively and diligently conflict situations that may arise in the aviation industry.*
4. *Communicate effectively using the appropriate communication skills and channels.*

# Unit: Marketing and Economics

## Unit level (MQF): 4

## Credits: 6

## Unit Description

In this unit learners will develop fundamental knowledge related to Marketing and Economics in the Aviation Industry. It will focus on Marketing in the aviation industry, Airline and Airports Economics and Commercial Operation , Research methodology for Aviation, e-Business for Airlines ,Airfares and Ticketing.

This unit will enable the learners to research,issue and market airline tickets.It will explain how to understand customer needs by knowing the market and also working with marketing constrains such as legal and financial constrains.

This unit will outline the types of research methods and their advantages and disatvantages within the airline industry.

## Learning Outcomes

**On completion of this unit the learner will be able to:**

1. *Use market research methods to develop a marketing plan for aviation operations.*
2. *Understand the impact of e-business on airline activities and their effectiveness of airlines reservation websites.*
3. *Explain all the steps and measures taken in booking a flight via different points of sale.*
4. *Explain the nature of supply and demand for airline and airport services.*

# Unit: Aircraft Fundamentals and Characteristics

## Unit level (MQF): 4

## Credits: 6

## Unit Description

This unit is very important for learners following the qualification in Aviation Operations since it is mainly focussed on the ground segment of flight operations, and the aircraft systems covered in this unit are the ones that are most relevant.

The aircraft systems described in this unit are those of the Airbus A319/320, which is one of the most common commercial airplanes today. However, references to other, even larger aircraft, are also given were necessary.

This unit will seek to familiarise learners with the basic systems found on modern commercial jet aircraft as well as the basic characteristics of such aircraft. Therefore, by the end of the unit, the learners will be familiar with the characteristics of similar aircraft, like the Boeing 737 and even larger aircraft, like the Airbus 330 wide body jets.

In this unit learners will be visiting various local aviation companies.

## Learning Outcomes

**On completion of this unit the student will be able to:**

1. *Use equipment on board an aircraft safely and effectively.*
2. *Communicate effectively with the flight crews and ground maintenance personnel, in the event of a flight being grounded or delayed due to technical problems.*
3. *Recognise the different systems found on commercial passenger aircraft.*
4. *Identify the basic performance limitations of commercial passenger jets.*

# Unit: Weather & the Environment

## Unit level (MQF): 4

## Credits: 6

## Unit Description

In this unit learners will develop fundamental knowledge related to the weather and the environment in Aviation. It will focus on the basic weather theory, weather reports, forecasts, and understanding the weather phenomena related to airports and aircraft operations.

Leaners would be able to develop abilities to recognize weather conditions and a deep understanding of including the weather in airport planning for safe and expeditious operations. It will also focus on the understanding of the environmental impacts on society caused by the aviation industry. The role of the aviation industry in support of new and cleaner fuels, noise abatement, ecologically and human health, and reducing pollution. The unit will enable the leaners to apply techniques in reducing aviation hazards related to bird and wildlife. Measures of control on airports, runways and the movement areas.

## Learning Outcomes

**On completion of this unit the learner will be able to:**

1. *Understand the basic weather theory, weather reports, forecasts and weather phenomena related to airports and aircraft operations.*
2. *Identify aviation hazards related to different weather conditions and the impact of weather on Airport Operations.*
3. *Determine best methods of control and reduction in aviation pollution.*
4. *Apply the correct techniques to reduce aviation hazards in relation to the Bird and Wildlife Controls on Airports and Aerodrome.*

# Unit: Customer Service in the Aviation Industry

## Unit level (MQF): 4

## Credits: 6

## Unit Description

Customer service is a key factor in the operation of aviation organisations as competition within the industry is on the increase. Overall, this unit seeks to demonstrate to the learners the importance of good customer service throughout an organisation. Learners will also be shown and given skills in the application of good customer service throughout the organisation. Learners will then understand how good customer service can be the driving force in enabling aviation organisations to gain a competitive advantage.

This unit will provide learners with the knowledge and skills required to be able to provide, measure and improve customer service in the aviation industry. The unit will provide the learner with a range of theoretical and practical competences in understanding the needs and wants of the many different airline customers. In addition, learners will become familiar with the design and delivery of customer service programmes to be able to ensure a high level of customer satisfaction.

## Learning Outcomes

**On completion of this unit the students will be able to:**

1. *Understand the importance of delivering effective customer service in the aviation industry.*
2. *Outline the different customer service models and strategies in the aviation industry.*
3. *Measure customer service in the aviation industry for future improvement.*
4. *Provide effective customer service within the aviation industry.*

# Unit: Air Passenger and Baggage Management

## Unit level (MQF): 4

## Credits: 6

## Unit Description

In this unit learners will develop fundamental knowledge related to Passenger handling at an airport, be it by the airport operators or by an airline. It will focus on the various types of services provided by both entities such as check-in procedures, baggage management from an airline's point of view, the security which comes along with such processes and an understanding of a passenger's "journey" within the airport itself. This includes the different departments within an air terminal that comprises security, immigration and customs. It will also focus on the different day to day variable that affect a passenger's trip such as flight disruptions, delays and many others. This unit will enable the learners to identify these incidences and act accordingly to normal procedures used globally.

## Learning Outcomes

1. *Explain the method used to handle Check In, Boarding and Lost Luggage for arriving passengers.*
2. *State the requirements for acceptance of passengers on flights.*
3. *Describe the possible procedures and optimal solutions to a particular situation.*
4. *Describe a passenger's Journey explaining all steps and measures taken by an airport operator to control passengers and minimise congestion at various key points in the terminal.*

# Unit: Communications in the Aviation Environment

## Unit level (MQF): 4

## Credits: 6

## Unit Description

The aim of this unit is to enable the learner to develop the necessary knowledge and understanding of the principles of communication within the aviation sector. This will enable the learner to communicate relevant information, both formally and informally, to all relevant and interested parties. Accurate communication within the aviation industry is paramount, to maintain a safe working environment and to cut down on excess costs.

Communication assumes an exchange of information that is clear, accurate, up to date and understood by both parties. The environment in a busy airport is usually hectic and noisy and communications may not be as straightforward as may be thought. Learners need to examine the different types of communications and their use. However, they also need to recognise how barriers to communication can cause delays, inconvenience, extra costs and even unsafe situations.

Job roles within the aviation industry require staff to speak with self-assurance, confidence, authority and diplomacy to members of the public and other staff. On completion of this unit, the student should have been given the opportunity to practise and strengthen his/her communication skills through a variety of role plays representing realistic situations.

## Learning Outcomes

**On completion of this unit the student will:**

1. *Carry out effective communications in an aviation setting.*
2. *Ensure the effective transfer of aviation information for safety and efficiency reasons.*
3. *Understand the importance of airport signage.*
4. *Identify and use marshalling signals used on the apron.*

# Unit: Cargo Operations

## Unit level (MQF): 4

## Credits: 6

## Unit Description

In this unit the learners will be able to become familiar with the requirements and responsibilities of the shipper. As well as know the importance of airfreight in today's dynamic world and understand the role and responsibilities of the freight forwarder.

Learners will gain knowledge about the different operational procedures and processes that airlines and cargo handling companies adopt during acceptance and releasing of goods as well as understanding the handling procedures for different types of cargo.

In this unit learners will become familiar with other entities like Customs and AVSEC (SECURITY), which are also involved in the import and export activities related to airfreight. Finally, learners will understand what dangerous goods are and how these can be shipped as airfreight.

## Learning Outcomes

1. *Determine the responsibilities of the shipper and the role of freight forwarder in aircraft cargo operations.*
2. *Explain the different procedures and processes related to import and export of goods by air.*
3. *State the role of other entities in ensuring a smooth operation like Customs and Security.*
4. *Describe the different handling procedures used for different types of cargo.*
5. *Apply the correct processes and procedures to handle freights with dangerous goods.*

# Unit: Cabin Operations

## Unit level (MQF): 4

## Credits: 6

## Unit Description

On any given flight, cabin crews are busy attending to the passengers' needs, ensuring their comfort but above all guaranteeing their safety and security.

In this unit, learners will have the opportunity to explore cabin operations from a holistic point of view. They will cover in detail and analyse the roles and responsibilities of the cabin crew and their in-flight managers in many different situations. Cabin crews are trained to deliver a high level of customer service. In this very competitive industry, airlines are trying to find a balance between, service quality and value for money for their passengers.

However, the cabin crew's role is much more than that of being a good host. Cabin crew are trained in how to cope with any eventuality, such as dealing with angry and disruptive passengers, in-flight fires, medical emergencies, aircraft evacuations, and other difficult situations.

On the other hand, in-flight managers lead their teams and motivate them in normal and emergency situations. The chain of command system is designed to enable communication to flow between flight crew and cabin crew. By investigating this system, the learner will recognize that effective interaction and communication are crucial in ensuring the safety of the aircraft, the passengers and the crew. Security threats to airlines are also on the increase and learners will understand how security is maintained on board.

After completing this unit, learners will come to recognize the complexity of the cabin crew's roles. They will learn about the many different procedures and services that need to be followed. They will understand that executing a well-coordinated on board operation can be a very challenging and exciting career.

## Learning Outcomes

**On completion of this unit the learner will be able to:**

1. *The importance of executing coordinated onboard passenger operations.*
2. *Recognise the roles and responsibilities of the cabin crew and the in-flight manager.*
3. *Identify the different procedures and service on board an aircraft in normal and emergency situations.*
4. *Maintain security onboard an aircraft.*

# Unit: Basic Fundamentals of Aircraft Operations

## Unit level (MQF): 4

## Credits: 6

## Unit Description

This unit seeks to familiarise the students with a sound knowledge of Aircraft Flight Operations, as well as discuss its many aspects, namely: Airfield Operations, Loading of Aircraft, basic Weight and Balance calculations, Aircraft take-off and landing performance and Flight Planning.

The unit is mainly focussed on the ground segment of flight operations, since this aspect of is highly relevant and should enable learners to greatly enhance their knowledge as regards to the aviation environment.

Learners will become familiar with the Loading of Aircraft, Weight and Balance and Take-off and Landing Performance of the Airbus Family of Airplanes, namely the Airbus A319/320, which is one of the most common commercial airplanes today. However, they are not limited to this since references to other, even larger aircraft, are given were necessary. The learners will also be covering in detail the principles of flight.

By the end of the unit, the learner will be familiar with aircraft flight planning, preparing a flight plan, planning the loading of aircraft through weight and balance calculations and calculating aircraft take-off and landing performance. The learners will also have the opportunity to visit a typical company Flight Operations Department to see first-hand the way everything functions.

## Learning Outcomes

**On completion of this unit the students will be able to:**

1. *Carry out basic Aircraft Flight Operations according to current regulations.*
2. *Prepare a Flight Plan and fill it in correctly and accurately.*
3. *Determine basic airfield performance and understand airfield limitations.*
4. *Plan the distribution of load in the aircraft cargo holds using the appropriate calculations.*
5. *Understand the principles of flight in relation to aircraft flight operations.*

# Unit: Fundamentals of Finance and Costing

## Unit Level (MQF): 4

## Unit Credits: 3

## Unit Description

The main objective of this unit is to provide learners who do not have an accounting or finance background with a solid understanding of the fundamental principles relating to finance and costing. Primarily, students will familiarise themselves with key finance terminology, the fundamental concepts of cash flow and the various cost classification methods.

Subsequently, students will learn about the purpose of preparing, and the contents of, a Statement of Profit or Loss and a Statement of Financial Position. This will enable them to be able to calculate appropriate financial measures which will be used to evaluate the financial performance and position of an organisation.

The costing techniques that can be used to determine and control the material, labour and overhead costs of an organisation are also considered. With regards to material costs, learners will acquire a solid background about inventory-related costs, the purchasing process, the three methods of inventory valuations and inventory issues (FIFO, LIFO, and AVCO), inventory control and stock-taking procedures.

Eventually, the different types of labour remuneration methods, namely time-rate, piecework, the bonus system and salary, together with the fundamental concepts of overhead costing are considered. The latter includes the methods of overhead allocation and apportionment, the calculation of overhead absorption rates and depreciation.

## Learning Outcomes

**On completion of this unit, the learner will be able to:**

1. Understand the fundamental principles of finance and costing.
2. Evaluate the financial performance and position of an organisation using financial measures.
3. Use costing techniques to determine and control the inventory costs of an organisation.
4. Use costing techniques to determine the labour and overhead costs of an organisation.

# Unit: Aircraft Handling

## Unit level (MQF): 4

## Credits: 3

## Unit Description

In this unit learners will develop fundamental knowledge related to aircraft handling. Learners will start by focusing on the various procedures of marshalling were the learner will be exposed to a real case scenario which involves the towing of an aircraft.

Learners will also become familiar with the different equipment surrounding the aircraft and other services, such as: GPU, ACU, ASU, steps, airstairs, fuel, water, toilet, and airbridge. In addition to this, the learners will become familiar with the Pre-departure inspection procedures which include checking that all safety locks and pins are removed, no evident dents can be seen and many others.

Learners will also become familiar with Anti-icing and De-Icing procedures, were one can see and decide which method is best in certain circumstances. Learners will also participate in class discussion were they will evaluate case studies to identify what could have been prevented in particular air crash scenarios.

In this unit learners will also have the opportunity to witness an aircraft Towing or Pushback, which is used in case the aircraft needs to be moved on ground. Finally, learners will acquire the necessary knowledge to be able to accomplish a wheel change on an aircraft.

## Learning Outcomes

**On completion of this unit the learner will be able to:**

1. *Explain and use the correct method for Aircraft Marshalling and related procedures.*
2. *Identify the equipment found surrounding the aircraft during different procedures of aircraft handling.*
3. *Describe the different procedures and related solutions of Ground Aircraft De-icing Procedures*
4. *State the requirements of aircraft towing, aircraft pushback and wheel change.*