Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)

Specification

BTEC Specialist qualification

First teaching January 2011

Issue 2

Edexcel, BTEC and LCCI qualifications

Edexcel, BTEC and LCCI qualifications are awarded by Pearson, the UK's largest awarding body offering academic and vocational qualifications that are globally recognised and benchmarked. For further information, please visit our qualifications website at qualifications.pearson.com. Alternatively, you can get in touch with us using the details on our contact us page at qualifications.pearson.com/contactus

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This specification is Issue 2. Key changes are listed in the summary table on the next page. We will inform centres of any changes to this issue. The latest issue can be found on the Pearson website: qualifications.pearson.com

This qualification was previously known as:

Edexcel BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) (QCF)

The QN remains the same.

References to third party material made in this specification are made in good faith. Pearson does not endorse, approve or accept responsibility for the content of materials, which may be subject to change, or any opinions expressed therein. (Material may include textbooks, journals, magazines and other publications and websites.)

All information in this specification is correct at time of publication.

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Summary of Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) specification Issue 2 changes

Summary of changes made between previous Issue 1 and this current Issue 2	Page/section number
All references to QCF have been removed throughout the specification	Throughout
Definition of TQT added	1
Definition of sizes of qualifications aligned to TQT	1
TQT value added	4
QCF references removed from unit titles and unit levels in all units	17-153
Guided learning definition updated	11

Earlier issue(s) show(s) previous changes.

If you need further information on these changes or what they mean, contact us via our website at: qualifications.pearson.com/en/support/contact-us.html.

BTEC Specialist qualification title covered by this specification

Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)

Qualifications eligible and funded for post-16-year-olds can be found on the funding Hub. The Skills Funding Agency also publishes a funding catalogue that lists the qualifications available for 19+ funding.

The qualification and unit codes will appear on learners' final certification documentation.

The Qualification Number for the qualification in this publication is:

Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)	501/2304/X

This qualification title will appear on learners' certificates. Learners need to be made aware of this when they are recruited by the centre and registered with Pearson.

This qualification is accredited by Ofqual as being stand-alone.

Welcome to the Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)

Focusing on the Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)

This qualification provides learners with the underpinning skills, knowledge and understanding in health and safety and security required to work in an aviation environment. Learners will also be able to choose an optional unit from a range of units covering aviation operation functions to develop skills, knowledge and understanding.

The Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) gives learners the opportunity to progress to employment in the aviation industry and gives career development opportunities for those already in work.

This qualification has been developed in conjunction with employers to meet industry needs.

Straightforward to implement, teach and assess

Implementing BTECs couldn't be easier. They are designed to easily fit into your curriculum and can be studied independently or alongside existing qualifications, to suit the interests and aspirations of learners. The clarity of assessment makes grading learner attainment simpler.

Engaging for everyone

Learners of all abilities flourish when they can apply their own knowledge, skills and enthusiasm to a subject. BTEC qualifications make explicit the link between theoretical learning and the world of work, by giving learners the opportunity to apply their research, skills and knowledge to work-related contexts and case studies. These applied and practical BTEC approaches give all learners the impetus and skills required for workplace or education progression.

Recognition

BTECs are understood and recognised by a large number of organisations in a wide range of sectors. BTEC qualifications are developed with key industry representatives and Sector Skills Councils (SSCs) to ensure that they meet employer and learner needs — in this case the SSC *GoSkills*.

All you need to get started

To help you off to a flying start, we've developed an enhanced specification that gives you all the information you need to start teaching BTEC. This includes:

- a framework of equivalencies, so you can see how this qualification compares with other Pearson vocational qualifications
- information on rules of combination, structures and quality assurance, so you can deliver the qualification with confidence
- explanations of the content's relationship with the learning outcomes
- guidance on assessment, and what the learner must produce to achieve the unit.

Don't forget that we're always here to offer curriculum and qualification updates, local training and network opportunities, advice, guidance and support.

Contents

What are BTEC Level 3 Specialist qualifications?

BTEC Specialist qualifications are work-related qualifications available from Entry to Level 3 in a range of sectors. They give learners the knowledge, understanding and skills they need to prepare for employment in a specific occupational area. The qualifications also provide career development opportunities for those already in work. The qualifications may be offered as full-time or part-time courses in schools or colleges. Training centres and employers may also offer these qualifications.

Sizes of Specialist qualifications

For all regulated qualifications, Pearson specify a total number of hours that it is estimated learners will require to complete and show achievement for the qualification – this is the Total Qualification Time (TQT). The TQT value indicates the size of a qualification.
Within the TQT, Pearson identifies the number of Guided Learning Hours (GLH) that we estimate a centre delivering the qualification might provide. Guided learning means activities, such as lessons, tutorials, online instruction, supervised study and giving feedback on performance, that directly involve tutors and assessors in teaching, supervising and invigilating learners. Guided learning includes the time required for learners to complete external assessment under examination or supervised conditions.
In addition to guided learning, other required learning directed by tutors or assessors will include private study, preparation for assessment and undertaking assessment when not under supervision, such as preparatory reading, revision and independent research.

As well as TQT and GLH, qualifications can also have a credit value – equal to one tenth of TQT, rounded to the nearest whole number.

TQT and credit values are assigned after consultation with users of the qualifications.

BTEC Specialist qualifications are generally available in the following sizes:

- Award – a qualification with a TQT value of 120 or less (equivalent to a range of 1–12 credits)
- Certificate – a qualification with a TQT value in the range of 121–369 (equivalent to a range of 13–36 credits)
- Diploma – a qualification with a TQT value of 370 or more (equivalent to 37 credits and above).

Pearson BTEC Level 3 Certificate

The Pearson BTEC Level 3 Certificate offers an engaging programme for those who are clear about the vocational area they want to learn more about. These learners may wish to extend their programme through the study of a related GCSE, a complementary NVQ/competence or other related vocational or personal and social development qualification. These learning programmes can be developed to allow learners to study complementary qualifications without duplication of content.

For adult learners, the Pearson BTEC Level 3 Certificate can extend their knowledge and understanding of work in a particular sector. It is a suitable qualification for those wishing to change career or move into a particular area of employment following a career break.

Key features of the Pearson BTEC Level 3 in Aviation Operations on the Ground (Knowledge)

The Pearson BTEC Level 3 in Aviation Operations on the Ground (Knowledge) has been developed to give learners the opportunity to:

- engage in learning that is relevant to them and that will provide opportunities to develop a range of skills and techniques, personal skills and attributes essential for successful performance in working life
- meet a nationally recognised, Level 3, vocationally related qualification
- progress to employment in a particular vocational sector
- progress to related general and/or vocational qualifications.

National Occupational Standards

Where relevant, Pearson BTEC Level 3 qualifications are designed to provide some of the underpinning knowledge and understanding for the National Occupational Standards (NOS), as well as developing practical skills in preparation for work and possible achievement of NVQ/Competency qualifications in due course. NOS form the basis of National Vocational Qualifications (NVQs)/Competency qualifications in the sector. Pearson BTEC Level 3 qualifications do not purport to deliver occupational competence in the sector, which should be demonstrated in a work context.

Each unit in the specification identifies links to elements of the Competency qualification in *Annexe C*.

The Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) relates to the Aviation Operations NOS.

Rules of combination

The rules of combination specify the credits that need to be achieved, through the completion of particular units, for the qualification to be awarded. All accredited qualifications have rules of combination.

Rules of combination for the Pearson BTEC Level 3 qualifications

When combining units for the Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge), it is the centre's responsibility to ensure that the following rules of combination are adhered to. The rules of combination for this qualification have been developed collaboratively with awarding bodies and the SSC GoSkills along with employer and industry groups.

Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)

1 Qualification credit value: a minimum of 13 credits from Groups A and B1.

2 Minimum credit to be achieved at, or above, the level of the qualification: 13 credits.

3 All credits must be achieved from the units listed in this specification.

Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)

The Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) is a 13-credit and 106-guided-learning-hour (GLH) qualification that consists of two mandatory units **plus** optional units, providing for a combined total of a minimum of 13 credits.

Learners must complete all units in Group A to obtain 11 credits, and then select a minimum of two optional credits from Group B1: a total of 13 credits minimum. Learners undertaking the Technical Certificate in the Aviation Operations on the Ground framework must complete three additional credits from Group B2.

The Total Qualification Time (TQT) for this qualification is 130.

Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)			
Unit	**Group A – Mandatory units**	**Credit**	**Level**
1	Health and Safety in the Aviation Industry	7	3
2	Security in the Aviation Industry	4	3
Unit	**Group B1 – Optional units**	**Credit**	**Level**
3	Ramp Handling	5	3
4	Aircraft Dispatch	6	3
5	Bird and Wildlife Control on Airports and Airfields	4	3
6	Flight Operations	5	3
7	Plan the Loading of Aircraft	5	3
8	Handling Air Passengers	4	3
9	Aviation Meteorology for Ground Staff	3	3
10	The Principles of Flight	2	3
11	Developing and improving the customer service process	7	3
12	Team Leadership	4	3
13	Airfield Operations	7	3
14	Helicopter Operations	4	3
15	Air Cargo Ground Handling	6	3
Unit	**Group B2 – Additional unit**	**Credit**	**Level**
ERR1	Employment Rights and Responsibilities in the Passenger Transport Sector	3	2

Assessment

All units within this qualification are internally assessed. The qualifications are criterion referenced, based on the achievement of all the specified learning outcomes.

To meet a 'pass', a learner must have successfully passed **all** the assessment criteria.

Guidance

The purpose of assessment is to ensure that effective learning has taken place to give learners the opportunity to:

- meet the standard determined by the assessment criteria and
- meet the learning outcomes.

All the assignments created by centres should be reliable and fit for purpose, and should be built on the unit assessment criteria. Assessment tasks and activities should enable learners to produce valid, sufficient and reliable evidence that relates directly to the specified criteria. Centres should enable learners to produce evidence in a variety of different forms, including performance observation, presentations and posters, along with projects, or time-constrained assessments.

Centres are encouraged to emphasise the practical application of the assessment criteria, providing a realistic scenario for learners to adopt, and making maximum use of practical activities. The creation of assignments that are fit for purpose is vital to achievement, and their importance cannot be over-emphasised.

The assessment criteria must be clearly indicated in the assignments briefs. This gives learners focus and helps with internal verification and standardisation processes. It will also help to ensure that learner feedback is specific to the assessment criteria.

When designing assignments briefs, centres are encouraged to identify common topics and themes. A central feature of vocational assessment is that it allows for assessment to be:

- current, ie to reflect the most recent developments and issues
- local, ie to reflect the employment context of the delivering centre
- flexible to reflect learner needs, ie at a time and in a way that matches the learner's requirements so that they can demonstrate achievement.

Qualification grade

Learners who meet the minimum eligible credit value specified by the rule of combination will meet the qualification at pass grade.

In the Pearson BTEC Level 3 Specialist qualifications each unit has a credit value which specifies the number of credits that will be awarded to a learner who has met the learning outcomes of the unit. This has been based on:

- one credit for those learning outcomes achievable in 10 hours of learning time
- learning time being defined as the time taken by learners at the level of the unit, on average, to complete the learning outcomes of the unit to the standard determined by the assessment criteria
- the credit value of the unit remaining constant regardless of the method of assessment used or the qualification to which it contributes.

Quality assurance of centres

Pearson BTEC Level 3 qualifications provide a flexible structure for learners, enabling programmes of varying credits and combining different levels. For the purposes of quality assurance, all individual qualifications and units are considered as a whole.

Centres delivering the Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge), must be committed to ensuring the quality of the units and qualifications they deliver, through effective standardisation of assessors and verification of assessor decisions. Centre quality assurance and assessment is monitored and guaranteed by Pearson.

The Pearson quality assurance processes will involve:

- centre approval for those centres not already recognised as a centre for BTEC qualifications
- approval for the Pearson BTEC Level 3 qualifications and units
- **compulsory** Pearson-provided training and standardisation for internal verifiers and assessors leading to the accreditation of lead internal verifiers via the OSCA system
- quality review of the centre verification practice
- centre risk assessment by Pearson of overarching processes and quality standards
- remedial training and/or assessment sampling for centres identified through standardisation or risk assessment activities as having inadequate quality, assessment or internal verification processes.

Approval

Centres are required to declare their commitment to ensuring the quality of the programme of learning and providing appropriate assessment opportunities for learners that lead to valid and accurate assessment outcomes. In addition, centres will commit to undertaking defined training and online standardisation activities.

Centres already holding BTEC approval are able to gain qualification approval online. New centres must complete a centre approval application.

Quality assurance guidance

Details of quality assurance for the Pearson BTEC Level 3 qualifications are set out in the centre guidance published on our website (qualifications.pearson.com).

Programme design and delivery

Mode of delivery

Pearson does not normally define the mode of delivery for Pearson BTEC Entry to Level 3 qualifications. Centres are free to offer the qualifications using any mode of delivery (such as full-time, part-time, evening only, distance learning) that meets their learners' needs. Whichever mode of delivery is used, centres must ensure that learners have appropriate access to the resources identified in the specification and to the subject specialists delivering the units. This is particularly important for learners studying for the qualification through open or distance learning.

Learners studying for the qualification on a part-time basis bring with them a wealth of experience that should be utilised to maximum effect by tutors and assessors. The use of assessment evidence drawn from learners' work environments should be encouraged. Those planning the programme should aim to enhance the vocational nature of the qualification by:

- liaising with employers to ensure a course relevant to learners' specific needs
- accessing and using non-confidential data and documents from learners' workplaces
- including sponsoring employers in the delivery of the programme and, where appropriate, in the assessment
- linking with company-based/workplace training programmes
- making full use of the variety of experience of work and life that learners bring to the programme.

Resources

Pearson BTEC Level 3 qualifications are designed to give learners an understanding of the skills needed for specific vocational sectors. Physical resources need to support the delivery of the programme and the assessment of the learning outcomes, and should therefore normally be of industry standard. Staff delivering programmes and conducting the assessments should be familiar with current practice and standards in the sector concerned. Centres will need to meet any specific resource requirements to gain approval from Pearson.

Where specific resources are required, these have been indicated in individual units in the *Essential resources* sections.

Delivery approach

It is important that centres develop an approach to teaching and learning that supports the vocational nature of Pearson BTEC Level 3 qualifications and the mode of delivery. Specifications give a balance of practical skill development and knowledge requirements, some of which can be theoretical in nature. Tutors and assessors need to ensure that appropriate links are made between theory and practical application and that the knowledge base is applied to the sector. This requires the development of relevant and up-to-date teaching materials that allow learners to apply their learning to actual events and activity within the sector. Maximum use should be made of learners' experience.

Functional Skills

Pearson Level 3 BTEC Specialist qualifications give learners opportunities to develop and apply Functional Skills. Functional skills are, however, not required to be achieved as part of the BTEC Specialist qualification(s) rules of combination. Functional Skills are offered as stand-alone qualifications. For a mapping of the BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) to Level 2 Functional Skills standards, please see *Annexe D*.

Access and recruitment

Pearson's policy regarding access to its qualifications is that:

- they should be available to everyone who is capable of reaching the required standards
- they should be free from any barriers that restrict access and progression
- there should be equal opportunities for all wishing to access the qualifications.

Centres are required to recruit learners to BTEC qualifications with integrity. This will include ensuring that applicants have appropriate information and advice about the qualifications and that the qualification will meet their needs. Centres should take appropriate steps to assess each applicant's potential and make a professional judgement about their ability to successfully complete the programme of study and meet the qualification. This assessment will need to take account of the support available to the learner within the centre during their programme of study, and any specific support that might be necessary to allow the learner to access the assessment for the qualification. Centres should consult Pearson's policy on learners with particular requirements.

Centres will need to review the entry profile of qualifications and/or experience held by applicants, considering whether this profile shows an ability to progress to a higher-level qualification.

Restrictions on learner entry

The Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) is accredited for learners aged 16 and above.

Access arrangements and special considerations

Pearson's policy on access arrangements and special considerations for BTEC and Pearson NVQ qualifications aims to enhance access to the qualifications for learners with disabilities and other difficulties (as defined by the 2010 Equality Act) without compromising the assessment of skills, knowledge, understanding or competence.

Further details are given in the policy document *Access Arrangements and Special Considerations for BTEC and Pearson Edexcel NVQ Qualifications*, which can be found on the Pearson website (qualifications.pearson.com). This policy replaces the previous Pearson policy (Assessment of Vocationally Related Qualifications: Regulations and Guidance Relating to Learners with Special Requirements, 2002) concerning learners with particular requirements.

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is a method of assessment (leading to the award of credit) that considers whether a learner can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess and so do not need to develop through a course of learning.

Pearson encourages centres to recognise learners' previous achievements and experiences whether at work, home or at leisure, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning.

RPL enables recognition of achievement from a range of activities using any valid assessment methodology. Provided that the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units or a whole qualification. Evidence of learning must be sufficient, reliable and valid.

Unit format

Each unit has the following sections.

Unit title

This is the formal title of the unit that will appear on the learner's certificate.

Unit reference number

Each unit is assigned a unit reference number that appears with the unit title on the Register of Regulated Qualifications.

Level

All units and qualifications have a level assigned to them. The level assigned is informed by the level descriptors defined by Ofqual, the qualifications regulator.

Credit value

All units have a credit value. The minimum credit value that may be determined for a unit is one, and credits can only be awarded in whole numbers. Learners will be awarded credits for the successful completion of whole units.

Guided learning hours

Guided Learning Hours (GLH) is the number of hours that a centre delivering the qualification needs to provide. Guided learning means activities that directly or immediately involve tutors and assessors in teaching, supervising, and invigilating learners, for example lectures, tutorials, online instruction and supervised study.

Unit aim and purpose

The aim provides a clear summary of the purpose of the unit and is a succinct statement that summarises the learning outcomes of the unit.

Unit introduction

The unit introduction gives the reader an appreciation of the unit in the vocational setting of the qualification, as well as highlighting the focus of the unit. It gives a snapshot of the unit and the key knowledge, skills and understanding gained while studying it. The unit introduction also highlights any links to the appropriate vocational sector by describing how the unit relates to that sector.

Learning outcomes

The learning outcomes of a unit set out what a learner is expected to know, understand or be able to do as the result of a process of learning.

Assessment criteria

The assessment criteria of a unit specify the standard a learner is expected to meet to demonstrate that a learning outcome, or set of learning outcomes, has been met. The learning outcomes and assessment criteria clearly articulate the learning achievement for which the credit will be awarded at the level assigned to the unit.

Unit content

The unit content identifies the breadth of knowledge, skills and understanding needed to design and deliver a programme of learning to achieve each of the learning outcomes. This is informed by the underpinning knowledge and understanding requirements of the related National Occupational Standards (NOS), where relevant. The content provides the range of subject material for the programme of learning and specifies the skills, knowledge and understanding required for achievement of the unit.

Each learning outcome is stated in full and then the key phrases or concepts related to that learning outcome are listed in italics followed by the subsequent range of related topics.

Relationship between content and assessment criteria

The learner should have the opportunity to cover all of the unit content.

It is not a requirement of the unit specification that all of the content is assessed. However, the indicative content will need to be covered in a programme of learning in order for learners to be able to meet the standard determined in the assessment criteria.

Content structure and terminology

The information below shows how the unit content is structured and gives the terminology used to explain the different components within the content.

- Learning outcome: this is shown in bold at the beginning of each section of content.
- Italicised sub-heading: it contains a key phrase or concept. This is content which must be covered in the delivery of the unit. Colons mark the end of an italicised sub-heading.
- Elements of content: the elements are in plain text and amplify the sub-heading. The elements must be covered in the delivery of the unit. Semi-colons mark the end of an element.
- Brackets contain amplification of content which must be covered in the delivery of the unit.
- 'eg' is a list of examples, used for indicative amplification of an element (that is, the content specified in this amplification could be covered or could be replaced by other, similar material).

Essential guidance for tutors

This section gives tutors additional guidance and amplification to aid understanding and a consistent level of delivery and assessment. It is divided into the following sections.

- Delivery – explains the content's relationship to the learning outcomes and offers guidance about possible approaches to delivery. This section is based on the more usual delivery modes but is not intended to rule out alternative approaches.
- Assessment – gives amplification about the nature and type of evidence that learners need to produce in order to achieve the unit. This section should be read in conjunction with the assessment criteria.
- Essential resources – identifies any specialist resources needed to allow learners to generate the evidence required for each unit. The centre will be asked to ensure that any requirements are in place when it seeks approval from Pearson to offer the qualification.
- Indicative resource materials – gives a list of learner resource material that benchmarks the level of study.

Units

Unit 1: Health and Safety in the Aviation Industry

Unit reference number: R/602/5675

Level: 3

Credit value: 7

Guided learning hours: 57

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and an understanding of health and safety within the aviation industry to ensure the integrity of flight operations, build public confidence and guarantee future development.

Unit introduction

The unit starts by asking learners to examine accident statistics and the importance of health and safety to the aviation industry. This sets the scene for introducing the organisations, laws and regulations tasked with keeping the industry safe. These are numerous and diverse. The Health and Safety Executive (HSE) is responsible for overseeing workplace safety and compliance with general safety laws. Others are more specialist, such as the Air Accidents Investigation Branch (AAIB) which performs post-incident investigations and the Civil Aviation Authority (CAA) which has several roles including the formulating and enforcement of rules and regulations. Learners do not need to become experts, but should understand the structure of health and safety in the aviation industry.

Learners will have the opportunity to explore the systems that have been put in place to keep the industry safe. Some of these systems have been developed from the work of organisations such as the AAIB. The industry's systems should be looked at in relation to case studies, for example injuries and fatalities to ramp staff due to jet blast or propeller strike. Understanding these situations and other issues enables the industry to put systems in place to deal with a multitude of different and sometimes unimaginable scenarios.

Finally, learners will look at the procedures for dealing with minor and major events. The industry has developed emergency plans to deal with disasters; these plans need to be tested and calibrated by everyone concerned. It is better to prepare and practice for the worst-case scenario, as it will save lives if it happens for real. Learners are asked to examine these plans in relation to real events and determine what recommendations were made at the time and, in light of current knowledge, what further recommendations might make the industry even safer.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand the importance of health and safety in the aviation industry	1.1 Describe different types of health and safety accidents or incidents that can occur relating to aircraft, other airside and landside hazards 1.2 Explain the importance of maintaining a safe environment in aviation
2 Understand how health and safety is regulated in the aviation industry	2.1 Summarise key health and safety regulations and legislation 2.2 Outline the responsibilities of supervisors and employees when complying with health and safety regulations and legislation 2.3 Explain the role of the regulatory bodies and organisations involved in aviation health and safety
3 Understand how health and safety working practices and procedures are implemented in the aviation industry	3.1 Explain how to implement safe working practices to ensure the safety of self and others in the aviation industry 3.2 Explain how procedures are implemented when dealing with both minor health and safety incidents and major emergency situations in the aviation industry
4 Understand how systems are used to monitor, control and improve aviation health and safety	4.1 Describe systems used to monitor, control and improve aviation health and safety 4.2 Explain how systems to monitor, control and improve health and safety are implemented

Learning outcomes	Assessment criteria
5 Understand a supervisor's responsibility within a Human Factors programme	5.1 Identify Human Factors training requirements 5.2 Explain Human Factors reporting procedures 5.3 Explain injury prevention procedures within a Human Factors programme 5.4 Explain the management of fatigue/alertness awareness 5.5 Explain the auditing and assessment requirements of a Human Factors programme

Unit content

1 **Understand the importance of health and safety in the aviation industry**

Accident statistics: workplace; at airports; in the air

Incidents: safety eg bird strike, foreign object debris (FOD), aircraft fire, collision between aircraft and airside vehicle, fuel spillage; health eg slips, trips, falls, hearing damage, musculoskeletal damage

Importance of maintaining a safe environment: to the organisation eg licensing, court fines, bad publicity, loss of revenue, compliance with health and safety regulations; to staff eg to reduce accidents and injuries, disciplinary action, responsibility in law; to visitors and passengers eg unfamiliar with their surroundings, unaware of potential dangers

2 **Understand how health and safety is regulated in the aviation industry**

Key laws, regulations and procedures: The Health and Safety at Work Act 1974; other relevant health and safety laws and regulations eg noise control, Control of Substances Hazardous to Health (COSHH), working-time regulations, manual handling, data protection, personal protective equipment (PPE); reporting of accidents and serious occurrences at work; civil aviation acts; CAA regulations; company procedures relating to health and safety

Responsibilities of supervisors and employees: ensuring staff compliance eg wearing PPE, following manual handling regulations, maintaining training records, reporting and investigating incidents

Role of regulatory bodies and organisations involved in aviation health and safety: regulatory bodies eg International Civil Aviation Organization (ICAO), Civil Aviation Authority (CAA), Health and Safety Executive (HSE), Department for Transport (DfT), Air Accidents Investigation Branch (AAIB); aviation and other organisations eg local authority, ambulance, fire and rescue, police and social services, airports, airlines, handling agents, security companies, cleaning companies

3 **Understand how health and safety working practices and procedures are implemented in the aviation industry**

How to implement safe working practices: risk assessment (method, reasons); staff/union consultation; health and safety representative; using 'best practice' eg HSE recommendations; following instructions eg from equipment manufacturer; following standard operating procedures (SOPs) eg company SOPs

Implementation of procedures relating to minor health and safety incidents: actions eg isolate incident site, protect staff/passengers from further risk, follow standard response procedures, report all incidents in a timely manner, keep a record of actions taken (internally or to HSE/CAA/DfT), take photographs where possible, investigate circumstances, interview staff concerned, take remedial action; type of minor incident eg slip, trip, fall, collision; personnel involved eg security, police, first-aiders, ambulance, fire and rescue

Implementation of procedures relating to major emergencies: actions eg as for minor incidents plus – follow emergency orders, cordon incident site, protect evidence, cooperate with emergency services, protect own staff from harm, inform CAA/DfT/AAIB as appropriate; type of emergency situation eg aircraft accident, serious injury, fatality, suspected communicable disease on inbound flight; personnel eg security, police, first-aiders, ambulance, fire and rescue

4 **Understand how systems are used to monitor, control and improve aviation health and safety**

Systems used to monitor, control and improve health and safety: monitor eg routine staff reports, routine inspections, unannounced inspections (in-house, regulators), audits, risk assessment reviews, airport safety committee; control eg HSE regulations, CAA regulations, local airport regulations, training, testing personnel, minimum safety standards (vehicles, equipment), designated health and safety officer, enforced standard operating procedures; improve eg mandatory actions (imposed by HSE, CAA, airport authority), learning from previous accidents, sharing information (within airport and globally), incident response training exercises

Implementation of systems to monitor, control and improve health and safety: interpretation of regulations eg from ICAO, European Aviation Safety Agency (EASA), CAA, HSA, DfT; designated trainers; issuing of licences; maintain clear training records; maintain records of inspections (audit trail); involvement of all agencies in emergency planning

5 **Understand a supervisor's responsibility within a Human Factors programme**

Supervisor's responsibility: to self; to others; to organisation

Human Factors programme: training requirements; reporting procedures; injury prevention procedures; management of fatigue/alertness awareness; auditing and assessment requirements

Essential guidance for tutors

Delivery

Maintaining a good health and safety record is vital to the aviation industry. As well as being bad for the individuals involved, accidents are not good for business and learners need to be made aware that this premise lies at the heart of the industry. There is a culture of health, safety and security within all aspects of aviation and new employees soon learn that they must treat these issues with due reverence. To reinforce this premise, learners would benefit from a visit to an airport fire station and security offices, and from talks by guest speakers such as fire officers, security officers, bird scarers, safety officers, and airport and airline representatives. (Please note that security is covered within *Unit 2: Security in the Aviation Industry* but these two units can be taught together.)

Visiting an airport and hearing the experiences of guest speakers will give learners a feel for the types of hazards that are found in the aviation environment. Many of these hazards, such as foreign object debris (FOD), otherwise known as 'litter' are unique to aviation and learners need to get into perspective that everyday objects such as a drink can or a plastic bag can potentially be very dangerous if ingested by a jet engine.

As for many of the units in this qualification, there are very few textbooks that cover any more than a portion of the unit content, and the internet will need to be used extensively as a research tool for information. Learners will need to be given time to research organisations, events and issues. This can be done individually and in groups. Some of the sites that learners will need to visit are extensive and tutors will need to guide learners through sites such as the HSE and the CAA to enable them to pinpoint the information they need.

Case studies should be used as they will help learners to comprehend why procedures, laws and regulations exist. Most health and safety laws are not specific to aviation – researching the HSE website demonstrates how many activities are protected or restricted by law. Learners can then contextualise the laws by applying them to an aviation environment. Some other regulations are specific to aviation; many of them can be accessed on the CAA website (for example CAP393 and CAP642).

The development of communication skills are critical to achieving this unit. Learners will be expected to produce a range of written materials and they should be presented to an appropriate industry standard. Teaching should therefore not just focus on a description of research undertaken. Learners should be encouraged to interpret the information they have researched and consider how it may have affected the organisation or the industry. They should be asked challenging and stimulating questions regarding the data obtained through research. Emphasis in presentation of research evidence may limit that opportunity unless it is followed by some rigorous questioning. This unit provides an essential understanding of the importance of health and safety so that learners can demonstrate their understanding in the workplace.

Assessment Guidance

There are a number of assessment opportunities presented by the subject matter in this unit. One suggestion is a written report in the form of an employee handbook and a presentation.

All the assessment criteria can be linked or can be assessed individually. Learners can, where appropriate, use examples from their workplaces.

To meet 1.1, learners will need to describe five different types of health and safety accidents or incidents. They should describe at least one relating to aircraft (on the ground), at least one relating to another airside hazard and at least one to a landside hazard. Case studies can be used.

To meet 1.2, learners will need to explain the importance of maintaining a safe environment in aviation, making reference to the accidents or incidents described for 1.1.

To meet 2.1, learners will need to summarise the key laws, regulations and procedures that apply to the industry. In terms of health and safety, the most important is The Health and Safety at Work Act 1974; learners will need to summarise this piece of legislation and identify why it is so significant. Likewise, the general content and purpose of CAA regulations needs to be summarised, but the content is far too large to cover in depth. Learners should select at least three from health and safety laws and regulations (eg Noise at Work, Manual Handling Regulations, PUWER, COSHH), one from reporting of accidents and serious occurrences at work, and one from company procedures relating to health, safety and security.

To meet 2.2, learners should outline the responsibilities of supervisors and employees when complying with health and safety regulations and legislation. At least five examples of regulations or legislation should be outlined, in each case stating why both supervisors and employees must comply.

To meet 2.3, learners should explain the role of the regulatory bodies and other aviation organisations involved in aviation health. To illustrate their explanation learners should link key laws, regulations and procedures to the regulatory bodies and other aviation organisations. Two examples should involve the regulators, a further two should relate to other bodies given in the content.

In order to meet 3.1, learners will need to explain how to implement safe working practices to ensure the safety of self and others in the aviation industry. Learners should include examples covering risk assessment, airside and on-aircraft safe working practices. All items listed in the content should be covered.

To meet 3.2, learners must explain how procedures are implemented when dealing with both minor health and safety incidents and major emergencies. They should illustrate their explanations using two examples of a minor incident and two of a major emergency situation.

To meet 4.1, learners must describe the systems used to monitor, control and improve aviation health and safety. Learners should include one system for each sub-section of the content (monitor, control, improve).

To meet 4.2, learners must explain how each of the systems described in 4.1, are implemented. The explanation should include details of the regulatory body involved, the method of promulgating the regulations, and the method of enforcement.

To meet 5.1, 5.2, 5.3, 5.4 and 5.5, learners must demonstrate that they understand a supervisor's responsibility within a Human Factors programme by

identifying the training requirements (5.1) and explaining reporting procedures (5.2), injury prevention procedures (5.3), management of fatigue/alertness awareness (5.4) and auditing and assessment requirements (5.5).

Learners can present their evidence in written or verbal format using case study material or industry examples from their own workplaces.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

For demonstration purposes learners should have access to industry standard PPE Samples, for example Hi-Vis jacket, ear defenders, protective footwear.

Indicative resource materials

Textbooks

Ashford N, Matin Stanton H P, Moore C – *Airport Operations* (McGraw-Hill, 1997) ISBN 978 0070030770

Doganis R – *The Airline Business* (Routledge, 2005) ISBN 978 0415346153

Miyagi M – *Serious Accidents and Human Factors: Aviation Safety Through Incident Reporting Analysis* (WileyBlackwell, 2005) ISBN 978 1860584732

Journals

Airports International – Key Publishing Ltd

Flight International – Reed Business Information Ltd

Other publications

Civil Aviation Authority – CAP393 – *Air Navigation*

Civil Aviation Authority – CAP168 – *Licensing of Aerodromes*

Websites

www.caa.co.uk	Civil Aviation Authority
www.hse.gov.uk	Health and Safety Executive
www.youtube.com	YouTube is an effective source of video footage demonstrating engine blast and ingestion

Unit 2: Security in the Aviation Industry

Unit reference number: Y/602/5676

Level: 3

Credit value: 4

Guided learning hours: 30

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of the importance, maintenance, implementation and regulation of security within the aviation industry.

Unit introduction

Aviation security can be seen in many ways – it can be an inconvenience to the travelling public or a vital tool in the prevention of terrorist incidents; it is implemented by highly visible personnel, some of whom may be armed, or it uses covert stealth and intelligence tactics to succeed. Whichever way you look at it, aviation security is a fact of life and is here to stay. How successful it is in achieving its stated aims of protecting human life, company assets and business integrity is largely dependent on the way in which it is undertaken.

Aviation is a high-profile global industry that remains an attractive target to individuals or groups wishing to publicise their grievances and who have no regard for death and injury caused by a terrorist attack. The nature of the threat is constantly changing, so it is essential that security agencies operate within a coordinated domestic and international network to share intelligence and develop a unified strategy to stay one step ahead.

Less frequently in the headlines, but also of significance, is the requirement to protect the industry from more conventional threats such as theft and fraud. Security services help to ensure that millions of passenger bags and hundreds of thousands of tonnes of air cargo are not interfered with while in the airport environment.

By following this unit, learners will discover how aviation security is implemented and regulated within the UK, as well as how responses to the ever-changing menace of terrorism are harmonised and improved.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand the importance of security in the aviation industry	1.1 Describe different types of security incidents that can occur relating to buildings, aircraft, passengers and staff 1.2 Explain the importance of maintaining a secure environment in aviation
2 Understand how security is regulated in the aviation industry	2.1 Summarise security regulations and legislation 2.2 Outline the responsibilities of supervisors and employees in complying with security regulations and legislation 2.3 Explain the role of the regulatory bodies and organisations involved in aviation security
3 Understand how security systems and procedures are implemented and co-ordinated in the aviation industry	3.1 Explain how aviation security systems and procedures are implemented and co-ordinated 3.2 Explain how procedures are implemented when dealing with both minor security incidents and major emergency situations 3.3 Explain the co-ordination required with security agencies in the event of a breach of aviation security
4 Understand how systems and procedures are used to monitor, control and improve aviation security	4.1 Describe systems and procedures used to monitor, control and improve aviation security 4.2 Explain how systems and procedures to monitor, control and improve aviation security are implemented

Unit content

1 **Understand the importance of security in the aviation industry**

Security incidents: buildings eg unauthorised persons airside, unauthorised articles found within passenger baggage, bomb threat, unattended baggage within terminal; aircraft eg hijack, suspicious package found during turnround/in-flight, inbound flight with hijackers/suspected bomb on board; passengers and staff eg violence towards staff/passengers in the terminal and in flight, theft from baggage, stolen baggage, unauthorised staff, misuse of passports/tickets

Importance of maintaining a secure environment: legal eg duty of care, liability, threat of prosecution; public image eg maintain public confidence and trust, maintain industry confidence, avoid negative publicity, protect the business; prevention eg removal of opportunities for security breaches, high-profile security systems, protection of the travelling public

2 **Understand how security is regulated in the aviation industry**

Security regulation and legislation: laws eg Aviation and Maritime Security Act 1990, Anti-terrorism, Crime and Security Act 2001, Policing and Crime Act 2009, Air Navigation Order 2005 including updates; local airport regulations and by-laws; company regulations

Responsibilities of supervisors and employees: supervisors eg fulfil all legal requirements, conduct background checks, ensure CRB checks are complete, investigate suspected breaches, discipline offenders of breaches, report known breaches to security authorities; employees eg follow security instructions, cooperate with security staff, wear pass when on duty, report any suspected security breaches immediately, take personal responsibility for reporting security issues, remain vigilant at all times

Role of regulatory bodies and organisations: Home Office (police and anti-terrorism legislation); Department for Transport (DfT – Transec) (airport security legislation); CAA (compliance with Air Navigation Order – CAP393); International Civil Aviation Organization (ICAO) (global coordination); airport authority eg security staff, provision of accommodation/facilities; local authority eg provision of local police; airlines/handling agents/concessionaires eg vetting staff, compliance with current regulations, reporting suspect staff; role eg legal responsibility, enforcement, coordination

3 Understand how security systems and procedures are implemented and co-ordinated in the aviation industry

Implementation and coordination of security systems: check-in eg matching e-ticket with photo ID, scanning hold baggage, AAA baggage accounting/authorising system, observing unusual behaviour or travel patterns; security screening eg passenger boarding card check, staff pass check, archway metal detector (AMD), pat-down, body scan, explosive detection, liquids restrictions; boarding eg cross-check boarding card/photo ID, verify headcount, verify passenger total matches AAA record, remove any unaccompanied bags from aircraft; airport eg CCTV, uniformed and plain clothes security, radio system to request assistance

Procedures for minor security incidents and major emergencies: minor security incidents eg unattended baggage, missing passenger at boarding, lost boarding card, bag total does not tally with AAA; minor security procedures eg advise security of unattended bag, attempt to re-unite with owner, broadcast boarding calls to alert missing passenger, contact check-in supervisor to verify passenger with missing boarding card, cancel original boarding card then re-issue, re-count bags, conduct a baggage ID check, offload any unaccompanied bags from aircraft; major security incidents eg bomb threat, violent passenger in terminal, weapon found in passenger bag; major security procedure eg isolate area, advise police/bomb squad, do not allow passengers/staff into area until declared safe, identify violent passenger to police, withdraw staff from confrontational situation, deny boarding to the passenger, security staff confiscate bag with weapon, detain passenger, advise police, deny boarding to passenger

Coordination required in the event of a security breach: agencies eg airline staff, contract security, police, special branch, bomb squad, airport authority; coordination eg follow standard procedure, ensure accurate information passed to all appropriate agencies, avoid duplication, avoid omissions, avoid confusion, ensure standard response to incident; coordinated review of actions taken after the incident

4 Understand how systems and procedures are used to monitor, control and improve aviation security

Systems and procedures used to monitor, control and improve security: monitor eg surveillance, CCTV (all areas), number plate recognition (car park), staff ID checks, passenger ID checks, overt security staff, covert security staff; control eg restricted access, restricted zone, limited access points, electronic interrogation of passes, movement monitoring of pass holders, perimeter checks; use of intelligence eg from international or domestic security agencies, collated by Home Office/DfT, standard response from all UK airports; improve eg security systems audited, DfT officer attempting to breach security, taking a weapon through screening, checking training records; equipment used must be approved by DfT

Implementation of procedures: information from central source eg Home Office, DfT; changes passed to airport security agencies eg police, Special Branch, contract security, airport authority; essential information passed to individual security officers; officers monitored to ensure compliance; introduction of biometric passports, passport scanners, face recognition

Essential guidance for tutors

Delivery

Learners who are employed at an airport will more than likely have experienced some, or all, of the security checks imposed on staff – particularly those staff who work airside. This experience can be used to support classroom input. Using personal knowledge of systems and practices will help bring a level of reality to those who are not yet in the industry. It is expected, however, that many learners will at least have been through an airport as a traveller and will, as such, have been on the receiving end of security checks. Undoubtedly there will be some good and bad experiences that can be shared. In both cases, the experiences can be contextualised and the group encouraged to explore why a belt or a pair of shoes had to be removed, why the bottle of water was confiscated or why the child's toy gun was regarded as a prohibited item.

Visiting an airport to study the security screening area might not be possible, but if a flight could be arranged as part of the course, and learners were guided as to what they should be looking out for during the security process, the experience would be rewarding and informative. The group could compare the way they were screened after the event.

When delivering the learning outcomes, it is important to introduce the context of the subject matter to discussions. For example, learning outcome 1 examines why security is important – there are numerous newspaper and journal articles together with video clips that show what can happen when security is ineffective (eg World Trade Center, New York, 11 September 2001; Glasgow Airport, 01 July 2007).

Learning outcome 2 looks at regulators and legislation. In this section, learners should be made aware that aviation security is not just a local issue. The problems of terrorism exist worldwide and often the threat comes from overseas. As a result ICAO coordinates a global response to the issues. Their recommendations, together with shared intelligence, frequently become the basis of changes to rules and regulations (eg 100% hold baggage screening after the Pan Am 103 bombing, December 1988; restrictions to carriage of liquids after the failed bomb plot in London, 2006). Building on the examples researched by learners, an explanation of the roles of the regulators can be explored. This can continue to include the responsibilities of both the supervisory staff and the general workforce in the airport.

Some of the security systems used in airports may be well known to employees. It would be useful to use the personal experiences of learners who are aware of the systems and their purpose to lead the discussions in learning outcome 3. An element that may have to be tutor led is the reasons behind and the methods used to coordinate the systems. This element should include an explanation of how the multi-layered security systems in place at all airports are coordinated to allow efficient movement of bona fide passengers and baggage while preventing unauthorised personnel or prohibited items from gaining access airside. A table-top exercise could be used to discover how learners would expect security agencies to respond to selected minor and major incidents. The exercise could be completed by a discussion of the level and type of coordination between agencies to ensure an appropriate and robust response.

A guest speaker, familiar with current security systems, regulations and procedures would be best placed to deliver the content for learning outcome 4. As the range of

systems is constantly evolving, it is important to ensure that topics delivered are up to date and relevant. Items in the unit content should be considered a guide, not a definitive list.

Assessment

This unit can be assessed as a written report which could include presentations. For staff already working in the aviation industry, it may be possible to incorporate elements of 'on the job' assessment providing all the required content is covered and evidence of assessment is recorded. Learning outcome 3 can be an assessed table-top exercise supported by a written review of the findings (ensuring all elements of the unit content are included).

To meet 1.1, learners must describe types of security incident that can realistically be expected to occur within an airport and on an aircraft to both passengers and staff. Learners should describe two incidents in the terminal and two incidents on an aircraft.

To meet 1.2, learners must explain the importance of maintaining a secure environment within the aviation industry, ensuring that examples of legal, public image and prevention (as listed in the unit content) are addressed within the explanation. This can be written (or presented) in conjunction with 1.1.

To meet 2.1, learners must summarise the most important security regulations and legislation affecting aviation security. The summary should be produced with reference to the unit content. Some local regulations not listed may be included. This section could be integrated with 2.3.

To meet 2.2, learners must produce an outline of the responsibilities held by supervisors and general airport workers in complying with the legislation and regulations identified in 2.1. Some of the examples listed for supervisors and staff in the unit content should be addressed within the evidence.

To meet 2.3, learners must briefly explain the key role of regulatory bodies and other organisations involved with security within the aviation industry. This may be produced in conjunction with 2.1.

To meet 3.1, learners must explain how aviation security systems are implemented and coordinated. They should cover the following functional areas: check-in, security screening, boarding, and generally within the airport. Learners should include the sharing of information and a unified approach to aviation security within their evidence.

To meet 3.2, learners must explain how procedures are implemented when agencies are faced with two minor and two major security incidents. Evidence could be based on table-top exercises. In each case, a brief description of the incident must be followed by a detailed explanation of the responses.

To meet 3.3, learners must explain the types of coordination required between security agencies following a breach in security. Learners can choose to link their evidence to one of the major incidents covered in 3.2.

To meet 4.1, learners must describe systems and procedures used to monitor, control and improve aviation safety. At least one example of each of the items listed in the unit content should be described (monitor, control, use of intelligence, improve, equipment used).

To meet 4.2, learners must explain how the systems described in 4.1 are implemented and include all items listed in the unit content. Evidence may be produced in conjunction with 4.1.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Textbooks

Elias B – *Airport and Aviation Security: US Policy and Strategy in the Age of Global Terrorism* (Taylor and Francis Group, 2010) ISBN 9781420070293

Price J and Forrest J – *Practical Aviation Security: Predicting and Preventing Future Threats* (Butterworth-Heinemann Homeland Security, 2009) ISBN 9781856176101

Journals

Airports International – Key Publishing Ltd

Flight International – Reed Business Information Ltd

Websites

www.asi-mag.com	Aviation Security International magazine
www.flightglobal.com	Flight Global

Unit 3: Ramp Handling

Unit reference number: H/602/5678

Level: 3

Credit value: 5

Guided learning hours: 42

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of the demands that are likely to be placed on new ground crew together with the airside hazards they may face during an aircraft turnround.

Unit introduction

Aircraft do not earn money sitting on the ground. It is essential that aircraft turnround times are kept to a minimum while ensuring safety and efficiency.

Numerous organisations play their part in a well-coordinated effort on every aircraft turnround. Activities must be choreographed and undertaken to the same precision as would be seen in a Formula One pit stop or a complex dance routine. This has to be achieved in an unforgiving, fast-moving and commercially demanding environment.

While some fundamental activities apply to every turnround, demands can vary substantially, depending on the type of airline (eg full service or 'no frills' low cost carrier (LCC)); the size and type of aircraft; the country from which it has arrived and the country to which it is departing; the length of the flight; and on-the-day situations like the size and types of the commercial load and the weather.

Failure by any of the organisations in any one of the many turnround activities can result in loss of life; injury; damage to aircraft and other expensive equipment; adverse customer service; missed departure times which can lead to extended delays; repercussive disruption to later flights; increased costs and loss of revenue.

This unit gives learners knowledge of the many types of organisation involved in ramp handling and offers them the opportunity to understand their roles and procedures as well as developing their skills in integrating their activities. It also provides them with an understanding of baggage, cargo, and passenger loading and unloading methods and procedures, and the factors which have an influence on aircraft turnround activities.

The ramp is a challenging arena in which to work and this unit explores the regulatory requirements and safety procedures and their application and monitoring, which contribute to an enviable safety record.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how to ensure safe and efficient aircraft turnround	1.1 Identify the organisations involved in aircraft turnround 1.2 Describe the roles and operational procedures used by organisations during aircraft turnround 1.3 Explain the co-ordination required to ensure safe and efficient aircraft turnround 1.4 Explain issues affecting safety and efficiency during aircraft turnround 1.5 Explain how aircraft, vehicle and pedestrian movements are managed during aircraft turnround 1.6 Explain the impact of adverse weather conditions on aircraft turnround procedures
2 Understand aircraft loading and unloading methods and procedures in relation to baggage, cargo and passengers	2.1 Describe baggage and cargo loading and unloading methods 2.2 Explain the factors that impact on baggage and cargo loading and unloading 2.3 Describe passenger embarkation and disembarkation methods and procedures 2.4 Explain the factors that impact on the embarkation and disembarkation of passengers
3 Understand how ramp safety is regulated and maintained	3.1 Describe the regulations and procedures relating to the movement and operation of aircraft, vehicles and personnel on the ramp 3.2 Explain how safe working practices are maintained on the ramp

Unit content

1 **Understand how to ensure safe and efficient aircraft turnround**

Organisations involved: division of ground-handling responsibilities*;* airport operator; airline; ground handlers; regulatory and control organisations eg Civil Aviation Authority (CAA), UK Border Agency (UKBA), Port Health, police; emergency services; other service providers eg aircraft catering

Roles and operational procedures (airport operators): stand allocation eg by aircraft type/size, domestic/international flight, maximisation of on-pier operations; marshalling eg manual and automated systems, follow-me; stand clearance; security eg restricted passenger access

Roles and operational procedures (airline/ground handlers): chocking aircraft; turnround coordination; airbridge operation/steps positioning; passenger disembarkation/embarkation; technical inspection; rectification of defects recorded in technical log eg major defect, carried forward defect (CFD); provision of ground power (fixed/mobile); aircraft servicing eg cleaning, cabin dressing, toilet/water replenishment; baggage security eg accompanied baggage, AAA, baggage manifests, rush bags; anti-icing/de-icing; relevance of holdover duration; pushback/power-back

Roles and operational procedures (regulatory and control): UK Border Agency eg immigration control and deportations, customs control including commercial goods and crew belongings; Port Health including control of passenger-transmitted disease from infected countries and specific control of infectious disease suspected onboard; police intervention eg anti-terrorist police, Special Branch

Roles and operational procedures (other service providers): airside passenger/crew coaching; aircraft refuelling eg earthing, ground refuelling points, fuel trucks, over/underwing refuelling; catering; specialist fumigation

Coordination: of organisations; role of dispatcher; pre-arrival communication with all involved organisations eg through control centres using IT systems, radio technology, verbal and written briefing; allocation of equipment and personnel; liaison between departments eg cargo warehouse and loaders, passenger staff and cabin crew; coordination at aircraft side eg via dispatcher; sequencing of activities eg offloading before onloading, cabin cleaning before passenger boarding, simultaneous or sequential offloading of aircraft holds, de-icing after doors closed; positioning of equipment eg ground power, steps, loading equipment, baggage/cargo delivery vehicles, catering vehicles, toilet service unit (TSU); pushback coordination (between ground movement control (GMC), flight-deck crew, push back engineer and dispatcher); use of standardised words and phrases and phonetic alphabet

Safety of turnrounds: using Personal Protective Equipment (PPE) eg ear defenders, hard-capped shoes; management of foreign object debris (FOD); awareness of environment and hazards eg moving vehicles, noise and blast, ingestion and propeller strike; safe lifting practices; fire prevention eg no smoking, hazardous cargo; aircraft chocking/stabilising

Efficiency of turnrounds: commercial and operational need for punctual departures; sequence of operations; timing of each operation; need for preparation; importance of teamwork and cooperation; barriers to efficiency eg weather, inaccurate communications, lack of effective coordination within and across organisations; breakdown or lack of equipment; slot times eg purpose, cost factors associated with missed slots

Management of aircraft, vehicles and pedestrians: aircraft eg marshalling, stand markings, anti-collision beacons on aircraft; vehicles eg road markings and routes, restricted areas including taxiways, positioning equipment including banksman when reversing, anti-collision beacons on vehicles, reversing klaxons; pedestrians eg escorting passengers

Impact of adverse weather: conditions eg heat, rain, electrical storms, wind, poor visibility, cold, snow; impact on turnround procedures eg protection of live cargo, baggage and embarking and disembarking passengers, danger of lightning strikes, difficult working conditions, need for follow-me vehicles, de-icing and snow clearance; consequences eg reduced landing/take-off rate, disruption to scheduled time of arrival (STA) and scheduled time of departure (STD), lengthened turnround times causing delays, reactionary delays, cancellations, increased workloads

2 Understand aircraft loading and unloading methods and procedures in relation to baggage, cargo and passengers

Baggage and cargo loading and unloading methods: types of load (loose, pallet, containerised); types of equipment (loose-load transporters and loaders eg tugs and trailers, flatbed lorries, mobile conveyor belts; container and pallet transporters and loaders eg tugs and dollies, lorries, high-lift loaders); positioning and operating equipment; matching door sill heights; allowing for aircraft movement during loading; methods of opening/closing aircraft doors; handling of special cargo eg human remains, radioactive material, livestock; control of substances hazardous to health (COSHH); securing methods eg nets, locks; documentation eg airway bill, loadsheet and Notification of Dangerous Goods to Captain (NOTOC)

Factors impacting on baggage and cargo loading and unloading: aircraft capacity; distribution of load including segregation of incompatible loads; weather and time constraints; incompatible and unserviceable equipment; damaged baggage/cargo; absence or mismatch of documentation; security eg Triple A (AAA – Account and Authorise)

Passenger embarkation and disembarkation: boarding methods (airbridge, steps, airside coach); boarding procedures (security checks, timing, manual and automated boarding card acceptance); boarding special needs passengers eg unaccompanied minors, infirm, wheelchair users, passengers with children

Factors impacting on passenger embarkation and disembarkation: readiness of crew; method of boarding or disembarkation eg control of coach boarding if remote stand, passenger safety if walk to aircraft steps; fuelling while onboard (availability of cabin crew to man doors); weather; boarding those with special needs eg passengers with reduced mobility (PRM), passengers with young children; missing passengers

3 **Understand how ramp safety is regulated and maintained**

Regulations and procedures relating to movement and operation of aircraft, vehicles and personnel: Health and Safety at Work Act; European directives; Civil Aviation (CAA), European Aviation Safety Agency (EASA); airport bylaws eg valid identity cards for personnel and vehicles, airside driving permits, adherence to road, stand and taxiway markings and speed limits; correct use of/adherence to automated and hand signals; airbridge operator licence; equipment parking; in-house regulations

How safe working practices are maintained: monitoring and reporting by airport, airline and ground handlers; mandatory reporting of incidents resulting in actual or potential injury or damage; mandatory safety induction and refresher training; compilation and publication of safety incidents and performance

Essential guidance for tutors

Delivery

This unit addresses a complex multi-agency, multi-task subject. In learning outcome 1, learners must understand not only what roles have to be undertaken but which organisations are responsible for them. Learners could be tasked with compiling a list identifying the roles undertaken by 'Airport Operator', 'Airline/Ground Handler', 'Regulatory Authority', and 'Other'. That early understanding will assist them in recognising the complexity of ramp handling and how coordination is essential.

The ramp is a harsh environment in which to work and health and safety are both at risk. Attention should be paid to having learners identify the hazards and recognise how they can be minimised for their own safety as ramp workers and that of their colleagues, passengers, equipment and aircraft. Learners must also understand how aircraft, vehicular and pedestrian movement is managed. Airfield and stand drawings, available from aviation websites, books and local airport public affairs departments, will assist.

Learning outcome 2 takes a closer look at the loading and unloading methods and procedures for baggage, cargo and passengers. Useful sources of support information include websites, aviation books and industry speakers.

Having covered learning outcomes 1 and 2, tutors should develop a range of scenarios to demonstrate the sequencing and coordination of a turnround, commencing with a simple example, eg a low cost carrier (LCC) operating a small aircraft on a domestic turnround using an airbridge, developing to a complex example, eg a full service airline with a large aircraft on a remote stand operating a domestic arrival and international departure. This approach identifies the basic turnround operations, building to complex turnround operations with many organisations involved. A fun way of doing this is by having two stand layouts with cut-outs of the aircraft and pieces of equipment with teams of learners responding to limited instructions from the tutor. This can often lead to learners making errors from which they learn in an amusing way, eg having a catering onload vehicle position against the aircraft before the catering offload vehicle, spraying the aircraft with de-icing fluid while loaders are still loading baggage, or leaving aircraft steps on while pushing the aircraft out. The winning team is the one that best achieves the sequencing.

At this stage, it would be appropriate to introduce further debate and/or role play on factors which may impact on baggage, cargo and passenger loading/unloading and the efficiency of the turnround. Scenarios might include missing passengers, bad weather, opportunities and risks associated with accepting a late group of passengers who have not prebooked, and breakdown of equipment. Learners could take on the roles of various organisations to identify and resolve the impact on their organisation and on the turnround.

Learners can be helped with learning outcome 3 by them accessing legislation and regulations, eg Health and Safety Act 1974, The Noise at Work Regulations 1989, the Management of Health and Safety at Work Regulations 1999, Air Navigation Order 2005, CAA publication CAP642 – Airside Safety Management. The HSE website provides useful information about health and safety in aviation, particularly aircraft turnrounds (go to Air Transport industry > Employers and employees > aircraft turnround).

It is essential to include one or more visits to an airport during the study of this unit. Though it is difficult to gain airside access in the current security climate, many airports have spectators' galleries from which ramp activity can be viewed. Learners should be able to relate what they have learned to what they observe. Case studies can stimulate class debate and the learning process.

The aviation industry is high profile, so learners should be encouraged to seek out media stories and to read some of the many aviation magazines and websites. There is increasing availability of TV and training videos/DVDs relating to airports and airlines.

Additionally, many airlines and airports are willing to give presentations either on-airport or off-airport. Speakers from airline or ground handler dispatch departments or airport operators' airfield management can be particularly valuable, as are those from one or more of the regulatory organisations (eg UKBA).

Assessment

If this unit is being delivered as part of a work-based training programme for learners involved with ramp activities, a practical approach can be given to the assessment. This could include a demonstration of activities and/or a written or verbal presentation on situations experienced. If this is a classroom-based delivery, the detail and complexity of the subject indicates a written or verbal assessment which identifies the components but integrates them. Overall, learners should be able to demonstrate their understanding of the components and how they integrate, and of the impact that organisations, activities and situations can have, on each other.

Learning outcome 1 addresses a safe and efficient aircraft turnround. To meet 1.1, learners must identify the organisations involved in aircraft turnround, and these should fall within the main groups, ie airport operator, airline, ground handlers, regulatory and control organisations, other service providers. The evidence can be based on one particular airport and learners can name the actual organisations involved. The evidence for 1.1 can be integrated with the evidence for 1.2.

To meet 1.2, learners must describe the roles and operational procedures used by the different types of organisation (airport operator, airline, ground handler and regulatory and control organisations and other service providers). When describing the different operational procedures, at least two ramp-handling activities should be included for airport operators, six for airlines/ground handlers/other service providers, and two for regulatory and control bodies.

To meet 1.3, learners must provide an explanation of why coordination is required to ensure safe and efficient aircraft turnround and how it is achieved. All items listed in the content (separated by semi-colons) should be addressed within the evidence and this would include recognition of the types of coordination and communication methods used and the need for sequencing activities. Examples can be provided to support written or verbal evidence.

To meet 1.4, learners must demonstrate an appreciation of the hazardous environment by identifying at least three hazards explaining how they are minimised and explaining at least one problem that can affect the efficiency of the turnround. Evidence for 1.3 and 1.4 can be integrated.

To meet 1.5, learners must provide an explanation of how aircraft, vehicle and pedestrian movements are managed during aircraft turnround. This could be based on the turnround of one aircraft, and all items listed in the content would need to be included in the evidence. Learners should support their evidence with examples, maps and diagrams. Evidence for 1.5 can be integrated with 3.1.

To meet 1.6, learners must provide an explanation of the effects of at least four types of weather conditions on aircraft turnround and the actions taken to resolve/minimise those effects. Learners should include examples (real if possible) to support their evidence and illustrate their findings.

Learning outcome 2 addresses the loading and unloading of baggage, cargo and passengers. It requires a more detailed approach to each function. To meet 2.1, learners must describe baggage and cargo loading and unloading methods. This will require a correct identification of the types of load (eg loose, palletised, containerised), and a description of the equipment and procedures used for each. Learners must also identify and describe at least two types of special cargo and the methods for handling. To meet 2.2, learners must provide three examples to demonstrate their understanding of factors that can impact upon baggage and cargo handling, and explain why they have that impact. To meet 2.3, learners must describe the main passenger embarkation and disembarkation methods and procedures, highlighting the differences depending upon the method used (ie via airbridge, steps or coach). To meet 2.4, learners must give two embarkation examples and one disembarkation example to demonstrate an understanding of factors that impact on passenger embarkation and disembarkation, eg heavy rain, and explain why they have that impact, and how they are managed. Evidence for 2.3 and 2.4 can be integrated.

Learning outcome 3 addresses ramp safety. To meet 3.1, learners must provide a description that demonstrates their knowledge of legislation, airport bylaws and other procedures relating to the movement and operation of aircraft, vehicles and personnel on the ramp to ensure safety. They should describe the procedures used to meet such requirements, eg Ground Movement Control (GMC) of aircraft and vehicles, identity passes and permits and the use of standardised procedures. Evidence for 3.1 can be integrated with 1.5. To meet 3.2, learners must provide an explanation of how monitoring, reporting, training and publication of safety incidents and performance all contribute to maintaining safe working practices.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Textbooks

Ashford, Stanton and Moore – *Airport Operations (2nd edition)* (McGraw-Hill, 1997) ISBN 9780070030770

Groppe M, Paglieri R, Harris D – *Field Observations during Airport-CDM Turn-round Process* (Cranfield University, PhD Research Project)

Journals

Airports of the World – Key Publishing Ltd

Airports International – Key Publishing Ltd

Other publications

IATA *Airport Handling Manual* (annual publication)

IATA *Baggage Services Manual*

Websites

http://www.euro-cdm.org/library/practice_tobt_assignment_100303.pdf	Field Observations during Airport-CDM Turn-round Process
www.hse.gov.uk	Health and Safety Executive
www.iata.org	International Air Transport Association

Unit 4: Aircraft Dispatch

Unit reference number: K/602/5679

Level: 3

Credit value: 6

Guided learning hours: 49

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of the role of an aircraft dispatcher/turnround coordinator including the legal, airline and airport requirements.

Unit introduction

The aircraft dispatcher, also known in the aviation industry as a 'Red Cap', has the huge responsibility of coordinating all the service requirements needed for a successful aircraft turnround.

They are responsible for all of the health and safety procedures that must be followed to ensure the safety of ground personnel and passengers. The dispatcher will need to work within strict time constraints imposed on them in order to achieve safe departures on time.

Dispatching an aircraft follows a chain of events from preparation of documents, which need to be transferred to the correct people to give them vital information, to ensuring all of the passengers and their bags are on board.

Aircraft turnrounds do not always go as planned, which means the dispatcher must have remedial plans in place to deal with unforeseen events. No aircraft turnround will be the same, and new technology and larger aircraft brings greater demands.

By completing this unit learners will be introduced to the types of documents used by many airlines and Ground Handling Agents (GHAs). Learners will also learn about the many outside services that make up the aircraft turnround, and what data is recorded and why this is a necessary legal requirement.

International Standards are used throughout the aviation industry, the recording and reports of delays is a frequently used example. Learners will look at the categories of delay and why established formats must be followed.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how to ensure health and safety requirements are met during aircraft turnround	1.1 Explain health and safety practices and procedures involved in embarkation and disembarkation of aircraft 1.2 Identify hazards associated with equipment servicing aircraft 1.3 Explain how to minimize hazards associated with equipment servicing aircraft 1.4 Identify health and safety hot spots around an aircraft 1.5 Outline the duties of a Dispatcher/Turnround Coordinator in enforcing health and safety around the aircraft
2 Understand how to ensure security requirements are met during an aircraft turnround	2.1 Explain security practices and procedures that apply to passengers during embarkation and disembarkation of aircraft 2.2 Identify security roles of a Dispatcher in enforcing Department for Transport (DfT) requirements
3 Understand the service requirements to turnround aircraft	3.1 Identify roles of service providers involved in the turnround of aircraft 3.2 Describe the different types of equipment required to service aircraft 3.3 Explain how aircraft, vehicle and pedestrian movement are managed during aircraft turnround

Learning outcomes	Assessment criteria
4 Understand the requirements for collating flight related information	4.1 Explain the background and origins of the Accounting and Authorisation of Hold Baggage for Carriage by Air (AAA) 4.2 Describe the practices and procedures of AAA 4.3 Describe the actions a Dispatcher should take if AAA does not balance 4.4 Explain what authority Dispatchers have to enforce compliance 4.5 Explain the importance of the Load Instruction Report (LIR) 4.6 Describe the checks that Dispatchers should undertake before passing a Loadsheet to the flight crew 4.7 Describe the paperwork requirements for non Dangerous Goods cargo 4.8 Describe the paperwork requirements for Dangerous Goods (DGR) 4.9 Explain the importance of a Dispatcher's Flight Report
5 Understand the Critical Time Path of aircraft turnround for different services	5.1 Explain the difference between a schedule, charter and low cost service 5.2 Identify the requirements of a Critical Time Path for a schedule, charter and low cost service 5.3 Explain the development of a Critical Time Path in relation to the services required and the size of aircraft 5.4 Explain the effect of service providers not complying with the Critical Time Path 5.5 State role of a Dispatcher/Turnround Coordinator in the co-ordination of the Critical Time Path 5.6 Explain the effect of a breakdown in the Critical Time Path in relation to an airline

Unit content

1 **Understand how to ensure health and safety requirements are met during aircraft turnround**

Health and safety practices and procedures (embarkation and disembarkation of aircraft): stand checks (stand availability, correct stand for aircraft type, obstructions, FOD (foreign object debris)); positioning of required equipment (aircraft steps, airbridge, ambulift, buses); passenger safety (passenger service agents (PSAs), marshallers, passenger routes, passenger walkways (domestic, international), transit passengers); security procedures eg security personnel to meet aircraft, UK Border Agency, security checks (cabin)

Equipment servicing aircraft: hazards, eg fuel spillage, oil spillage, heavy equipment, aircraft steps, airbridge, cables, baggage carts, dollies, main deck loaders, FOD, fuel hydrant points, baggage belts, vehicles, trucks, ground power units (GPUs), air start units (ASUs); minimising hazards, eg equipment parking bays, correct parking of vehicles, hazard lights on vehicle, 'no go' areas, jet blast screens, aircraft wing walkers (for open stands)

Health and safety hot spots around an aircraft: vicinity of engines (intake, blast, ingestion, propeller, noise); refuelling area (fuelling trucks, fuel hydrant points, trailing pipes); aircraft doors; hold doors and baggage belts; pedestrian crossings; walkways and roadways; aircraft live taxiways

Dispatcher/Turnround Coordinator health and safety enforcement duties: ensuring staff are using Personal Protective Equipment (PPE) eg hard hat, ear protectors, hi-visibility clothing; ensuring cones, wing chains and wing walkers are in place; checking ID; checking aircraft anti-collision lights; restricting access to 'no go' zones

2 **Understand how to ensure security requirements are met during an aircraft turnround**

Passenger security practices and procedures (embarkation and disembarkation of aircraft): boarding gate checks (tickets, passports, boarding cards, hand luggage); restricted passenger access to aircraft/terminal (passenger walkways, marked routes, arrival escorts, 'no go' zones/areas)

Security roles of a Dispatcher (Department for Transport (DfT) requirements): AAA (authorisation and accountability) of hold baggage; vehicle and staff checks (licences, ID checks, for restricted areas); restricting access to aircraft (aircraft doors, airbridge doors)

3 **Understand the service requirements to turnround aircraft**

Service providers' roles (aircraft turnround): service providers eg marshallers, fuellers, catering, ambulift, engineers, passenger service agents (PSAs), aircraft cleaners, security personnel; roles eg to provide (or remove) products and services to/from the aircraft, to ensure safe embarkation and disembarkation of passengers, to check and maintain the aircraft, to refuel the aircraft, to clean the aircraft, to de-ice the aircraft, to load and unload cargo and baggage, to ensure security of passengers, baggage and cargo, to coordinate the turnround

Equipment types to service aircraft: airbridge and steps; aircraft cleaning units; fuel trucks; catering trucks; water service vehicle; GPU (ground power units); engineer's equipment; baggage carts; dollies; belts; container loaders; push-back tug

Management of aircraft, vehicles and pedestrians: aircraft eg marshalling, stand markings, anti-collision beacons on aircraft, ATC clearance; vehicles eg road markings and routes, signage, restricted areas including taxiways, designated equipment/vehicle parking areas, use of a banksman when reversing, hazard beacons on vehicles, reversing klaxons; pedestrians eg escorting passengers, passenger walkways and crossings

4 **Understand the requirements for collating flight related information**

Accounting and Authorisation of Hold Baggage for Carriage by Air (AAA) background and origins: definition of AAA (requirement to reconcile hold baggage with passenger flying, airline responsibility, automated systems since 1998, current UK legislation/regulation); origins (first introduced by UK Government following the Lockerbie Pan Am tragedy)

AAA practices and procedures: full baggage screening; tag-track system; baggage barcoded; sequence-numbered; baggage reconciliation; hold positions; compartment identification; hold baggage declaration manifest; load instruction report; process for accompanied bags (passengers check-in hold bags, details automatically relayed to departure gate, further reconciliation at final boarding); unaccompanied baggage subject to special screening procedures (rush bags, transfer bags, transit loads)

Dispatcher actions if AAA does not balance: aircraft cannot leave its stand (depart); baggage ID documentation checked (rush bags, transfer bags, check-in errors, misuse of tag track, incorrect entries); unaccounted-for bags removed from aircraft

Dispatcher authority to enforce AAA compliance: full authority in AAA procedures (sign-off of hold baggage declaration manifest, load instruction report, aircraft baggage ID) flight deck must comply; current AAA UK legislation/regulation

Importance of the Load Instruction Report (LIR): aircraft safety; aircraft loaded correctly; weight and balance; aircraft hold layout; provides guidance for loading eg location of load (bulk, compartments, ULD (unit load device) positions), eg type of load (bags, cargo, mail, dangerous goods, special loads including live animals (AVI) and human remains (HUM)); provides record of loading

Dispatcher checks before passing a Loadsheet to Flight Crew: correct version of loadsheet (manual, computerised) for aircraft type/series eg Boeing 737 series 300; correct details (flight number, date, aircraft registration, crew compliment, configuration, dry operating weight, dry operating index, fuel figures); adjustments maximum weights (regulated, take-off, zero fuel, landing, ramp); passenger breakdown; cargo; mail; passenger split (first, business, economy); aircrafts trim (data, dropline, tail plane setting); total passengers onboard; underload available within flight envelope

Paperwork requirements: non-dangerous goods (cargo documents, manifests, customs manifests, load instruction report); Dangerous Goods Regulations (DGR) (cargo documents, manifests, notification to captain (NOTOC), load instruction report, dangerous goods checklist, compatibilities, governmental acceptance, different countries, radioactives, explosive materials, airlines approval)

Dispatchers Flight Report: record information; aircraft turnround times; start/finish times (fuellers, catering, aircraft cleaners, loading staff) boarding times; fuel figures; crew details; scheduled departure/arrival times; slots (airborne take-off times); configurations; specials (wheelchairs, pre-boards); record any problems, delays, codes; importance eg record of what happened during turnround for legal purposes, for responsibility issues relating to service provision, for future improvement

5 Understand the Critical Time Path of aircraft turnround for different services

Different services:

- *schedule* – runs to a set timetable all year or seasonal; service may be co-shared; full service eg meals, drinks, newspapers, entertainment, baggage; type of passenger (business, executive); type of flight (domestic, internal, short haul); different classes (first, business, economy); has connecting flights; high number of rotations in a day; low-load factor
- *charter* – high-load factor; seasonal (summer, winter programmes); usually chartered by a holiday company in conjunction with a package or cruise; hot-spot destinations; one class (economy or premium economy); rotations per aircraft up to three times a day (often with early morning and late night flights)
- *low cost* – budget airlines; quick turnround (as little as 25 minutes); no frills eg no meals, limited entertainment, pay extra for airport check-in and baggage, some free-seating; high passenger loads; business and holidaymakers; online booking; simplicity

Critical Time Path requirements: aircraft turnround times; meet scheduled times of departures (STDs); slot restrictions imposed; aircraft rotations; crew operating hours; passenger demand; cost; connecting flights

Critical Time Path development in relation to the services required and the size of aircraft: aircraft stand allocation; aircraft allocated turnround times; reduced services for quick aircraft turnround eg using aircraft steps, limited cleaning of aircraft cabin, limited catering, no fuel; on-time services at aircraft (fuellers, catering, loading staff, passenger service agents); type of aircraft eg wide-bodied, narrow-bodied, twin decks

Effects of service providers not complying with the Critical Time Path: eg aircraft delays, passenger inconvenience, missed connections, aircraft rotations delayed, crew out-of-hours, stand-allocations overrun, slot restrictions imposed, added costs to airlines/ground handling agents

Dispatcher/Turnround coordinator role in the co-ordination of the Critical Time Path: preparation for aircraft arrival (stand checks, arrival escorts, services on stand, fuellers – if required, catering, loading staff, gate staff); documentation produced and checked; provision of passenger services eg airbridge, aircraft steps, specials, pre-boards, wheelchairs, ambulift

Effects on airline of a breakdown in the Critical Time Path: immediate effects eg aircraft delays, rotations delayed, missed slots, passenger inconvenience; future effects eg loss of revenue, loss of passenger confidence in airline, loss of repeat business, airline's reputation damaged, consequences for ground handling agents eg penalties, loss of contracts, staff redundancies

Essential guidance for tutors

Delivery

This unit should be delivered with the focus on the role of the aircraft dispatcher. Anyone given the chance to shadow an aircraft dispatcher for a couple of days, will not only see how vital the role is to achieve safe aircraft departures, but will also experience the variety of activities within the role. To gain the best insight into the role, the unit lends itself to substantial input by someone with industry knowledge. This may be the tutor, or an airline or GHA (ground handling agent) dispatcher who would be willing to share their knowledge.

There could be an opportunity for a former student, who has progressed from an aviation course to working in the industry as a dispatcher, to return and share their experiences and knowledge with learners. It can be difficult to arrange airside visits to observe the aircraft dispatcher's role first hand, so through cooperations with airline and ground handling staff, it can become possible for the learner to practice simulations using classroom mock-ups and this will make the learning process more practical and realistic.

Learning outcome 1 develops the learner's knowledge and understanding of the importance of health and safety during an aircraft turnround. Tutors should introduce learners to the health and safety issues related to the embarkation and disembarkation of passengers, the loading and off-loading of baggage and cargo and the servicing of the aircraft with a focus on the role of the aircraft dispatcher. Learners must be able to fully appreciate how communication and coordination is essential for a dispatcher to successfully complete an aircraft turnround. Learners need to explore who needs information from the dispatcher and with whom it is shared with. Of course, things do not always go as planned; this is where the skills of the dispatcher in problem solving and diplomacy will come into first effect. Frequently, the issues that must be resolved involve employees or facilities provided by third parties with the legal obligations, terms and conditions that apply.

Apart from the completion of paperwork needed by the dispatcher, for example the flight information sheet, learners will need to be made aware of the physical checks, that must be made prior to the arrival of an aircraft, stand readiness, manpower, equipment and airport facilities.

Learners should be encouraged to suggest the full range of resources that are required for the turnround; this will illustrate the range of the dispatcher's remit. They must also look at why aircraft turnround may not go smoothly and suggest solutions to remedy such events.

The airside environment can be a hazardous place in which to work, so tutors must ensure that learners fully understand and appreciate the different rules and regulations that are set to ensure safety and wellbeing.

Aviation legislation and regulations dictate the procedures that must be followed, and the data that must be recorded by the dispatcher, legal requirements are an essential part of aircraft turnround. An example is the completion of baggage manifest declarations, which is part of the AAA process also covered in Units 6, 7 and 8. Learners need to understand how this important documentation must be completed before any aircraft departure and how any discrepancies must be noted and dealt with as a matter of priority.

Minimising delays is a major part of an aircraft dispatcher's role, and tutors must ensure that learners understand the significance of delays and the actions that an aircraft dispatcher must take. Tutors should cover the following aspects by introducing case studies or setting up desk-top simulations.

Delays can inconvenience everyone, but on occasions they may be inevitable and must be investigated. Conclusions must be drawn as to what the actual reasons were and once confirmed, the necessary recording and reports must be completed and transferred. An effective aircraft dispatcher will record all start and finish times for service providers, eg when did the caterers start and finish?

By keeping an accurate record of the turnround, process and delay, allocation can be simplified. There is a list of comprehensive delay reasons, all coded, which must be used to keep every department up to date.

Once an aircraft departs its stand, the dispatchers must relay the information so that a signal can be sent to inform the various stations the aircraft has departed. The information passed on will include actual time of departure, total amount of passengers onboard, total amount of bags onboard, cargo, mail, and any specials, for example wheelchair assistance required at destination.

A sample departure message with a completed flight report sheet of an actual flight could be used to illustrate the point. Learners should have the opportunity to practice set role-plays that will give different scenarios where they can deal with the many issues that can arise.

This will provide opportunities for creating realistic classroom mock-ups and put learners into situations where they can practice communication methods. This will help to introduce learners to the world of aviation terminology.

Assessment

To meet 1.1, learners must explain the health and safety practices and procedures that are involved in the embarkation and disembarkation of aircraft. Learners should cover all the items listed in the unit content but focus on the role of the aircraft dispatcher. Evidence can be in written or verbal format and examples should be included to support evidence.

To meet 1.2, learners must identify at least five hazards associated with equipment servicing aircraft. Learners do not need to provide a full description of the hazards, only an identification. They can support their evidence with photographs or illustrations.

To meet 1.3, learners must provide an explanation of how to minimise at least three hazards associated with equipment servicing aircraft. Evidence can be verbal or written and should be supported with examples and with photographs or illustrations.

To meet 1.4, learners must identify health and safety hot spots around an aircraft. Learners could provide an illustration or photograph, on which they identify the hot spots.

To meet 1.5, learners must provide an outline of the duties of an aircraft dispatcher in relation to enforcing health and safety around an aircraft. Learners should cover the range identified in the unit content. Evidence could be in the format of a training manual or guide to the role of the aircraft dispatcher.

To meet 2.1, learners must provide an explanation of the security practices and procedures that apply to passengers during embarkation and disembarkation of aircraft. Evidence can be in verbal or written form and must cover all the items in the unit content. Evidence can be linked to 2.2.

To meet 2.2, learners must identify security roles of a dispatcher in enforcing Department for Transport (DfT) requirements. Evidence can be linked to 2.1.

To meet 3.1, learners must identify the various roles of service providers that are involved in the aircraft turnround. Learners should support their evidence, either written or verbal, with examples, and can include photographs or illustrations.

To meet 3.2, learners must provide a description of the different types of equipment required to service aircraft. Learners can support their evidence with photographs and illustrations.

To meet 3.3, learners must provide an explanation of how aircraft, vehicle and pedestrian movement is managed during an aircraft turnround. Learners should cover the range identified in the unit content within their explanations and can support their evidence with annotated diagrams and maps.

To meet 4.1, learners must explain the background and origins of the Accounting and Authorisation of hold baggage for Carriage by Air (AAA) covering all the unit content in their explanations which can be verbal or written.

Learners can provide evidence for 4.2, 4.3 and 4.4 by firstly describing the practices and procedures of AAA to meet 4.2, secondly describing the actions a dispatcher should take if AAA does not balance to meet 4.3 and thirdly, explaining what authority dispatchers have to enforce AAA compliance to meet 4.4. Learners should cover the unit content and provide examples to support their evidence

To meet 4.5, learners must provide an explanation of the importance of the Load Instruction Report (LIR) covering all listed items within the explanation and supporting their evidence with a completed example of an LIR.

To meet 4.6, learners must describe the checks that dispatchers should undertake before passing a Loadsheet to flight crew ensuring full coverage of the items listed in the unit content.

To meet 4.7 and 4.8, learners must describe the paperwork required for non-Dangerous Goods cargo (4.7) and the paperwork requirements for Dangerous Goods (DG) (4.8). Examples of paperwork would support learners' evidence.

To meet 4.9, learners must provide an explanation of the importance of a dispatcher's flight report. Learners should cover all the items listed in the unit content in their explanation and give reasons for the importance of these items. Learners should include an example of a flight report to support their evidence.

To meet 5.1 and 5.2 learners should firstly provide a simple explanation of the differences between a schedule, charter and low-cost service carrier (5.1) and then identify the requirements of a Critical Time Path for a schedule, charter and low-cost carrier (5.2). Learners should support their explanation with examples as well as illustrations and photographs.

Learners can integrate their evidence for 5.3, 5.4, 5.5 and 5.6, supporting their evidence with examples. Evidence can be in written or verbal format.

To meet 5.3, learners must provide an explanation of the development of a Critical Time Path in relation to the services required and the size of the aircraft, covering all items in the unit content.

To meet 5.4, learners must provide an explanation of at least three effects of service providers not complying with the Critical Time Path.

To meet 5.5, learners must state the role of an aircraft dispatcher in the coordination of the Critical Time Path.

To meet 5.6, learners must provide an explanation of the effect of a breakdown in the Critical Time Path in relation to an airline covering all items in the unit content.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Learners should have access to examples of flight report information sheets, Baggage Manifest Declarations, Load Instruction Reports (LIR) and Loadsheets (Weight and Balance Charts). Learners also require access to IATA Airport Handling Manual (AHM), IATA delay code list and Dangerous Goods – NOTOCs (Notification to Captain).

Indicative resource materials

Websites

http://www.b737mrg.net/downloads/b737mrg_delaycodes.pdf	List of delay codes
http://www.connexions-direct.com/jobs4u/	Example job role of dispatcher
http://www.ltscotland.org.uk/virtualworkexperience/jobroles/transport/loaddispatcher/flash_tcm4493505.asp	Video clip showing role of dispatcher
www.caa.co.uk	Civil Aviation Authority
www.iata.com	IATA website, links to information on dangerous goods
www.icao.int	International Civil Aviation Organization

Unit 5: Bird and Wildlife Control on Airports and Airfields

Unit reference number: D/602/5680

Level: 3

Credit value: 4

Guided learning hours: 32

Unit aim and purpose

The aim of this unit is for learners to gain understanding of the potential dangers caused by birds and other wildlife on or around airfields and how these may be minimised.

Unit introduction

A bird strike is defined as a collision between a bird and an aircraft. Bird strike is also used to refer to other wildlife strikes – such as bats or ground animals. Bird strikes may happen at any phase of flight but are most common during the take-off, initial climb, approach and landing phases because of the greater numbers of birds flying at lower levels.

Bird strikes are becoming more frequent and can be a major threat to aircraft safety. For smaller aircraft, significant damage may be caused to the aircraft structure, especially jet-engine aircrafts, as they are vulnerable to the loss of thrust resulting from the ingestion of birds into the engines, which has caused a number of fatal accidents.

The majority of birds and wildlife are diurnal, therefore occurrences of bird and wildlife strikes are more common during daylight hours. Bird strikes create many dangers to aircraft in terms of aircraft loss of control, complete engine failure, serious power loss etc. Many systems and procedures have been put in place to minimise hazards, control disperse and remove birds and other wildlife. The best long-term control in place for managing bird and wildlife activity is achieved through habitat management; however it is impossible to completely control wildlife in this way. Birds are particularly difficult to manage because they are mobile and readily adapt to changing environments. In most situations, active removal or dispersal of wildlife is necessary, in conjunction with habitat management techniques. Habitat management involves the reduction or elimination of trees, shrubs and other plants which provide food, shelter or roosting sites for birds and wildlife. Airport authorities seek to achieve this through liaison, for example with local authorities regarding landfills and with local farmers to reduce the attractiveness to birds of fields surrounding airfields.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand the regulatory framework relating to the potential impact of birds and other wildlife on aircraft safety	1.1 Explain how birds and other wildlife on and around different types of airports and airfields endanger aircraft 1.2 Describe the regulatory framework associated with bird and wildlife dangers
2 Understand how to manage potential dangers created by birds and other wildlife on and around airports and airfields	2.1 Describe systems and procedures for observing, documenting and reporting birds and other wildlife 2.2 Explain how systems and procedures are used to minimise hazards caused by birds and other wildlife 2.3 Explain how systems and procedures are used to control, disperse and remove birds and other wildlife

Unit content

1 **Understand the regulatory framework relating to the potential impact of birds and other wildlife on aircraft safety**

Impact of birds and other wildlife on aircraft safety: birds and other wildlife eg flocks of birds, individual birds, rabbits and hares, deer; different types of airports and airfields eg major airports, regional airports, feeder airports and airfields; potential dangers and risks of bird and wildlife strike to small propeller-driven aircraft eg aircraft loss of control, complete engine failure or serious power loss; potential dangers and risks of bird and wildlife strike to larger jet-engine aircraft eg engine ingestion, loss of flight instrument function, injury to pilots, rapid depressurisation, landing-gear system; results of bird and wildlife strikes eg rejected take-off, forced landing, emergency landing, ditching, commercial costs in terms of aircraft damage, aircraft diversion, delays

Regulatory framework associated with bird and wildlife dangers: bird strike regulations eg airport bird hazard management, aircraft certification for bird strike risk, operators checklist for bird strike hazard management; airport regulations for prevention of bird strikes eg airport services manual, airworthiness requirements of the Aircraft Type and Aircraft Engine Type Certification processes, Air Navigation Order (ANO) 2005, establishment of a safeguarding process

2 **Understand how to manage potential dangers created by birds and other wildlife on and around airports and airfields**

Systems and procedures for observing birds and other wildlife: bird history eg identification of bird and wildlife remains, migratory patterns, bird and wildlife populations, concentrations and movement patterns

Systems and procedures for documenting and reporting birds and other wildlife: bird strike and wildlife support eg bird ID campaign, CAA bird strike database, in-house bird and wildlife hazard training programmes, guidance and advice from CAA, logging of bird and wildlife species; initial recording of bird and wildlife strike information eg phase of flight information, record of aircraft engine type involved, extent of damage; Bird Control Management Plan (BCMP) eg policies and procedures, risk identification and assessment, reporting bird control issues

Systems and procedures used to minimise hazards caused by birds and other wildlife: minimising hazards eg flight crew awareness of bird and wildlife hazards by Aeronautical Information Publications (AIPs) or NOTAMs, appropriate guidance on response to the hazard

Systems and procedures are used to control, disperse and remove birds and other wildlife: control measures (bird-scaring techniques) eg broadcast of bird and wildlife distress signals, firing of pyrotechnic bird-scaring cartridges, specialised ground-based radar equipment, monitoring levels of bird activity; habitat management eg reduction or elimination of trees, shrubs and other plants which provide food, shelter or roosting sites for birds, habitat modification, controlling possible animal habitats; Aerodrome grass management eg liaison with local authorities regarding landfills, liaison with local farmers regarding reduction of attraction to birds in fields surrounding airfields, appropriate grass management policies – grass heights

Essential guidance for tutors

Delivery

It would be useful for learners to receive a presentation from an airline or airport operator regarding bird and wildlife strikes, examining the procedures in place to control hazards and remove birds and other wildlife from the flight path. As there is multi-agency involvement, there is an opportunity to use guest speakers. Learners would benefit by a visit to or from the CAA, discussions can take place on the bird-strike regulatory framework relating to the potential impact of birds and other wildlife on aircraft safety and the legal framework embracing what is arguably the most highly-regulated industry in the world.

The development of communication skills is critical. Learners will be expected to produce a range of written materials and these should be presented to the standard required by the industry. Learners would benefit from a visit to an airport and from talks with guest speakers such as fire officers, security officers, safety officers and airline representatives. This will enable learners to get a feel for the types of hazards that exist due to bird strikes. By carrying out detailed research, learners can use case studies to understand the relevance of the different laws and regulations to the industry. For learning outcome 1, learners need to refer to the Air Navigation Order (ANO) 2005, CAP168, ICAO Annex 14 SARPs. ICAO Airport Services Manual, Doc 9137, Part 3, Bird Control and Reduction. Learners would benefit from downloading a CAA bird strike occurrence form – CA1282 to examine the content and information required. ICAO recommends a 13 km radius circle around the airport for management of bird and wildlife. Learners should have access to library and research facilities which include current trade publications detailing and reviewing procedures for dealing with emergencies and other bird-strike incidents.

It would be useful for the tutor to create scenarios where learners can work in groups to share ideas about how to deal with various situations and present their findings to their individual assignments. Useful comparisons and contrasts can be drawn from different bird-strike case studies which would improve learners' understanding and give them the opportunity to conduct more detailed individual research. Examples to be discussed and researched could be linked to recent bird-strike incidents, these are usually comprehensively covered in the media and likely to be fairly accessible for research, such as Thomson fly flight, Hudson River ditching (links provided on website list).

It is essential for learners to examine ICAO Airport Services Manual, Part 3, where they will have access to a number of useful documents that demonstrate the importance of airport bird and wildlife hazard management. Learners need to understand the importance of establishing and monitoring levels of bird activity and the recording of bird strikes. Pilots need to be aware of bird activity in arrival and departure airports and this information needs to be shared with airports and airlines. It highlights the importance of pilot airlines and airports reporting bird strikes or potential bird strikes.

This unit will demonstrate the importance of teamwork due to the number of different organisations involved in the prevention of bird strikes. Learners need to think 'outside the box' with regard to other possible support such as communicating with local birdwatchers, ornithological societies, nature reserve wardens or

gamekeepers and with local authorities to ensure that landfill waste disposal sites are not operated in a way that will create an aircraft hazard.

Assessment

For learners already working in the industry, assessment can be in the workplace. For class-based learners, evidence can be generated verbally through presentations and role play or in written format.

To meet 1.1, learners must explain how birds and other wildlife on and around different types of airports and airfields endanger aircraft; the learner must explain the effects on aircraft types on both small propeller-driven aircraft and larger jet-engine aircraft, including the nature of aircraft damage. Learners should cover at least three different types of bird strike and one other type of wildlife hazard such as rabbits.

To meet 1.2, learners must list the regulations that are associated with bird and wildlife dangers and briefly describe the key points of the different types of regulations that have to be followed on airfields.

To meet 2.1, learners are required to describe systems and procedures for observing, documenting and reporting birds and other wildlife. Evidence should be supported with examples of documentation and reports of birds in and around the flight path covering the items listed in the unit content.

To meet 2.2, learners must explain how systems and procedures are used to minimise hazards caused by birds and other wildlife, learners may link 2.2 to 2.3 clearly stating systems and procedures for dispersing and removing birds and other wildlife. Learners must refer to the unit content.

To meet 2.3, learners must explain how systems and procedures are used to control, disperse and remove birds and other wildlife. Learners may link 2.3 to 2.2 where they explain how systems and procedures are used to minimise hazards in addition to controlling, dispersing and removing birds and wildlife associated with bird strikes. Learners must refer to the unit content.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Textbooks

Kalafatas, M – *Bird Strike: The Crash of the Boston Electra* (Brandeis University Press, 2010) ISBN 9781584658979

LeMieux, J – *One Bird Strike and You're Out* (Trafford Publishing, 2009) ISBN 9781426920851

Journal

Flight International – Reed Business Publications

Other publications

BCARs – *Airworthiness Information Leaflet*, available via the Civil Aviation Authority website or HMSO ISBN 1904862578

Civil Aviation Authority – CAP772 – Birdstrike Risk Management for Aerodromes

Civil Aviation Authority – CAP168 – *Licensing of Aerodromes*

European Aviation Safety Agency – *Bird population trends and their impact on aviation safety 1999-2008*, Report by Ilias Maragakis

International Civil Aviation Organization – *Airport Services Manual*

International Civil Aviation Organization – *Annex 14 (Aerodromes)*

Websites

http://accidents-ll.faa.gov/	Federal Aviation Administration - Lessons Learned from Transport Airplane Accidents
http://www.airbus.com/fileadmin/media_gallery/files/safety_library_items/AirbusSafetyLib_-FLT_OPS-OPS_ENV-SEQ05.pdf	Airbus Flight Operations Briefing Note – Bird Strike Threat Awareness
http://www.youtube.com/watch?v=-mBSAIWGMsk&feature=fvst	Video footage of Thomson Fly bird strike incident
http://www.youtube.com/watch?v=fwIe-e7Apkc	Video footage of Hudson river bird strike incident
http://www.youtube.com/watch?v=lICb8p9SvvM	Video footage of Swiss Airbus bird strike
www.caa.co.uk	Civil Aviation Authority
www.easa.europa.eu	European Aviation Safety Agency
www.icao.int	International Civil Aviation Organization

Unit 6: Flight Operations

Unit reference number: H/602/5681

Level: 3

Credit value: 5

Guided learning hours: 38

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of the complex issues associated with the planning and operation of a commercial aircraft. This will enable them to progress towards the more technical aspects of operational airport and airline employment.

Unit introduction

Airlines across the world rely on a constant flow of timely and accurate information. This is controlled by the operations office where they monitor the status of flights in several continents, covering all the time zones of the world – each with their own potential problems.

It is the job of the operations office to predict issues that may arise. They calculate and put in place measures to prevent them from becoming a potential problem that could disrupt the smooth operation of the airline.

It is important to be aware of the implications of flights being delayed, which may not only inconvenience passengers booked on a specific flight, but also those on the next flight that aircraft is scheduled to operate.

Airline crews must work within tight constraints on their permitted duty times. Any significant delay could render them legally unable to operate the flight.

The operations office is really the heart of the airline, where information flows in and out and vital pieces of data are used to inform the decision-making process. It is an important place where decisions are made at a moment's notice to ensure that safe operations are maintained.

Emergency plans and procedures must always be in place. They are tested regularly to ensure that the airline and the airport authorities are up to date with such procedures.

By exploring the many areas that make up flight operations, learners will gain an understanding of the complex information network it requires.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand capacity and range factors that impact on aircraft selection for specific routes	1.1 Describe the passenger, baggage and cargo capacities of narrow bodied and wide bodied aircraft 1.2 Identify the range capabilities of narrow bodied and wide bodied aircraft 1.3 Explain why aircraft types are chosen for specific routes 1.4 Outline Extended-range Twin-engine Operational Performance Standards (ETOPS) flight requirements
2 Understand how route planning procedures and instrument navigation systems are used by aircraft operators	2.1 Describe route planning procedures 2.2 Explain how instrument navigation systems are used in relation to planning a route
3 Understand how to devise and implement contingency plans to maintain flight operations	3.1 Explain how to devise contingency plans to maintain flight operations 3.2 Explain how to implement contingency plans to maintain flight operations

Unit content

1 **Understand capacity and range factors that impact on aircraft selection and routes**

Passenger, baggage and cargo capacities of narrow-bodied and wide-bodied aircraft: aircraft manufacturers eg Boeing, Airbus, Embraer, ATR, Bombardier; aircraft types eg passenger, combi, cargo; capacities eg seating, cargo

Range capabilities of narrow- and wide-bodied aircraft: ultra-long range eg B747, A380: long-range eg B777, A340; medium-range eg B767, A321; short-range eg B737, F100

Aircraft types for specific routes: range eg suitable for long haul, suitable for short haul; passenger capacity eg wide-bodied for busy routes, narrow-bodied for less busy routes; cargo capacity eg large belly hold for hub-to-hub routes, smaller hold for domestic or regional routes; airport compatibility eg wide-bodied for major airports, smaller aircraft for regional airports

Extended-Range Twin-Engine Operational Performance Standards (ETOPs) flight requirements: 180-minute rule; ETPs (equal time points); twin-engine operation; engine loss; diversion decisions; alternates; distance from land; nearest airport; emergencies; planned responses; procedures

2 **Understand how route planning procedures and instrument navigation systems are used by aircraft operators**

Route-planning procedures: charts eg Jeppesen, Aerad; airspace eg controlled, uncontrolled, flight information regions (FIR), upper information region (UIR); airways; waypoints; destination and alternate suitability eg within range, compatible with aircraft type, adequate handling facilities (GHA, customs, immigration), open at planned arrival time, fuel available; overflight and landing permission obtained; routes eg most economical flight level, optimum routing, slots; documentation eg notification to airmen (NOTAM), weather eg significant meteorological chart (SIGMET), terminal aerodrome forecast (TAF), meteorological terminal report (METAR); ETOPs (extended twin operations)

Instrument navigation systems for planning a route: departure systems eg standard instrument departure (SID); en-route systems eg VHF omni-range (VOR), reporting points, traffic collision avoidance (TCAS), radar separation within airways, transponder; arrival systems eg standard arrival route (STAR), instrument landing system (ILS), non-directional beacon (NDB), distance measuring equipment (DME)

3 **Understand how to devise and implement contingency plans to maintain flight operations**

Devise contingency plans to maintain flight operations: types of contingency eg accident at main base, accident away from base, aircraft missing, hijacking, airfield closure (weather, incident, industrial action), crew shortage, fuel shortage, aircraft technical problems, communication breakdown; purpose of plan eg ensure passenger and crew safety, minimise disruption, reduce primary and consequential delays, maintain network integrity, protect the business, avoid bad public relations

Implement contingency plans to maintain flight operations: instigate incident control if required eg bronze command, silver command, gold command; put emergency services on standby if required eg police, ambulance, fire; follow airline standard operating procedures (SOPs) eg inform senior management, crewing on alert, standby aircraft, sub-charter aircraft, cancel flights, re-route flights, charter buses, arrange hotel accommodation

Essential guidance for tutors

Delivery

Learners studying this unit would benefit from building relationships with key airline personnel from local airports, in particular an airline flight operations department. However, it is recognised that gaining airside access may be difficult, so the learner must be given the opportunity to invite guest speakers into the classroom. This will give an excellent insight into the complex role of the flight operations officer.

To introduce the unit, learners should be made aware of the many different aircraft types in use at both major international hubs and much smaller regional airports. It should be made clear why the differences exist – whether due to demand for passenger capacity, cargo space, the length of the route or the size of the runway at the destination. All aircraft manufacturers have extensive information available on their websites allowing learners to research for themselves the potential suitability of aircraft for various routes allocated by the tutor. It is possible to compare learners' ideas with actual aircraft in service on the given routes.

Increasingly, extended operations by twin-engine-aircraft (ETOPS) are becoming more common. There are specific requirements that airlines must comply with before such operations are allowed. Learners can research this from regulatory body websites, for example the Civil Aviation Authority (CAA) or the European Aviation Safety Agency (EASA).

It would be helpful if learners could visit, or be addressed by, key personnel such as air traffic control and route planning officers. Both would provide valuable background to help guide research in the complex subject areas of route planning and instrument navigation. In order to fulfil the criteria, learners may choose to devise a route, for example a commercial flight from the UK to a southern European destination, describing the route-planning procedure and considerations and navigation aids used as the flight progresses. A detailed presentation or report should adequately describe the process and explain how instrument navigation is conducted.

Learners must consider the emergency procedures and planning that will be introduced when unforeseen events arise that can seriously disrupt and inconvenience the airline and its passengers. To begin with, the variety of possible incidents must be reviewed. Learners could be asked to use both personal experience and their imaginations to think of realistic scenarios that could cause minor or significant disruption. They should then consider what the purpose of the contingency plan would be in each case.

Learners will also need to understand how contingency plans should be implemented. Not all elements are needed in all cases; learners must understand the appropriate actions to be taken.

Assessment

While it is expected that most of the assessment will comprise a written report, some criterion can be assessed through presentation.

To meet 1.1, the learner should be able to describe the passenger, baggage and cargo capacities of three narrow-bodied and three wide-bodied aircraft.

To meet 1.2, the learner must identify the range capabilities of two narrow-bodied and two wide-bodied aircraft at maximum take-off weight.

To meet 1.3, the learner must explain why four different aircraft types are chosen for specific routes (two short-haul, two long-haul). Attention should be paid to range capability, capacity (passenger and cargo) and compatibility with destination airports.

To meet 1.4, the learner must outline Extended-Range Twin-Engine Operational Performance Standards (ETOPS) flight requirements. Learners should include two examples of aircraft types and two airlines that comply with the requirements.

To meet 2.1, the learner should be able to describe the route-planning process and its procedures. A route can be devised by the learner, then a comprehensive description of all the route-planning considerations can be produced.

To meet 2.2, the learner must explain how instrument navigation systems are used in relation to planning a route. This can be combined with 2.1 to produce a single report or presentation.

To meet 3.1, the learner must explain how to devise contingency plans to maintain flight operations following four unexpected occurrences that could disrupt airline operations (two minor, two major).

To meet 3.2, the learner can explain how to implement contingency plans to maintain flight operations. This can be combined with 3.1 to produce a single report or presentation.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Other Publication

Civil Aviation Authority – CAP168 – *Licensing of Aerodromes*

Websites

http://www.luton.gov.uk/Media%20Library/Word/Chief%20executives/Emergency%20Planning/Airport%20SOP%20version%201.1%20April%2007.doc	Example Airport Emergency Plan (Luton Airport)
www.caa.co.uk	Civil Aviation Authority
www.easa.europa.eu	European Aviation Safety Agency

Unit 7: Plan the Loading of Aircraft

Unit reference number: M/602/5683

Level: 3

Credit value: 5

Guided learning hours: 45

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of how to plan the loading of aircraft. They will gain an understanding of the importance of complying with associated regulations. Learners will also have the opportunity to demonstrate their knowledge of completing documentation to plan the loading of both wide- and narrow-bodied aircraft.

Unit introduction

One of the most important documents used on an aircraft turnround is the Load Instruction Report (LIR). This form instructs loaders where to load and position baggage and cargo on the aircraft in order for it to be safely within the weight and balance limits imposed for that particular aircraft type.

If the LIR is incorrectly produced or incorrectly followed there could be serious safety implications for the aircraft, crew and passengers.

Once the load controller has calculated the weight and balance of the aircraft, based on the understanding that it will be loaded exactly as indicated, then the captain will determine the take-off speeds and climb profiles. If the actual loading of the aircraft does not mirror the LIR, then all the calculations become invalid.

This unit looks at the importance of producing correct LIRs and how any deviations should be reported immediately to the relevant staff.

Learners will examine the procedures involved in planning the load of an aircraft in more detail, this plays a vital part in the safety of the aircraft's performance.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how to plan the loading of aircraft to comply with regulations	1.1 Describe the regulations associated with the loading of aircraft 1.2 Describe the load planning process 1.3 Explain how load planning is co-ordinated 1.4 Explain the significance of mass limitations in relation to load planning 1.5 Explain the significance of balance limitations in relation to load planning 1.6 Explain how incompatible, abnormal and dangerous loads impact on load planning
2 Be able to complete documentation in relation to planning the loading of wide bodied and narrow bodied aircraft	2.1 Explain the use of different types of documentation when planning the loading of aircraft 2.2 Complete load instruction reports for wide bodied and narrow bodied aircraft 2.3 Complete loadsheet and balance charts 2.4 Amend documentation in line with loading discrepancies

Unit content

1 **Understand how to plan the loading of aircraft to comply with regulations**

Regulations: AAA (Authorisation and Accountability); Civil Aviation Authority (CAA); Department for Transport (DfT); International Air Transport Association (IATA) - Dangerous Goods Regulations (DGR); JAR-OPS (Joint Aviation Requirement for the Operation of commercial air transport)/EU OPS; International Civil Aviation Organization (ICAO); Airline Regulations; LIR sign off (loading supervisor, dispatcher, load controller); documents (hold declaration manifests, cargo/mail manifests, customs document)

Load planning process: aircraft type eg narrow-bodied, wide-bodied, bulk-loaded, containerised; aircraft weight and balance; flight envelope; maximum allowable weights; hold (volume, compartments, location of hold doors, actual hold weights); number of pieces; special loads eg dangerous goods (DG), live animals (AVI), human remains (HUM); incompatible loads

Coordinating load planning: coordination between personnel eg load controller, cargo department, dispatcher, loading supervisor, loaders, flight deck crew; considerations eg airline regulations, passenger booked figures, passengers checked in, baggage checked in; cargo types eg mail, perishable, DG; cabin configurations; flight closure times; computerised departure control system (DCS); manual documents

Significance of mass limitations in relation to load planning: aircraft type – maximum hold weights; volume, eg narrow-bodied, wide-bodied, hold compartments, bulk hold, containerised hold (ULDs, pallets); wide bodied aircraft 'complimentary fit' eg containers always in hold; fuel calculations (maximum weights, zero fuel, take off, landing, ramp, Regulated Take-off Weight (RTOW))

Significance of balance limitations in relation to load planning: centre of gravity; aircraft configurations; cabin (first, business, economy); aircraft trim (zero fuel, take-off, landing); aircraft out of trim (Mean Aerodynamic Cord (MAC), Tail Plane Setting (TPS)); aircraft unbalanced; unsafe flight envelope

Impacts of incompatible, abnormal and dangerous loads on load planning: incompatible loads eg AVI and cryogenic, separating loads (using different holds), refusing loads; abnormal eg difficulty loading items (too long/wide for hold door), loads extending beyond normal bay limits (lashing required), exceeding hold-floor weight limit (using pallets or spreaders); dangerous eg chemical, compressed gas, cryogenic (ensuring DG regulations are followed)

2 **Be able to complete documentation in relation to planning the loading of wide bodied and narrow bodied aircraft**

Load-planning documentation: load instruction report (LIR); departure control system (DCS) (computerised, manual load sheet); aircraft operating weights; aircraft prepared for service weights (APS); free text instruction on LIR; aircraft hold layouts (pictorial); aircraft data charts (trim sheets, configurations, cabin, holds)

Complete load instruction reports for wide bodied and narrow bodied aircraft: computerised and manual LIR eg bulk-loaded, containerised, unit load devices (ULDs), pallets, hold designation, compartments, hold doors, free text, diagrams

Complete loadsheet and balance charts: computerised and manual eg aircraft type, configuration, maximum weights, dry operating weight, basic index, APS, passenger figures, breakdown, bag weights, mail, cargo, DG, underload, flight envelope, dropline, tail plane setting

Amend documentation in line with loading discrepancies: changes to load including last-minute change (LMC); deviations from LIR eg alterations to load, bulk out, late bags, late cargo, change of ULD position, offload of baggage; processes (sign off LIR, check AAA, legal requirements, underload available, produce new load sheet if change exceeds +/- 500 kgs)

Essential guidance for tutors

Delivery

For those not employed directly within the aviation industry, delivery and assessment will be in the classroom, with tutors working closely with relevant industry personnel to ensure accurate and up to date coverage of the topics.

As with many other units that make up this qualification, airside visits to support learning in the classroom might be difficult. Occasionally, load control centres are located landside, so a visit may be possible to see the start of the Load Instruction Report (LIR) process.

Within the classroom, examples of LIRs for narrow- and wide-bodied aircraft must be used, demonstrating how they are completed. Learners should be given the opportunity to create their own examples for different types of aircraft including those generated manually and those that are computerised so that comparisons can be made.

The learner must be made aware of the current regulations associated with aircraft loading, including health and safety, and how they must be considered in the planning stages of the LIR. It will be beneficial for the learner to use and see the different formats used in producing the LIR, which could be of free text layout or pictorial.

The differences between bulk holds and containerised holds should be pointed out, along with the types of load they accommodate (loose load and unit load). Images of the different types of ULD (unit load device) can be shown.

The learner must fully understand the importance of the weight and balance limitations that are imposed on different types of aircraft, and how any discrepancies must be corrected as this is crucial for aircraft safety and optimum operational performance.

In groups, learners can suggest loads that might be incompatible and solutions for transporting them on the same aircraft. This activity would mirror the problem-solving actions of a load control unit at a busy airport.

There are many documents that must be completed and verified during the load-planning phase. These should be explored with learners to ensure their content and purpose are understood. Of primary importance is the completion of the LIR and the load/balance chart. Learners must be given the opportunity to create a simple version of an LIR for a narrow-bodied plane and a wide-bodied plane. Using information from the LIR, learners should continue to create a load/balance sheet for the narrow-bodied aircraft, including additional information supplied by the tutor.

The sequence of events involved in creating, following procedures and verifying the LIR and load sheet must be made clear. Although not assessed, learners could be asked to predict the problems that may result if such checks were not made and the consequences of an error not detected.

The importance of advising any changes to the loading of the aircraft to the appropriate person without delay must be made clear and how the relevant documents must be amended. Last-minute changes (LMC) must reflect the actual changes made.

The learner must be able to identify why changes are made in order for the documents to reflect the aircraft's performance data and profiles which must be fully accurate in order for the flight deck crew to set their instruments.

Assessment

Assessment for this unit is likely to be in written format supported by charts and diagrams and completed documentation. Where appropriate, learners should use aviation examples in their descriptions and explanations.

To meet 1.1, the learner must describe AAA (authorisation and accountability) regulations, IATA Dangerous Goods Regulations (DGR), the Department for Transport regulations (DfT) and at least one other regulation that has to be complied with when loading an aircraft.

To meet 1.2, the learner must describe the load-planning process, covering the range identified in the unit content for two different types of aircraft, one wide-bodied and one narrow-bodied.

To meet 1.3, the learner must explain how load planning is coordinated, indicating the key personnel and types of information involved as if they were the load controller or the dispatcher.

To meet 1.4, the learner must explain the significance of mass limitations in relation to load planning of aircraft, addressing all the unit content within their explanation. Particular attention should be paid to the effect that increasing mass has on aircraft performance. Learners should support their explanations with illustrations and/or examples. Learners can integrate the evidence for 1.4 with 1.5 and 1.6.

To meet 1.5, the learner must explain the significance of balance limitations in relation to load planning of aircraft, addressing all the unit content within their explanation. Learners should support their explanations with illustrations and/or examples. Learners can integrate the evidence for 1.4 with 1.5 and 1.6.

To meet 1.6, the learner must explain how incompatible, abnormal and dangerous loads impact on load planning, covering all the unit content within their explanation. Learners must support their evidence with examples of situations where incompatible, abnormal and dangerous loads have impacted on the load-planning process. Evidence for 1.6 can be integrated with l.4 and 1.5.

To meet 2.1, the learner must explain the use of documentation when planning the loading of aircraft. Learners should include examples of completed documentation to support their explanations.

To meet 2.2, the learner must complete manual or computerised (if available) load instruction reports for one wide-bodied aircraft and one narrow-bodied aircraft from given information.

To meet 2.3, the learner must complete a basic loadsheet and balance chart from given information and differentiate between manual and computerised versions, addressing all the unit content.

To meet 2.4, the learner must amend documentation in line with at least four loading discrepancies taken from the listed content.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies, table of LIR codes and information on the Carriage of Dangerous Goods (DG) by Air, including types and classes of DG.

Learners should have to examples of:

- Load Instruction Reports (LIR) – bulk, container, wide-bodied and narrow-bodied and freetext (blank and completed)
- Loadsheet - Weight and Balance Charts (blank and completed).

Indicative resource materials

Other publication

IATA - *Airport Handling Manual* (AHM) (annual publication)

Websites

http://www.baworldcargo.com/configs/BAWCconfigurations.pdf	Description of ULDs
http://www.skybrary.aero/index.php/Aircraft_Load_and_Trim#Loading_Procedures	Description of loading procedures
http://www.smartcockpit.com/data/pdfs/flightops/aerodynamics/Getting_To_Grips_With_Weight_and_Balance.pdf	Information on weight and balance that could support any loading unit (PDF)
http://www.vrr-aviation.com/	ULD manufacturer for special loads
www.iata.org	International Air Transport Association

Unit 8: Handling Air Passengers

Unit reference number: T/602/5684

Level: 3

Credit value: 4

Guided learning hours: 35

Unit aim and purpose

The aim of this unit is to develop learners' understanding of the processes, facilities and services provided for passengers travelling through airports, and also knowledge of the services and facilities provided by different types of airline.

Unit introduction

The processing of passengers as they pass through airports is high profile and at the core of the travel experience for air passengers. For many, it will be the first and the last contact they will have with airline staff on their journey. Increasing volumes, increasing security restrictions, increasing check-in options and increasing demand for punctuality and profitability all place pressures on those trying to deliver competitive and efficient passenger handling.

Understanding the processes involved and the mandatory and optional services and facilities at airports that are available to departing and arriving passengers at airports is key to being able to meet those requirements as part of the travel experience. It is essential to also understand how these are coordinated across the many organisations and stages of the process, including efficient monitoring and management of passenger flows.

Learning outcome 1 enables the learner to know and understand the facilities and services available to the departing passenger and how the processes are shared and coordinated across organisations. It recognises the increasing trend towards checking-in before arriving at the airport.

Learning outcome 2 enables the learner to know and understand the facilities and services available to the arriving passenger and how the processes are shared and coordinated across organisations.

Within these two learning outcomes there is recognition that many passengers are both arriving and departing, ie they are transiting or transferring.

Part of the effective handling of passengers involves those who are seeing them off or meeting them on arrival, and these needs are also recognised in these two learning outcomes.

It is important for learners to understand how to achieve efficient passenger flows. The final learning outcome links all the stages described in the first two learning outcomes, by outlining the passenger's journey through the airport and exploring potential congestion 'pinch points' and how they can be overcome.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how departing passenger handling processes, facilities and services are co-ordinated	1.1 Describe facilities and services provided for passengers departing from airports 1.2 Analyse the roles and responsibilities of the different organisations involved in the passenger handling process 1.3 Explain how departing passenger handling processes are co-ordinated
2 Understand how arriving passenger handling processes, facilities and services are co-ordinated	2.1 Describe facilities and services provided for passengers arriving at airports 2.2 Analyse the roles and responsibilities of the different organisations involved in the passenger handling process 2.3 Explain how arriving passenger handling processes are co-ordinated
3 Understand how to monitor and maintain efficient passenger flow	3.1 Outline the passenger journey through the airport 3.2 Identify areas prone to congestion 3.3 Explain what measures can be used to overcome congestion problems

Unit content

1 **Understand how departing passenger handling processes, facilities and services are coordinated**

Essential facilities and services: departure information; self-service check-in/online check-in and baggage drop; manual check-in (baggage acceptance, security questions, documentation checks including to determine right of entry to destination and confirm ID, boarding card issue, gate information); security screening/searching; departure lounges (public and private); boarding (security checks, preferential boarding, provision of air-bridges or coaches and/or steps)

Optional facilities and services: off airport eg local accommodation, transport (public transport, taxi, private cars), car parking; on airport eg car parking, inter-terminal transport, retail outlets (tax free, non-tax free), catering facilities, children's play areas, leisure areas, business lounges, WiFi, faith rooms, baggage trolleys, airline customer services/sales desk, financial and business facilities, medical centre

Special passenger-handling services and facilities: passengers with reduced mobility (PRM) eg wheelchair assistance, airport buggies, ambulift; unaccompanied minors; communication services eg Braille, non-English speakers; VIPs

Roles and responsibilities of airport operators in relation to departing passenger handling processes: operation of terminal building; airport security including passenger and baggage security eg screening and searching; baggage trolleys; providing information and updating arrival/departure boards

Roles and responsibilities of airlines in relation to departing passenger-handling processes: customer service/sales desks; check-in options eg online check-in, self-service kiosks; differences between full-service airline and low-cost airline

Roles and responsibilities of airlines/ground handlers in relation to departing passenger-handling processes: check-in (compiling passenger load, seat allocation, issue of boarding cards, documentation checks, initial security checks, baggage acceptance including restricted articles and hand baggage control); boarding processes (gate checks, preferential boarding, provision of air-bridges or coaches and/or steps, escort to aircraft from gate); special passenger handling eg PRM, unaccompanied minors, VIPs; medical considerations eg stretcher cases, oxygen equipment

Roles and responsibilities of regulatory and control organisations involved in the departing passenger-handling process: Civil Aviation Authority (CAA) eg monitoring passenger and baggage security checks; UK Border Agency (authorising repayment of VAT to overseas visitors); police eg deportations, anti-terrorist

Roles and responsibilities of other service providers involved in the departing passenger handling process: public and private transport; airport hotels (courtesy buses); car parking; bureau de change; retail outlets; catering facilities

Coordinating processes for departing passenger handling: reasons for intra-organisation and inter-organisation coordination; methods and systems used to facilitate coordination eg pre-shift and post-shift briefings, control room functions, gate allocation, boarding commencement time; action when shortfalls or breakdowns in systems, procedures and practices occur, eg check-in IT system failure, late-arriving aircraft delaying boarding, bad weather situations, late gate changes

2 Understand how arriving passenger handling processes, facilities and services are coordinated

Essential services and facilities for passengers arriving at airports: disembarkation eg provision of air-bridge, steps, coaching to terminal, escorts for walking to terminal; disembarkation for passengers with special needs eg PRM, unaccompanied minors; baggage eg reclaim, lost and damaged assistance, outsized baggage pick-up; transfer and transit passengers eg assistance, lounges

Optional services and facilities for passengers arriving at airports: for meeting arriving passengers eg arrivals information, meeting areas, short-stay parking; for onward travel eg hotels and courtesy coaches, public transport, private transfers, car hire; other eg tourist information, currency exchange, left luggage, catering and retail outlets

Regulatory and control services and facilities for passengers arriving at airports: UK Border Agency eg passport and visa checks, customs (prohibited items, duty payments); Port Health eg checks for infectious diseases, particularly at times of major outbreaks

Roles and responsibilities of airport operators in relation to arriving passenger-handling processes: eg baggage security (passenger, staff, public), baggage reclaim area, information desks, facilities for meeting passengers, onward transport signage, short-term parking

Roles and responsibilities of airlines/ground handlers in relation to arriving passenger-handling processes: disembarkation eg provision of air-bridge or coach and/or steps, escorts for unaccompanied minors; special services (PRM including wheelchair assistance, ambulift, buggies); lost/damaged baggage assistance; transit and transfer passenger process and control (dependent on country of origin and country of destination) eg baggage and security procedures, minimum connecting times, missed connection procedures

Roles and responsibilities of regulatory and control organisations in relation to arriving passenger handling processes: Port Health eg processes for infectious diseases; UK Border Agency eg immigration (valid documentation checks, asylum seeker process) and customs (prohibited items and duty payments); police intervention eg anti-terrorist, Special Branch

*Coordinating processes for arriving passenger handlin*g: reasons for intra-organisation and inter-organisation coordination; methods and systems used to facilitate coordination eg control room functions, gate allocation, escorting passengers, monitoring baggage delivery area; action when shortfalls or breakdowns in systems, procedures and practices occur eg arrival information display system failure, lost unaccompanied minor, bad weather delays, baggage carousel breakdown

3 **Understand how to monitor and maintain efficient passenger flow**

Passenger journey through airport: departing passengers (from arrival at the terminal to embarkation); arriving passengers (from disembarkation to leaving the terminal); variations within journey through airport eg ticket desk, information desk, customs (VAT clearance, declaration), provision of PRM assistance, catering and retail outlets, business lounges; transfer passengers eg UK Border Control, security, transfer check-in desk; transit passengers

Areas prone to congestion: check-in; security search; lounges; boarding gate; immigration control; baggage reclaim; all areas at times of multiple flight delays

Measures to overcome congestion problems: scheduling measures eg efficient flight scheduling, planning resources to the planned schedule; check-in measures eg promotion and use of online check-in, off-airport (in-town) terminals, on-airport self-service check-in kiosks, mobile phone barcode scanning; communication measures eg provision of clear signage and announcements; monitoring measures eg human observation, CCTV monitoring of pinch points; boarding measures eg use of holding area and pre-boarding for those requiring special assistance, allowing sufficient boarding time and increasing boarding staff for heavily loaded or difficult flights, boarding by seat-row number; additional measures for crowd control and overcrowding at times of disruption eg holding passengers in check-in area, moving passengers forward early to boarding gates, providing Tensa barriers, providing additional seating; post-event analysis to prevent/reduce recurrence

Essential guidance for tutors

Delivery

This unit will enable learners to gain an understanding of the handling processes, facilities and services available to departing air passengers, arriving air passengers and those in transit and transferring. For those learners already working at the airport, they may already be involved in some aspects of passenger handling. The unit focuses on the roles and responsibilities of the many organisations that have an impact on passengers' experiences. It also addresses the essential coordination within and between organisations, and achieving efficient passenger flows.

The unit is suited to a range of learning styles. The content can be covered through individual and group work, both written and verbal, as well as through viewing videos/DVDs, and also through research, practical work and visits to airports and from industry speakers.

The first two learning outcomes address the departure and arrival processes, facilities and services. It is key to the learning experience that learners gain an early overview of the essential processes a passenger experiences and the organisations that have the responsibility for performing them, in a sequential order. Small-group debate would be an appropriate method to have learners initially offer the components and variables of each stage, eg methods of getting to the airport, methods to check-in, what the check-in process consists of and why it is done – their ideas can then be debated in plenary session for the tutor to develop into appropriate analysis of each stage. There are opportunities to view maps of airports and this will help learners to appreciate the differences in layouts, sizes and styles. Learners should be introduced, either by visits or use of maps, to airports with multiple terminals as well as those that are small and compact.

The importance of security should be emphasised, including the need to check documents to ensure passengers have the right to enter their destination country, and the fines the airlines pay if they deliver someone without appropriate documentation. This should include an understanding of electronic documentation and additional security required when travelling to the USA and certain other countries. The immigration and customs roles are the responsibility of the UK Border Agency (UKBA). Learners need to understand which function is undertaken at which stage of a passenger's airport journey.

At many airports, more than 30 per cent of passengers are transfer passengers. The handling of these passengers is complex, it incorporates part of the arrival process and part of the departure process, plus some additional functions. Learners must be guided through the transfer processes necessary for a number of combinations; domestic arrival to domestic departure, domestic arrival to international departure, international arrival to domestic departure, international arrival to international departure.

Learners must appreciate the difference between a transfer passenger (transferring between flights) and a transit passenger (arriving and departing on the same flight and aircraft) and be able to describe how transfer and transit passengers are handled.

It is beneficial for learners to develop an understanding of the different facilities and services offered between airlines, particularly between full-service airlines and low-cost carriers (LCCs). Personal experiences and internet research can be used here,

together with group debate on the merits and disadvantages of providing or not providing such facilities and services. The developing role of technology can form part of the debate, for example checking-in by internet or scanning mobile phone bar codes.

Learners must gain an understanding of how passenger-handling processes are coordinated across functions and organisations to ensure passengers experience a seamless and efficient departure or arrival. This should include, but not be limited to, an understanding of what needs to be coordinated, to whom it is communicated and how. Learners should appreciate the key requirement to adhere to the planned activity times, eg check-in closure, passing through security and commencing boarding, in such a way that passengers can flow from one function to the next in sufficient time to ensure a punctual departure.

Practical role playing of some of the functions, eg check-in, security checks, lost baggage handling, can reinforce the learning experience.

The final learning outcome integrates and extends the learning from the first two learning outcomes in that it outlines the entire passenger journey through the airport, identifies potential congestion areas and considers the measures that can be taken to overcome these 'pinch points'. Learners should, by this stage, be able to create a plan or flowchart of the sequence and location of the mandatory and optional processes, facilities and services. This can lead to a recognition of where and why congestion may occur, eg check-in due to insufficient desks manned or IT failure, security check points due to insufficient searching facilities being open, and the action taken to prevent or overcome congestion.

For those who are not currently working at an airport, it is essential that a visit to an airport is facilitated at least once to study the passenger-handling processes, facilities and services, many of which are landside and can therefore be observed. Sufficient time should be allowed to enable learners to make meaningful observations. Visits can be strengthened by including industry speakers. Experienced passenger handling staff are often keen to talk about their work and some may well be ex-students, which is motivating for learners aspiring to work at the airport.

Assessment

If this unit is being delivered as part of a work-based training programme, learners may already be involved with passenger-handling activities, and assessment evidence can be a written or verbal account of their own experiences.

Learning outcome 1 addresses how departing passenger-handling processes, facilities and services are coordinated. To meet 1.1, learners must briefly describe the facilities and services provided to departing passengers. Learners should base their descriptions on one or more airports to ensure full coverage of the range detailed within the content. Learners can support their evidence with annotated diagrams and maps of airports.

To meet 1.2, learners must provide an analysis of the roles and responsibilities of organisations involved in the departing passenger-handling process. Learners should firstly identify the organisations involved in the handling process, eg the airport operator, the airline, the ground handler, the regulatory and control authorities and other service providers and then outline the process, eg checking-in, security screening, embarkation including special passenger handling. Learners' evidence should show that they understand what and who is involved in the departing passenger-handling process and how the processes fit together and flow to facilitate the passenger journey through the airport to embarkation.

To meet 1.3, learners must explain how departing passenger-handling processes are coordinated both within organisations (intra) and between organisations (inter). Learners should include examples of the methods used to support and illustrate their evidence. Evidence should cover all items listed in the content. Learners should include at least two examples of actions when shortfalls or breakdowns occur.

Learning outcome 2 addresses how arriving passenger-handling processes, facilities and services are coordinated. To meet 2.1, learners must briefly describe the facilities and services provided to arriving and transferring passengers. Learners should base their descriptions on one or more airports to ensure full coverage of the range detailed within the content. Learners can support their evidence with annotated diagrams and maps of airports.

To meet 2.2, learners must provide an analysis of the roles and responsibilities of organisations involved in the arriving passenger-handling process. Learners should firstly identify the organisations involved in the handling process, eg the airport operator, the airline and the ground handler and the regulatory and control authorities and then outline the process, eg disembarkation including special passenger handling, immigration, baggage reclaim, customs. Learners' evidence should show that they understand what and who is involved in the arriving passenger-handling process and how the processes fit together and flow to facilitate the passenger journey through the airport from disembarkation to leaving the terminal. Learners should include reference to transit and transfer passengers.

To meet 2.3, learners must explain how arriving passenger-handling processes (including transit and transfer passenger handling) are coordinated both within organisations (intra) and between organisations (inter). Learners should include examples of the methods used to support and illustrate their evidence. Evidence should cover all items listed in the content. Learners should include at least two examples of actions when shortfalls or breakdowns occur.

Learning outcome 3 addresses the monitoring and maintenance of efficient passenger flows. To meet 3.1, learners must outline the passenger journey through the airport for both departing and arriving passengers, including transfer and transit passengers. Evidence can be in the form of annotated maps with arrows or flowcharts identifying the locations and sequences of the facilities and services both mandatory and optional.

To meet 3.2, learners must identify areas prone to congestion. They should also identify areas which are likely to become congested during disruption, eg bad weather. This evidence can be linked to 3.3.

To meet 3.3, learners should explain the measures used to overcome congestion problems. At least one of each type of measure as listed in the content (scheduling, check-in, communication, monitoring, boarding) should be included. Learners should also include at least two examples of additional measures undertaken at times of major disruption to conclude their evidence.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Textbooks

Ashford N, Stanton H and Moore C – *Airport Operations (2nd edition)* (McGraw-Hill, 1997) ISBN 9780070030770

Graham A – *Managing Airports – An international perspective (3rd edition)* (Butterworth-Heinemann, 2008) ISBN 9780750686136

Journals

Airports of the World - Key Publishing Ltd

Airports International – Key Publishing Ltd

Websites

www.baa.com	British Airports Authority
www.ba.com/travel/atairport/public/en.gb	British Airways information on airport processes

Unit 9: Aviation Meteorology for Ground Staff

Unit reference number: A/602/5685

Level: 3

Credit value: 3

Guided learning hours: 27

Unit aim and purpose

The aim of this unit is to increase the understanding of weather reporting and forecasting for airport and airline ground staff. On completion of this unit, learners should be able to understand and interpret the information gleaned from the Meteorological Office weather charts and reports.

Unit introduction

The aviation industry is unique in its vulnerability to adverse weather conditions. Modern technology and highly trained flight crews have helped reduce the impact of weather on flight operations, but weather conditions must still always be considered when planning flights.

Non-experts will observe current weather conditions by simply watching the rain, snow or high winds and will think 'I'm glad I'm inside!'. The trained observer, pilot or ground crew needs to know precisely: How much rain? How heavy is the snow? Has it reduced visibility? What is the air temperature? How strong is the wind and which direction is it blowing from? How long will it last? The intention of this unit is to enable the learner to change from someone who considers changes in weather to be only a slight inconvenience, to one able to consider in some detail the causes and consequences of weather patterns that affect the UK.

Those who work as ground staff for airlines, ground handling agents or airport authorities may well be aware of weather charts and reports produced by the UK Meteorological Office (Met Office) specifically for the aviation industry. Frequently, printed copies of weather charts and textual reports are carried from briefing offices to aircraft to allow flight crew to execute their flights safely. It is remarkable how few of the ground crew involved can interpret the detail on these documents. Weather information is not only of interest to air crew – airports and ground operations, organisations must also be able to predict the extent and severity of forecast weather in order to plan staffing, equipment and operational strategies. Understanding the Met Office documents can help learners to become part of that decision-making process.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand the characteristics of air masses and weather patterns that affect UK airports	1.1 Describe the air masses that affect the UK, their origins and routes 1.2 Explain how significant weather features affect the UK as a result of air masses and local influences
2 Be able to interpret aviation weather charts and reports	2.1 Interpret synoptic weather charts and aviation weather reports produced by the Met Office

Unit content

1 **Understand the characteristics of air masses and weather patterns that affect UK airports**

Air masses that affect the UK: polar maritime (cold, moist air); arctic maritime (cold, moist air); polar continental (cold, dry air); tropical continental (warm, dry air); tropical maritime (warm, moist air)

Significant weather features that affect the UK: causes of unstable air (warming air, orographic lifting, frontal lifting, low pressure systems); effects of unstable air (cumulous clouds, thunder, hail, rain showers, snow showers, gusty, clear air); causes of stable air (cooling air, high pressure systems); effects of stable air (stratus clouds, persistent rain/drizzle/snow, light winds, haze, fog); local heating; sea breeze

2 **Be able to interpret aviation weather charts and reports**

Synoptic charts: access charts from Met Office website; interpret symbols eg milibars, high/low pressure areas, warm front, cold front; interpret charts eg wind direction, wind speed, significant weather, cloud cover; 60-hour synoptic chart; form F215 (UK low level chart)

Weather reports: types (Meteorological Area Report – METAR), Terminal Area Forecast – TAF); decode reports eg airfield, validity, wind velocity, cloud base and cover, horizontal visibility, air pressure, forecast changes; form F214 (UK spot wind chart)

Essential guidance for tutors

Delivery

Learners who have regular exposure to Met Office charts – perhaps delivering them to flight crews, or preparing documents in the operations office – will be able to become familiar with the formats and protocols used in weather reports. It will be possible to compare personal observations, BBC weather bulletins and official Met Office reports and forecasts. For delivery in the classroom, finding published Met Office documents is not difficult. Every learner should be encouraged to set up a basic account on the Met Office website at: http://www.metoffice.gov.uk/weather/, then follow the aviation links to GA Service. At the time of writing, this service is offered free of charge. Full decode lists and explanations are included. A more advanced service, giving access to enhanced data is available from the same site on payment of a subscription.

Frequent and regular reading, interpreting and forecasting from Met Office reports and charts is by far the best way to become comfortable and confident with the codes used. This process can be introduced at the beginning of the unit and group briefings can become a regular feature in each session.

It is important that learners are aware of both the causes and effects of weather that affects the UK. A good starting point is to explain how the five main air masses arrive and how the characteristics of the air within them significantly determines our weather. Many well-known Private Pilot Licence training manuals contain clear descriptions of the air masses. Once the origin and route of the air masses are established, learners should be able to predict if the air is likely to be moist or dry, warm or cold. It will probably be necessary to introduce the concept of cooling air tending to create atmospheric stability, with warming air leading to potential instability.

Many learners will be aware of the principles of evaporation and condensation. However, this knowledge should not be assumed. It is important that a sound understanding of how clouds form is in place before moving to the next sections.

While the factors governing the creation of areas of high and low pressure areas may be too complex for this unit, it is important that learners appreciate the impact they have on the weather experienced in the UK. The fact that wind tends to rotate anti-clockwise around a centre of low pressure (in the northern hemisphere) may be a new concept to many learners, but with that knowledge, predicting wind directions from pressure charts should be possible.

Moving pressure systems bring with them warm and cold fronts. It is difficult for learners to grasp the mechanics of these phenomena unless the cause and structure of the front principle is explained. Once this is understood, cloud types and associated precipitation can be explored.

To link the theoretical topics covered above to the workplace, it would be useful to invite discussions from learners (although they would not be assessed in this unit) regarding precautions and preparations that must be in place to ensure that aviation ground operations take place with minimal weather-related disruption.

As previously suggested, it would be useful to regularly expose learners to current Met Office weather charts and reports from the outset. Progressive explanation of symbols and coding may prove easier to absorb than simply being asked to memorise a decode list. Using this method, it is possible to compare what is found

in the reports to what is actually happening on the day. For learners based at airports, charts, TAFs and METARs appropriate to that airport would be perfect as a resource. For classroom-based learners, choosing charts for nearby airports would be adequate. Once familiar with the terminology, learners should be able to read and translate the charts and reports for any airport in the world into plain English with confidence.

Assessment

This unit can be assessed through a learner presentation, supported by graphics and charts, or as a written report. In either case, the work must show confidence and clarity.

To meet 1.1, learners must provide a clear description of the five main air masses that affect the UK, correctly identifying their areas of origin and path over the surface of the earth, together with their physical characteristics.

To meet 1.2, learners must explain significant weather and its causes affecting the UK, as a result of air masses or local influences. The unit content should be used as a guide.

To meet 2.1, learners must clearly and accurately interpret weather charts and reports for at least three different days at an airport of choice. The chosen charts and reports must contain enough activity to cover the unit content. This can be presented in the format of an aircrew briefing.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Learners should also have access to a Met Office account and Decode lists.

Indicative resource materials

Textbook

Cosgrove B – *Pilot's Weather: A Commonsense Approach to Meteorology* (Airlife Publishing Ltd, 1999) ISBN 9781882663415

Website

www.metoffice.gov.uk Meteorological Office

Unit 10: The Principles of Flight

Unit reference number: L/602/5688

Level: 3

Credit value: 2

Guided learning hours: 19

Unit aim and purpose

The aim of this unit is for learners to gain understanding of the principles of flight and knowledge of aircraft construction, including how and why aircraft fly and how in-flight stability and control is maintained.

Unit introduction

All units in this qualification are targeted at airport, airline or handling-agent ground staff. Most are directly linked to activities that learners may realistically be expected to undertake in the course of normal duties. This unit takes the learner one step further.

The ultimate aim of aviation activities on the ground is to work towards a safe departure, or to prepare for the efficient arrival of a commercial aircraft. Other units have examined tasks such as load planning, loading, airline operations and customer service. These must all run parallel to ensure efficient and timely turnrounds. What happens when the turnround is complete? How does the 300-tonne aircraft manage to lumber into the sky? This unit helps to provide the answers.

This unit is not designed to teach learners how to fly an aircraft, nor is it impossibly technical. It is included to specifically introduce ground staff to the fundamentals of how flight is achieved. Hopefully it will also provide an insight into why seemingly minor breaches of safety rules on the ground can have a serious impact once the aircraft is in the air.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how the Four Forces of Flight contribute to controlled flight	1.1 Identify the Four Forces of flight 1.2 Explain how the Four Forces contribute to controlled flight
2 Understand how in-flight stability and control is maintained	2.1 Describe the component parts of an aircraft and their functions relating to stability and control 2.2 Explain how stability is built into the structural design of modern aircraft 2.3 Explain how aircraft control is achieved and maintained during take-off, cruise and landing

Unit content

1 **Understand how the Four Forces of Flight contribute to controlled flight**

The Four Forces of Flight: causes and effects (lift, mass, thrust, drag)

How the Four Forces of Flight contribute to controlled flight: balanced forces; lift (overcoming mass, aerofoil, wing shape, laminar flow); mass (not exceeding lift, mass reduction, balance considerations); thrust eg engine types, overcome drag; drag eg form drag, skin friction, drag reduction

2 **Understand how in-flight stability and control is maintained**

Aircraft parts and functions that contribute to stability and control: stability eg wing, horizontal stabiliser, vertical stabiliser; control eg aileron, elevator, rudder, flap, spoiler/speed brake

Aircraft stability: natural stability eg location and shape of fixed surfaces; load distribution; mass and balance limitations; fuel distribution; auto-pilot/computer

Aircraft control: take-off eg mass and balance calculations, flap setting, full thrust, specific take-off speed; climb eg drag reduction (retract undercarriage, retract flaps), thrust reduction, specific climb speed/rate; cruise eg thrust setting, altitude setting; landing eg controlled descent (speed and rate), reduced thrust setting, drag increase (flap setting, undercarriage deployment, speed brakes), brakes, thrust reversers; use of control surfaces in all stages of flight eg elevator (climb/descend), aileron (roll), rudder (turn)

Essential guidance for tutors

Delivery

Learners working at airports may have the opportunity to observe aircraft and their component parts at close hand. It would be useful for airport-based delivery to include visits onto the ramp where many of the elements discussed in the unit can be seen. For classroom-based learners, this access is unlikely at a major airport, but viewing decks and 'spotting points' still exist at some, so close observation may be possible. Equally, a visit to a small flying club can often be arranged – the aircraft may be smaller, but the principles are largely the same.

It is important that the theory of the Four Forces of Flight is understood before progressing to the application of the principles. It is likely that this will be classroom-based, simply to allow graphics, models and diagrams to be used in the tutor-led sessions. The concepts will probably be new to many learners, even those who are currently employed in aviation ground services. Entering *The Four Forces of Flight* into a search engine produces a great variety of texts and diagrams. It would be preferable to access a UK-based site, as some US sites use different terminology.

Once the Four Forces of Flight are understood, learners can be invited to discuss how these factors, when balanced, contribute to safe, stable flight. It would be interesting to extend the discussion to include the possible consequences of one or more of the forces of flight being unbalanced.

Learners can demonstrate their knowledge of aircraft by identifying key parts that contribute to stability and control. Firstly, the fixed surfaces that create the natural stability of the aircraft (wings, horizontal and vertical stabilisers), then the moving surfaces that enable the aircraft to be controlled (ailerons, elevators, rudders, flaps).

Natural stability is designed into modern aircraft. Learners can look at several aircraft types and comment on the similar appearance that many share. Frequently, the only differences are between T-tail and conventional tail or high-wing and low-wing. These comparisons can be continued to explain how the requirement for stability can be assured for all types.

In the final section, the theory is applied. A narrative explaining how the surfaces providing stability and control using the Four Forces throughout flight from take-off to landing allows learners to appreciate the simple principles employed. Throughout delivery the use of models, diagrams and video clips to support the input, is essential. Ideally, at least one airside visit allowing learners to see the control surfaces first-hand should be arranged.

Although it will not be assessed, it would be good practice to use this unit to emphasis the importance of following turnround regulations carefully to ensure flight safety. In particular:

- the reporting of any damage to the aircraft skin, or engines – even the smallest impact could have serious consequences due to a reduction in lift or thrust, or potential decompression
- the securing of loads within the aircraft – any shift in loads could adversely affect the balance of the aircraft and render it difficult to control.

Assessment

This unit can be assessed through a learner presentation, or as a written report. In either case, it is expected that learners will make extensive use of diagrams and illustrations to support the descriptions and explanations required. Video clips and model aircraft can also be used to help clarify points.

To meet 1.1, learners must clearly identify the causes and effects of the Four Forces of Flight as experienced by a modern aircraft.

To meet 1.2, learners must explain how the Four Forces are balanced in order to contribute to controlled flight. This should include the methods used and the reasons why maintaining this balance is important.

To meet 2.1, learners describe the parts of the aircraft that provide both stability and control. All items in the unit content must be included.

To meet 2.2, learners must explain how stability is designed into modern aircraft covering the items listed in the unit content.

To meet 2.3, learners must explain how control is maintained throughout all stages of flight (take-off, cruise, descent and landing).

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

For demonstration purposes learners should have access to an aircraft model with control surfaces and video clips of aircraft in flight.

Indicative resource materials

Textbooks

Oxford Aviation Training – *Principles of Flight* (OAT Media, 2007)
ISBN 9780955517747

Pooleys – *Air Pilots Manual Vol 4* (Air Pilot Publishing, 1999) BTT040 APM 4

Taylor, R – *Understanding Flying* (Thomasson-Grant Publishers, 1992)
ISBN 9781565660021

Journal

Pilot (monthly) – Archant Specialist

Websites

http://pilotsweb.com/principle.htm	Pilots' Web – the principles of flight
http://www.southendflyingclub.co.uk/lecture/principles.htm	Southend Flying Club – The principles of flight
http://www.youtube.com/watch?v=5ltjFEei3AI&feature=related	YouTube clip (good video animation, but US terminology used)

Unit 11: Developing and improving the customer service process

Unit reference number: F/600/0660

Level: 3

Credit value: 7

Guided learning hours: 55

Unit aim and purpose

To enable the learner to understand how the customer service process can be developed and improved through customer feedback, promotion of products and services and effective teamwork.

Unit introduction

Making assumptions about what the customer wants, without checking, is the road to ruin. It is only by knowing what the customer wants, and by providing it, that an organisation can be successful. Success is achieved by understanding customer requirements and then controlling the business to ensure these are met first time, every time. This applies as much to the service customers receive as to the product they purchase. Indeed, the service is part of the total purchase experience. It is therefore vital that customers' opinions and experiences are sought, so that the product and service can reflect their needs and wishes.

While the knowledge gained in this unit is valid throughout the world of customer service and teamwork, its delivery addresses aviation in particular.

This unit helps learners understand the value of evaluating customers' experiences, and to learn customer service monitoring techniques. The unit also helps learners understand the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis technique and how it can promote continuous customer service improvement. Additionally, it introduces learners to techniques which help them to review the impact of changes on customers, employees and the organisation.

A major feature of marketing is the promotion of products and services. In this unit, learners will gain knowledge of the part USPs (Unique Selling Points) and USOs (Unique Service Offers) play, as well as gaining knowledge of how organisations decide on method(s) of promoting their products and services, and how they evaluate those methods.

Critical to the success of the organisation is effective teamwork and performance monitoring. This unit explores important features of effective teamwork, via which excellent customer service is provided giving learners opportunities to explore, discuss and practice many relevant techniques.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Explain how customer feedback can improve the customer service process	1.1 Describe the benefits of evaluating the customer service experience 1.2 Describe and compare a range of techniques used in monitoring customer service delivery 1.3 Design a method of obtaining customer feedback 1.4 Explain how the outcome of an organisational SWOT analysis can be used to promote a cycle of continuous improvement 1.5 Explain the techniques used to monitor and review the impact of any changes introduced in an organisation to customers, employees and the organisation
2 Describe the process of promoting products and services	2.1 Explain how Unique Selling Points (USP) can influence the customer choice of products and services 2.2 Define what a Unique Service Offer (USO) is and how it is used to differentiate service offers from that of competitors 2.3 Explain how organisations promote their products and services 2.4 Describe how cost benefit analysis would influence the method used to promote a product or service 2.5 Describe the importance of evaluating promotions

Learning outcomes	Assessment criteria
3 Explain the importance of effective teamwork and the monitoring of performance	3.1 Identify different communication techniques used when managing a team 3.2 Describe the inter-personal skills required for effective team working 3.3 Explain the importance of effective service partnerships for the delivery of excellent customer service 3.4 Explain the dynamics of team working 3.5 Explain why it is important to agree specific goals with team members 3.6 Explain the methods used by organisations to set levels of customer service performance 3.7 Identify methods for monitoring the performance of individual and teams 3.8 Explain how team members can self-assess and develop their customer service skills and knowledge 3.9 Complete a personal development plan

Unit content

1 **Explain how customer feedback can improve the customer service process**

Benefits of evaluating customer service experience: direct impact on profit and strategy; knowledge enables products/services to be introduced, improved or stopped; compares what should have happened to what did happen; reduces errors and costs; assists in identifying customers' priorities; identifies changing trends in customer expectations; leads to customer loyalty and new markets; provides opportunities; enables motivational feedback and training for employees

Customer service monitoring techniques: objectives and how to measure them; establishing criteria and service standards (which must be SMART – Specific, Measurable, Achievable, Relevant, Timely); qualitative and quantitative techniques; British Standard for Quality Management Systems (BS5750); purposes of specific monitoring; frequency; persons/functions responsible for obtaining, recording and evaluating information; methodologies eg personal observation and recording (including incidents as they arise, and management by walk-about), customer forums and focus groups, mystery shoppers, automated systems (including computer records of utilisation of a product/service and CCTV and laser monitoring of queue lengths and waiting times), written and verbal methods (including questionnaires and interviews); customer-initiated feedback (including verbal, comment cards and letters/emails); post-experience follow-ups

Obtaining customer feedback: select a product/service; identify the measures and timescales; determine the methodology (appropriate, can be analysed); decide timing, location and frequency; design questions/questionnaire

SWOT analysis use in promoting continuous improvement: definition; benefits eg clarifies and summarises key internal and external strengths, weaknesses, opportunities and threats; identifies changes in the industry and in customer expectations; provides insight into where and how business can be grown; how to undertake a SWOT analysis; influence of results eg change in strategy, markets, products, training; benefits of making SWOT analyses an iterative process eg identifying trends, identifying effects of taking action after previous analyses

Monitoring and reviewing impact of changes: further monitoring including using same techniques as before to provide comparisons; changes in customer volumes, spend, loyalty, feedback; staff feedback on an individual basis (incidents and trends) and company-wide basis (staff surveys and staff retention rates); revenue and cost comparisons; media comments

2 **Describe the process of promoting products and services**

Influence of Unique Selling Points (USPs): definition; provides rationale for customer's choice; separates product/service from competitors; provides a unique benefit; becomes identified with the brand; influences style and method of promotion and advertising

Use of Unique Service Offer (USO): definition; service beyond the core product/service being purchased eg opening more desks if more than three customers in a queue, offering choice of methods to complain; value of USO when competitors' products/services are very similar

Promoting products and services: main categories (personal selling, advertising, sales promotion); media eg radio, TV, newspapers, magazines, press releases; in-location displays eg window displays; internet; direct mail; market targeting eg golfers, existing customers, over-50s; promoting to key groups/clients; staff communication; AIDA (Attention – Interest – Desire – Action)

Cost-benefit analysis: definition; influence on the promotional method used eg audience size; conversion rate from customers receiving promotion to purchasing product/service; resultant increased revenue; promotional costs; longer-term influence on costs and revenue

Importance of evaluating promotions: enables financial benefit assessment; enables comparison with other promotional methods; identifies any influences upon organisation's other products/services; identifies change in market share; establishes positive/adverse effects upon customer perceptions of organisation

3 **Explain the importance of effective teamwork and the monitoring of performance**

Communication techniques when managing a team: managing communication; with whom eg individual, close team, wider team, their usual roles and environments; why eg inform, instruct, seek information, motivate; when eg immediate or periodically; what eg task-related, performance-related, social; orally eg one-to-one, small or large groups, meetings, training sessions; in writing eg email, letter, memo, report, notice, newsletter; visually eg charts, diagrams, photographs, DVD; considering recipients' preferences; relative communication impact of words, voice and body; active listening; checking for understanding

Required interpersonal skills for effective teamwork: communicating; networking; influencing; supporting; assertiveness, conflict management; motivating; problem solving; decision making

Effective service partnerships: internal partnerships eg with other departments, own team, managers, staff; external partnerships eg suppliers, customers; building effective partnerships eg having a shared vision, clarifying respective goals, needs and responsibilities, utilising respective strengths and resources; importance eg operating an effective service, delivering excellent customer service, creating repeat and additional revenue, promoting goodwill

Dynamics of teamworking: communication methods and procedures; organisational culture; influence on team's performance of individual behaviours; group maturity eg Tuckman and Jensen model; team roles eg Belbin model

Importance of agreeing goals with team members: ensures individuals' and team's goals are compatible with organisation's objectives; aids identification of roles and training needs; motivates individuals and provides team adhesion; enables performance to be measured

Methods to set customer service performance levels: linking performance targets to customer-focused objectives; gaining information from within and outside the organisation to determine current and desired levels; identifying key business drivers and service issues key to customer satisfaction; need for timeliness, accuracy, appropriateness and sufficient detail; benchmarking; year-on-year improvements; establishing ownership; communicating standards

Methods for monitoring individuals and teams: establishing (SMART) standards; quantitative indicators (statistical information) eg number of calls taken, number of flights dispatched on time; qualitative indicators eg compliments, colleagues' perceptions; statistical information; personal observation; evidence of team adhesion and growth eg changes in team output

Self-assessment and self-development of customer service skills and knowledge: personal SWOT analysis and goal setting; feedback and support from colleagues and management; measuring and reviewing against targets; using initiative in seeking support and development; undertaking training and secondments

Personal development plan: what to achieve; to what level; by when; by what method; what support is needed; from whom; what success looks like; SMART

Essential guidance for tutors

Delivery

The focus of this unit is three-fold; customer feedback, promotion of products and services, and teamwork. Though these initially might appear to be disparate subjects, it is important to use opportunities to demonstrate their inter-relationship. The subject matter is common to general marketing, customer service and human resource learning, regardless of industry. However, tutors should maximise references to the aviation industry, which is a people industry.

There is an abundance of management thinking and literature on customer service and teamwork. The challenge will be to refer to those applying sound principles rather than short-lived fashionable approaches. The Institute of Customer Service is a valuable source of information. Speakers who are involved in managing customer service and teamwork in the aviation industry would be beneficial.

This unit lends itself to enabling a range of teaching methods to cater for different learning styles. Tutors can provide opportunities for individual and group research, observation, written work, eg reports and oral work, eg presentations and debate, and role play.

For learning outcome 1, tutors should first ensure that learners have an understanding of what customer service is. This can be achieved by having learners create and debate definitions and by learners recounting and analysing good and bad personal experiences they have received.

Learners can carry out brainstorm activities to identify the benefits of evaluating customer service. This could be reinforced by the tutor introducing case studies which highlight all or some of these benefits. Learners could share examples of customer service delivery monitoring which they have experienced as employees or customers, with the tutor broadening or endorsing examples as appropriate. Tangible examples brought to the classroom would add to the experience. A tutor-led debate would be a useful method of establishing which techniques are suitable for which situations.

Learners can then apply that learning to designing a customer feedback method. They could undertake this in pairs. Tutors will need to ensure that learners approach this in a logical, detailed manner. For example, if the decision is to design a business-lounge questionnaire, there needs to be clear understanding of what is important to the passenger before designing it. This will determine the areas about which to ask questions. Questions need to be clear and sufficiently detailed, eg 'Did you like the lounge?' is not, but questions about size, décor, facilities, cleanliness etc would be. A rating method needs to be established to enable analysis and, in addition to this quantitative approach, there should be a facility for qualitative comment (any other comments).

A SWOT analysis could be undertaken as a practical group exercise to create evidence of how it produces information and ideas to gain continuous improvement. This could work particularly well if learners belong to the same organisation, as then the analysis could be of that organisation. Alternatively, a segment of the aviation industry could be selected. This analysis should enable learners to identify what needs to be strengthened or avoided (both internally and externally) and provide an insight into where and how the business can grow. Opportunities should arise which identify industry changes and customer trends.

Learning outcome 1 could be drawn to a close by considering which techniques (already used or yet to be used) would be appropriate to identify the impact of changes. Techniques and timing should be able to clearly identify the effect of the changes made, and exclude changes which might have occurred because of other factors. Learners should recognise that changes may not only be reflected in financial results but also in public, customer and employee perceptions of the organisation.

Learning outcome 2 addresses one of the 4Ps of marketing (product, price, place and promotion). Real aviation examples can be used to identify USPs and USOs, which can lead to small-group or plenary debate about how each USP influences the customer's choice and how each USO differentiates the service offering from competitors. Newspapers, magazine and TV adverts can be used in class to aid learning. Debate could extend to considering how organisations use style to create uniqueness, eg Michael O'Leary of Ryanair.

Identification of how organisations promote their products and services could be another practical exercise with learners using examples, eg magazines, audio/DVD recordings of radio/TV adverts, photos of displays. The tutor should introduce any key methods which learners have not offered and there should be debate about why those methods were chosen. Tutors should ensure that learners understand that the selection of a promotion method also has broader implications, eg the longer-term influence on purchasing decisions and the effects on the organisation's other products and overall brand image.

Tutors should define cost-benefit analysis and, by offering examples which include statistical information, have learners calculate the potential cost-benefits of several methods and deciding on the most appropriate. Finally, learners should analyse, perhaps through plenary debate, the importance of evaluating promotions.

Learning outcome 3 explores teamwork and performance monitoring. This learning outcome offers good opportunities to learn principles, undertake exercises, analyse and debate. Communication must be managed and it is useful to give learners a structure, eg the 5 Ws (who, why, when, what, how). This could be developed to identify communication techniques which are particularly important when in a team. Many skills are necessary for effective teamwork, but there should be a focus on learning behavioural skills.

The subsection on service partnerships is a valuable link to customer service and learning outcome 1. Tutors should help learners recognise the importance of creating a customer-focused culture and the mutuality of service partnerships, both internal and external. Real examples should be sought from, and/or given to, learners.

To help learners understand the dynamics of group working, tutors can ask them for examples of behaviours and outputs which are indicators of group dynamics in play. This can be developed and personalised by learners discussing Tuckman and Jensen's group maturity model, and completing Belbin's team roles model.

Tutors could use real-life examples that demonstrate successes and failures which arose because team goals were or were not established (examples can be found, for instance, if one considers a country as a team). Industry examples can be given of cascading organisations' missions, aims and objectives down to team and the individual's objectives and targets. The benefits for the organisation, the team and the individual should be identified. Links can be made to learning outcome 1. Research and debate will help learners to appreciate the need to determine key customer service levels and relate team and individual performance-monitoring methods to them. The opportunity could be taken to provide practice in doing so.

This learning outcome ends by focusing on the individual. It should be linked to exercises by which learners take individual responsibility to self-assess and develop their customer service skills and knowledge, and create a personal development plan which they subsequently use and review.

Assessment

If this unit is being delivered as part of a work-based training programme for learners involved in these subjects, a practical approach can be given to the assessment. This could include a written or verbal presentation on work undertaken by the organisation and/or the learner, related to customer feedback and promotions, and teamworking witnessed or experienced by the learner. However, it should not merely be a reiteration of the work undertaken or activities experienced, but a full explanation and description incorporating the course learning. If this is a classroom-based delivery, assessment can be through written and/or verbal presentations, practical exercises and activities, and role play. Overall, learners must demonstrate their understanding of the component parts of customer feedback, promotions, and teamwork and the integration of these.

To meet 1.1, learners must demonstrate their understanding of customer service evaluation by describing how such evaluation benefits the organisation, the customer and the employees. All areas of the unit content should be addressed within the evidence, and learners can base their evidence on one or more aviation organisations and support their findings with examples.

To meet 1.2, learners must use their analytical and critical skills to describe and compare four customer-service monitoring techniques, clearly identifying appropriate uses of each. Learners should support their evidence with examples from the aviation industry.

To meet 1.3, learners must design a customer feedback method. It should be their own creation, not a copy of an existing one, preferably related to the aviation industry.

To meet 1.4, learners must explain SWOT analysis and incorporate each of the four elements to explain how they jointly and/or separately promote a continuous improvement cycle. The explanation could be strengthened by the use of an actual SWOT analysis, either from the aviation industry or from a SWOT undertaken by the group of learners.

To meet 1.5, learners must explain the techniques used to monitor and review the impact of changes. Three techniques should be explained. The explanation should address impacts upon customers, employees and the organisation. Real aviation examples would be beneficial to the answer.

To meet 2.1, learners must define USP and explain how it influences customers' choice of products/services. Learners should draw upon three real aviation examples to support their explanation.

To meet 2.2, learners must define USO and explain how it is used to differentiate a service offer from that of the competitors. Three examples, preferably aviation-related, should be used to demonstrate understanding.

To meet 2.3, learners must select one or more aviation-related organisations and explain how they promote their products and services, ensuring coverage of the three main categories of promotion and at least four different methods.

To meet 2.4, learners must select one product or service and describe how cost-benefit analysis would influence the method used to promote the product or the service. The description should include the advantages and disadvantages of using

the methods. Learners must include an understanding of the broader implications of the decision.

To meet 2.5, learners must describe ways of demonstrating that evaluating promotions is important. Learners can integrate their evidence with other assessment criteria in this unit, eg 2.3 and 2.4. Alternatively, they could write a report entitled '50% of my promotions are successful – the trouble is, I don't know which 50%'. The learners' answers should provide evidence that they appreciate the breadth of influence promotions may have.

To meet 3.1, learners must identify at least four communication techniques suitable for use when managing a team.

To meet 3.2, learners must describe four inter-personal skills required for effective teamworking. At least two of them must be behavioural skills. Examples of their use, perhaps from personal experience, would strengthen the answer.

To meet 3.3, learners must explain the importance of effective service partnerships for the delivery of excellent customer service. The answer should cover the need for a customer-focused culture and that the partnership could be internal or external. Examples should be provided, preferably related to the aviation industry, as it is very dependant upon such relationships.

To meet 3.4, learners must explain the dynamics of teamworking. This could make reference to indicators of team dynamics and include recognition of the influences of group maturity and team roles. This could be structured by requiring the answer to relate to observation of real teams, a classroom team exercise or to a video/DVD of a team meeting.

To meet 3.5, learners must explain the links between corporate objectives and team and individuals' goals. The effect on team and individual efficiency and motivation must be explained. Real examples should be given, preferably of customer interface teams in the aviation industry.

To meet 3.6, learners must use real examples, preferably from the aviation industry, to explain methods used to set customer service performance levels. Methods such as benchmarking and year-on-year comparisons could be usefully included as well as commentary on how to communicate the service levels, and to whom. Their explanation must recognise the individuals and organisations that influence decisions on what to measure and the levels to be set. Answers should also demonstrate the need for timeliness, accuracy, appropriateness and sufficient detail.

To meet 3.7, learners must identify at least three examples of quantitative monitoring methods and three examples of qualitative monitoring methods which are SMART. At least one quantitative and one qualitative method should be specific to team monitoring.

To meet 3.8, learners must explain how team members can self-assess and develop customer service skills and methods. Answers should refer to the items listed in the unit content.

To meet 3.9, learners must design and complete a personal development plan which demonstrates personal insight and honesty and provides a framework to plot progress and achieve desired improvements. The plan should include at least four desired improvements, sufficiently different in character to demonstrate the personal development plan process. The plan must include what to achieve, to what level, by when, by what method, what support is needed, from whom, and what success will look like. It must be SMART.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Textbooks

Wille E – *Quality: achieving excellence – Sunday Times Business Skills* (Random House Business Books, 1st BCA Edition, 1992) ISBN 9780712698634

Bendell T, Kelly J, Merry T, Sims – *Quality: measuring and monitoring – Sunday Times Business Skills* (Random House Business Books, 1993) ISBN 9780712655149

King-Taylor L – *Quality: sustaining customer service – Sunday Times Business Skills* (Random House Business Books, 1993) ISBN 9780712655194

Horovitz J, Jurgens-Panak M – *Total customer satisfaction* (Financial Times, 1993) ISBN 0273034472

Bell C – *Customers as Partners: Building Relationships that Last* (Jossey Bass, 1994) ISBN 9781881052548

Munroe-Faure L, Munro-Faure M, Bones – *Achieving quality standards – Institute of Management* (Financial Times Prentice Hall, 1993) ISBN 9780273601647

Mullins L – *Management and Organisational Behaviour* (Financial Times/Prentice Hall; 9th edition, 2010) ISBN 9780273728610

Website

www.instituteofcustomerservice.com Institute of Customer Service

Unit 12: Team Leadership

Unit reference number: J/602/5690

Level: 3

Credit value: 4

Guided learning hours: 30

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of the importance of leading and working in a team, including the different styles of leadership and how they are used in the workplace.

Unit introduction

The aviation environment is fast paced and challenging. Leaders rely on their teams to carry out their individual and collective roles effectively to meet tight deadlines and exacting standards. Learners will investigate the different styles of leadership and how they can impact on team performance in the aviation sector. They will consider the importance of effective team leadership in aviation, where many organisations work to a shift system, and employees have to be able to work with many different people.

It is important that team leaders are adaptable and able to develop their own skills to deal effectively with team members, encouraging and supporting them. Learners will review different communication styles and other skills and qualities needed in order to lead a team and to elicit the best from its members. In addition, learners will find out about the barriers to team leadership, and consider how to overcome them.

Many entrants into the aviation sector find themselves in a supervisory position very early on in their career, so it is vital that leadership skills are developed at an early stage in order to aid career progression. To support this there is a practical element to the unit where learners will have the opportunity to demonstrate their own team leadership skills and qualities.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how different leadership styles impact on team performance	1.1 Describe the characteristics of different leadership styles in the workplace 1.2 Explain how different leadership styles impact on team performance
2 Understand how to be an effective team leader	2.1 Explain the importance of effective team leadership 2.2 Explain how the use of different communication styles leads to effective team leadership 2.3 Identify barriers to effective team leadership 2.4 Explain how barriers to effective team leadership can be removed or managed
3 Be able to lead a team effectively	3.1 Demonstrate appropriate skills and qualities to lead a team

Unit content

1 Understand how different leadership styles impact on team performance

Team: eg formal, informal, large, small, temporary project/task, permanent

Leadership styles and their characteristics: eg autocratic, democratic, participative, *laissez-faire*

Impact on team performance: positive eg increased morale, motivation, team cohesion, pride, fosters innovation, increased productivity, commitment, stretches people's talents, raises aspirations; negative eg decreased morale, alienation, negativity, conflict, stress, reduced productivity

2 Understand how to be an effective team leader

Effective team leadership: eg adapting leadership style according to situation, delegation, clear lines of authority, accountability and responsibility, awareness of individual strengths and weaknesses (Belbin), managing conflict, praise, providing resources, clear aims and objectives, acceptance of differing points of view, open and honest communication, mutual respect, empowerment, consistency in decision making, common purpose

Importance: eg team morale, motivation, success

Communication: styles eg assertive, aggressive, passive, empathetic, critical; non-verbal eg body language (open, closed), gestures, expressions; verbal eg voice (tone, pitch, pace), clarity, appropriate to task; listening skills

Barriers to effective team leadership: lack of commitment eg leader, team member; poor communication; lack of appropriate skills; resource issues (financial, physical, staff); personal factors eg challenges to authority, conflict between team members inconsistency, self-interest, favouritism

3 Be able to lead a team effectively

Team leadership skills and qualities: skills eg verbal and non-verbal communication, delegation skills, effective listening, problem solving, dealing with conflict, time management, giving and receiving feedback; qualities eg professional, approachable, objective, patient, empowering, assertive, persistent, empathetic, discreet, consistent, charismatic, goal-focused, committed, motivational, diplomatic, integrity, fairness, leading by example, flexibility

Processes: eg leading team meetings, setting objectives, allocating roles, delegating responsibilities, monitoring progress, dealing with conflict, evaluating outcomes

Essential guidance for tutors

Delivery

Working in the aviation sector, whether for an airline or in an airport, will involve teamwork. In any working area, time is often limited and teams have to work under pressure and to demanding security and customer service standards, for example ground crew at aircraft turnround, cabin crew servicing a flight, and even hospitality teams ensuring passengers are served quickly in order to catch their flight. Learners will examine the key role played by team leaders in ensuring the efficiency and effectiveness of these teams.

A good starting point is for learners to pool their ideas of what makes an effective leader. They could draw on experiences in the workplace, including their current employment in aviation, part-time jobs or previous employment outside the aviation sector.

Learners should research the different styles of leadership and their effectiveness. Some tutor input may be required to introduce different leadership styles such as autocratic, democratic, participative and *laissez-faire*. Tutors could use television programmes to show the different types of leadership styles, eg *The Office*, or *Airport*. Learners could then discuss different styles of leadership and how effective they are in motivating and managing teams. Learners can relate this to their experiences of effective teams and how the leader influenced the team's success.

The aviation sector has had a number of high-profile leaders whose differing leadership styles have been the focus of many articles and documentaries. Learners may find it interesting to research and discuss the differing leadership styles of entrepreneurs such as Sir Richard Branson, Michael O'Leary and Sir Stelios Haji-Ioannou.

Some learners may already be employed in the aviation sector. However, for learners who have little experience of aviation organisations, a visit to an airport to observe different work situations and how staff (security, passenger service agents etc) work in teams would be useful. Guest speakers from the aviation sector could talk about how they have worked with teams in their job role, and also the barriers they have encountered and how they have overcome them. Those learners already working in the sector will be able to bring valuable insight into team leadership in their own organisation.

Learners should also understand the importance of communication and how different styles of communication affect team performance. Tutors could use games and exercises to demonstrate speaking and listening skills. Role play and case studies can provide a forum for examining and discussing the positives and negative aspects of different communication styles.

Team leaders often encounter barriers that affect the way they work. These barriers may be from inside the team, eg lack of motivation or commitment, conflict or leadership challenge; or they may also be from an external source, such as resources. Conflict within teams can be introduced through a group discussion on 'What is conflict?' with learners drawing on their own experiences. The tutor could highlight that not all conflict is negative, and provide examples of when it could have a positive effect. It would be useful for learners to have a guest speaker to explain how they prevent and diffuse conflict situations within teams: this would be an opportunity for centres to engage with local employers. Learners should also

understand that not all barriers can be overcome and team leaders may have to adapt their own working methods to resolve them. Using case studies to demonstrate the barriers, learners could be put into small groups to identify them and work out possible resolutions. These could then be discussed as a class with assessment of each group's suggestions.

Learners should take part in a series of team-building exercises, each having the opportunity to take a leader role. These exercises could be class based, using simulated aviation situations or as part of a team event, eg planned outing or sports activity. Learners should be encouraged to build their interpersonal skills and teambuilding techniques, recognising the importance of team motivation using encouragement and support to achieve the team's objectives. Some understanding of Belbin's team roles would be useful for learners to appreciate the characteristics of different team members and to identify their own skills or traits in leading team situations.

Assessment

To meet 1.1, learners should describe the characteristics of at least four different leadership styles in the workplace, for example the main characteristics of an autocratic and a *laissez-faire* leader. Learners should support their evidence with aviation-related examples where appropriate.

To meet 1.2, learners should explain how at least two different leadership styles impact on team performance. They may use two of the styles that have been described for 1.1. It is expected that the explanation for 1.2 will relate to different types of teams in an aviation environment and will include both positive and negative impacts on team performance. Learners can use examples from aviation organisations, eg airlines, airports and ground handlers, or they could be from ancillary organisations such as airport car-parking companies.

To meet 2.1, learners must explain the importance of effective team leadership. They should provide at least five examples of what constitutes effective team leadership and then explain their importance, for example in developing team morale, motivating team members and providing a framework for success in aviation contexts.

To meet 2.2, learners must explain how the use of different communication styles leads to effective team leadership. Responses should be given within the context of aviation. Learners should include the positive aspects of specific communication styles, such as assertive and empathetic, as well as drawing on how verbal and non-verbal techniques and listening skills can support effective team leadership.

Learners could address 2.3 and 2.4 together, firstly by identifying at least three barriers to effective team leadership, and then examining how these barriers could be removed or managed. This could be from their own aviation work experience, information gathered from an airport or guest speaker visit, or from a selection of case studies.

To meet 3.1, learners must demonstrate the appropriate skills and qualities to lead a team. Learners should demonstrate that they are leading the team towards a specific goal or goals.

This could be determined by learners themselves, or given in a client brief. Evidence for 3.1 should be observed by the assessor, or another appropriate observer, and an observation sheet should be completed and signed by the assessor detailing evidence that was presented for this criterion. For those already working in aviation, supervisors can provide a witness statement. If learners work in a group, for example when planning a trip, they must each assume the role of leader at

some point in the planning and operation of the trip. This will enable the assessor to feed back to them individually to confirm how they have met the criterion.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Textbooks

Adair J – *Effective Teambuilding: How to Make a Winning Team* (Pan, 1987)
ISBN 9780330298094

Belbin M – *Team Roles at Work, 2nd Edition* (Butterworth-Heinemann Ltd, 2010)
ISBN 9781856178006

Honey P – *Teams and Teamwork* (Peter Honey Publications, 2001)
ISBN 9781902899152

Leigh A, Maynard M – *Leading Your Team* (Nicholas Brealey Publishing, 2004)
ISBN 9781857883046

Websites

www.bized.ac.uk	Business education website, including learning materials
www.businessballs.com	Free materials, articles and ideas for team roles and leadership
www.cfa.uk.com	Council for Administration
www.cipd.org.uk	The Chartered Institute of Personnel and Development
www.google.com	Search for teamworking sites and textbooks
www.managers.org.uk	Chartered Management Institute
www.thetimes100.co.uk	A number of case studies on teams

Unit 13: Airfield Operations

Unit reference number: Y/602/5693

Level: 3

Credit value: 7

Guided learning hours: 56

Unit aim and purpose

The aim of this unit is for learners to gain understanding of the importance of providing effective airfield operations and maintanance in the aviation industry. They will develop knowledge and understanding to ensure aircraft operate safely and airfield facilities are available.

Unit introduction

'Airfield operations' is a broad term for activities within a varied and challenging environment. It encompasses many different job roles such as ramp agent, dispatcher, baggage loader, air cargo, airport operations and airside safety; all have a clear role to play in achieving safe, secure and on-time aircraft departures. Frequently, staff involved in airfield operations are employed by the Airport Authority, however specific functions are often sub-contracted to third parties.

All of this unit is designed and targeted at airport operations in terms of legislation and airport/airline operations. The unit gives learners the opportunity to explore the framework in which aviation organisations operate, and the role of the various organisations involved in terms of meeting the standards of aircraft and airfield performance, vital for the safety of the aircraft, passengers, ground crew and flight crew during ground operations, from landing to take-off.

The unit starts by investigating the training and development programmes of staff, identifying how systems are used to monitor and improve skill levels. It continues with an introduction to the requirements for tactical planning and monitoring of airport activities and functions explaining how, in most cases, all facilities are in place when aircraft arrive at the gate and turnround can take place efficiently.

Aviation is a fast-moving industry, so rapid and accurate communication is key to an efficient operation. Learners will discover the types of information that both flight and ground crew require, how it is communicated and how it is used.

An airfield contains many facilities that must function at all times to ensure safe landing, take-off and turnround activities. The inspection and reporting regimes that take place on a daily basis at major airports will be explored. Learners will also investigate the legal requirements that apply to airfield operations with the ability to source documents such as Civil Aviation Publications (CAPs) and learn to extract the required information.

Finally, learners will gain an understanding of how airport contingency plans are developed and implemented, identifying procedures for coping with emergencies and reducing hazards.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how to meet the training requirements of personnel operating within the airfield environment	1.1 Explain how training and development programmes are coordinated 1.2 Describe systems used to monitor and improve staff training 1.3 Explain the training requirements for personnel driving within the airfield environment
2 Know the monitoring and planning requirements of airport activities	2.1 Describe the monitoring and planning requirements of aircraft arrivals and departures 2.2 Describe the monitoring requirements of aircraft parking 2.3 Describe the requirements to control the movement of vehicles within the airfield environment
3 Understand the requirement to communicate airfield related information	3.1 Describe the information requirements of flight crew 3.2 Describe the information requirements of ground crew 3.3 Explain how information regarding airfield operations is communicated
4 Understand procedures for inspecting airfield facilities	4.1 Describe the procedures for inspecting runway surfaces 4.2 Describe the procedures for inspecting airfield lighting 4.3 Describe the procedures for monitoring Foreign Object Debris (FOD) within the airfield 4.4 Describe the procedures for observing, documenting and reporting birds and other wildlife 4.5 Explain the importance of reporting any deficiencies found during inspections

Learning outcomes	Assessment criteria
5 Understand how airport contingency plans are developed and implemented	5.1 Describe airport emergency planning procedures 5.2 Describe different types of airport emergencies 5.3 Describe requirements to test emergency plans 5.4 Explain how to remove different types of hazards within the airfield

Unit content

1 **Understand how to meet the training requirements of personnel operating within the airfield environment**

Training and development programmes: initial training programmes eg corporate structure, uniform standards, company procedures; mandatory training eg fire, General Security Awareness Training (GSAT), National Aviation Security Programme (NASP), manual handling; airside safety management eg geography of stands, rules of parking, positioning and stowing of equipment, identifying and understanding of markings and lines on stands; air bridge driving; procedures for approaching aircraft eg anti-collision lights, engines off; coordinating airfield training and development (regulatory requirements) eg Airside Safety Management (CAP 642), The Air Navigation Order 2005 (CAP 393), Airside Safety Committee, Airside Work Permit; airside safety performance and management

Systems in place for training and monitoring of staff: annual staff training eg manual handling, air bridge/jetty licence, dispatch, load planning and load control, fire training, Accounting and Authorisation of Hold Baggage for Carriage by Air (AAA), dangerous goods; monitoring staff performance eg annual competence checks, airline auditing of ground staff, safety and procedures (IATA Airport Handling Manual – AHM560), DfT checks, Health and Safety Executive (HSE) spot checks, monitoring of on-time aircraft departures, shadowing, target setting, mentoring

Training requirements for airside driving: qualifications eg full UK driving licence, Airport Operators Association (AOA), local familiarisation, speed limits, airside driving permit, specialist vehicle licence, approaching aircraft, movement of vehicles on the manoeuvring area; medical requirements eg vision and hearing tests; vehicle standards awareness eg MOT standard, hazard beacon, free from FOD, carrying company logo, airside permit

2 **Know the monitoring and planning requirements of airport activities**

Monitoring and planning requirements of aircraft arrival and departures: monitoring and planning requirements eg slot allocations, IATA scheduling procedure guide, regular schedule services, programmed charter services, irregular services (ad hoc etc), general aviation, military operations, grandfather rights; achieving slot times; aircraft parking and ramp design eg simple terminal, piers, air bridges, satellites, multiple terminals with access links; delays and cancellations

Monitoring requirements of aircraft parking: function of automatic parking guides eg Burroghs Optical Lens Docking System (BOLDS), Azimuth Guidance for Nose-in Parking at Stands (AGNIS), side marker boards (SMB), Parallax Aircraft Parking Aids (PAPA), Aircraft Parking and Information System (APIS); stand readiness eg clear of aircraft, vehicles, personnel, FOD, airbridge retracted, adequate size for planned aircraft

Manoeuvring operations within the airfield: aircraft movement eg marshalling signals and procedures, speed of aircraft manoeuvre, radius of aircraft turn, tug, pushback, powerback, centreline guidance, stopping guidance

Requirements to control the movement of vehicles airside: eg Airside Vehicle Permits (AVPs), Department for Transport Test Certificate, control of vehicle movements, regulations in place for taxiway crossing, obstruction of lights, manoeuvring areas, driving permit rules (vehicles must not be driven across aircraft stands unless directly involved in the turnround operation of the aircraft using or about to use the stand), enforcement eg Airside Safety Unit (ASU), penalties, withdrawal of driving permit, Civil Aviation Authority regulations and legislation (CAP642, CAP790)

3 Understand the requirement to communicate airfield related information

Flight crew information requirements: reduction in airfield facilities eg radar, taxiway closure, single runway operation, work in progress (WIP), changes in radio frequencies, instrument landing system (ILS), runway/taxiway lighting system, slot restrictions; handling agent factors eg lack of steps, lack of gate availability; weather related issues eg fog, snow/ice on runway/taxiway

Information requirements of ground crew: arrival eg estimated time of arrival (ETA), stand allocation, available route for service vehicles, availability of airbridge; turnround eg procedures for refuelling while passengers onboard, acceptable route for disembarking/embarking passengers; departure eg push-back clearance, direction of push

How airfield operations information is communicated: choice of appropriate medium eg radio, fixed line telephone, mobile telephone, text, fax, printed document; radiotelephony (RT) procedures eg use of phonetic alphabet, use of aeronautical terms, standard phraseology, acknowledgement and read-back of messages, frequencies and relevance; Automatic Terminal Information System (ATIS); need for clarity; requirement for a record of communication

4 Understand procedures for inspecting airfield facilities

Runway surface inspection procedures: inspection regime eg routine (daily/ twice-daily complete surface check), detailed (detailed inspection of limited area), management inspection, special (following up a report of a suspected problem); focus of inspection eg surface (cracking, displaced, flooding, snow/ ice covered, FOD), edges (crumbling, drains blocked, damaged facilities), markings (centre line, touch down markers, lead-off lines), work in progress (infringing runway safety areas), wildlife (especially birds)

Airfield lighting inspecting procedures: inspection regime eg routine (prior to sunset, daily), special (following up a reported fault); focus of inspection eg approach lighting systems, approach slope indicators, airfield beacon, runway centre line lights, runway edge lights, CAT3 stop lights, wig-wags, Visual Approach Slope Indicator (VASI), Precision Approach Path Indicator (PAPI); checks eg functionality, brightness, clean lenses

Procedures for monitoring FOD: routine inspections; prevention eg FOD containers, training; maintenance eg sweeping, magnetic bars, rumble strips; enforcement eg identify source of FOD, ensure offenders clear up, fine repeat offenders; typical FOD eg pavement fragments, catering supplies, building materials, rocks, sand, pieces of luggage, wildlife and insects

Observing, documenting and reporting birds: designated staff; routine patrols; knowledge of bird habits; observe regular patterns of movement; record significant sightings; identify types of bird; share information with ATC; bird strikes reported to ATC and CAA (CAP772); records used to guide local prevention and dispersal planning

Importance of reporting deficiencies: airport eg liability (landlord, responsible for major facilities, damage/injury to third party users – airlines/passengers), reputation, damage to business; airline eg liability (passenger safety, accident prevention), delays, costs; staff eg shared responsibility, job security

5 Understand how airport contingency plans are developed and implemented

Emergency planning procedures: the plan (Airport Emergency Orders, management of an emergency situation/incident, best use of available resources, coordination of activities, role of each agency, recovery of business with minimal disruption); procedures eg levels of response readiness, chain of command (gold, silver, bronze command), communications, coordination; agencies involved eg Rescue and Fire Fighting Service (RFFS), police, ambulance, social services; zoning eg access for agencies involved, establishment of incident control point; bomb threat/terrorism threat (colour coding of threat level); coordination between different operational areas; testing eg table-top exercise, live exercise; updating

Types of emergencies: aircraft accident; aircraft ground incident; full emergency; local standby; bomb threat

Requirements for testing airport emergency plans: legal eg maintenance of Airport licence (The Air Navigation Order (ANO) 2009); ethical eg save lives, provide safe and secure environment, minimise damage; financial eg reduce airport and airline disruption, reduce consequential costs, return airport to full operations as soon as possible; practical eg requirements for airport RFFS personnel (response time, familiarisation with equipment, operating in a 'live' environment), coordination of Airport Emergency Plans with local/regional disaster plans, test existing procedures (using simulated fatalities, injuries and treatment), familiarise all agencies with requirements of Air Accidents Investigation Branch (AAIB)

Removing hazards within the airfield: runway, taxiway and apron maintenance eg regular checks by airport operations, reporting of FOD by pilots and air traffic control, personal responsibility to remove FOD; adverse weather hazards eg ice and snow clearing equipment used to improve traction on the landing strip, de-icing fluids sprayed on surfaces of departing aircraft; bird strike hazard eg dispersal (broadcast of bird distress signals, firing of pyrotechnic bird scaring cartridges), habitat management, appropriate grass management policies

Essential guidance for tutors

Delivery

For this unit it is recommended that learners be given the opportunity to go airside and identify the different areas of airfield operations. It would be extremely useful for airport-based delivery to include visits onto the ramp where many of the elements of the unit can be seen. For classroom-based learners, this access is unlikely at a major airport, but viewing decks and 'spotting points' still exist at some, so close observation may be possible. Equally, a visit to a small flying club can often be arranged – the aircraft may be smaller, but the principles are largely the same within airfield operations.

Many learners may have had some exposure to aviation, and there is a growing amount of video/DVD information available. For example, some television channels give coverage of aviation-related subjects including airport operations and accident investigations. These can expand and consolidate the learner's knowledge, and may provide a combined delivery of several aspects of the unit's topics. Learners should be encouraged to access a variety of resources.

Legal requirements should be applied to realistic scenarios constructed through a series of tasks applicable to the operational tasks undertaken in the airport environment. If actual aviation examples can be sourced they can be adapted and used.

For learning outcome 1, learners would benefit from interviewing staff who work airside. They could research the different job specifications of airfield operations, this could also be assessed by role play of staff development tasks. In order for learners to understand the training requirements of personnel operating within the airfield environment they should research Airside Safety Management CAP642 and (AON) The Air Navigation Order 2005 (CAP393).

For learning outcome 2 learners would benefit from the opportunity of visiting an airline operations department, however inviting guest speakers to the classroom can serve equally well. It is important that learners realise the links between the theories being espoused, the practical procedures put into place, and the legal framework embracing what is arguably the most highly-regulated industry in the world. CAP642 provides a detailed description of the monitoring and planning requirements of aircraft arrivals and departures in terms of manoeuvring operations, slots, aircraft loading, push back and airside safety management rules. In addition to CAP642 learners should be guided to CAP790 to understand the regulations in place for controlling the movement of vehicles within the airfield environment.

Learning outcome 3 lends itself to role play, with opportunities for simulated radio communication and control of ramp activities. This can highlight the importance of accurate and effective communication, and the possible disastrous effect of errors. Learners who have the opportunity to go airside may obtain witness statements and peer statements to meet some of the task requirements. Learners are required to provide a description of the airfield-related information requirements of flight crew and ground crew and must cover all the items listed in the unit content.

For learning outcome 4 learners must examine the procedures in place for inspecting runway surfaces, lighting and monitoring Foreign Object Debris (FOD) within the airfield. They also need to explain the importance of reporting any deficiencies found during inspections. Learners may wish to refer to the Concorde

2000 disaster, caused by FOD on the runway, as some of the required evidence for this task. Learners need to describe the procedures for observing, documenting and reporting birds and other wildlife within the airfield. Learners should investigate the procedures in place for grass lengths, noise deterrents, vegetation etc. There are also many good YouTube clips which can be searched for online that can help with delivery.

For learning outcome 5 case studies on aircraft disasters can be used. Case studies where all areas of the disaster are researched, including aircraft design, reason for disaster and who and what was involved, should be identified. Learners will need to make reference to CAP168, Chapter 8 and CAP576 – zoning.

Teamwork should also be considered within this unit, learners should understand the importance of meeting operational needs with all employees working together to achieve the common goal of operating safely, efficiently and effectively. When covering airport contingency plans, learners may wish to identify the means of management of an emergency situation/incident, best use of available resources, coordination of activities and the role of each agency involved. Learners should refer to CAP168 Licensing of Aerodromes (Chapter 9 – Emergency Planning, Appendix 9A – Emergency Planning Committee Formation, Appendix 9B – Notes for Guidance in Making Emergency Plans) and describe airport emergency planning procedures.

Assessment

To meet 1.1, learners must explain how training and development programmes are coordinated. Learners should cover the different types of programmes listed in the unit content. Learners are not required to describe each of the training programmes, assessment should focus on explaining how they are coordinated.

To meet 1.2, learners must describe four systems that are in place for monitoring and improving staff training. Learners should support their evidence with aviation-related examples.

To meet 1.3, learners must provide an explanation of the training requirements for personnel driving within the airfield environment. Evidence can be presented in written format covering all the items in the unit content, eg an information leaflet.

To meet 2.1, learners are required to provide a description of the monitoring and planning requirements of aircraft arrivals and departures in terms of manoeuvring operations, slots, aircraft loading, push back and airside safety management rules – CAP642.

To meet 2.2, learners must provide a description of the requirements of aircraft parking in terms of stand requirements and regulations, airbridge, refuelling points, embarkation and disembarkation, loading of cargo and rules relating to cargo as stated in unit content.

To meet 2.3, learners are required to describe the requirements to control the movement of vehicles within the airfield environment and should refer to CAP642 and CAP790.

To meet 3.1 and 3.2, learners will need to provide a description of the airfield-related information requirements of flight crew and ground crew. Learners should cover the range listed in the unit content. They should support their evidence with examples.

To meet 3.3, learners should explain how this information is communicated. It is recommended that assessment tasks for 3.1, 3.2 and 3.3 be integrated and assessed through role play.

To meet 4.1 and 4.2, learners need to refer to CAA CAPs in order to describe the procedures in place for inspecting runway surfaces and inspecting airfield lighting, learners can refer to the roles of airport operations and the procedures in place for carrying out runway checks.

To meet 4.3, learners are required to describe the procedures for monitoring Foreign Object Debris (FOD) within the airfield.

To meet 4.4, learners need to describe the procedures for observing, documenting and reporting birds and other wildlife within the airfield.

To meet 4.5, learners are requested to explain the importance of reporting any deficiencies found during inspections for both the airline and airport business. Learners' responses should cover the range identified in the content.

To meet 5.1, learners must describe the airport emergency planning procedures in place in the event of an emergency referring to CAA regulations.

To meet 5.2, learners must describe different types of airport emergencies as listed in the unit content. Learners can use the case study examples they have researched as part of their evidence.

To meet 5.3, learners must describe requirements to test emergency plans covering the range listed in the unit content.

To meet 5.4, learners must explain how to remove different types of hazards within the airfield. Their explanation should cover the range of hazards detailed in the unit content.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Textbooks

Graham A – *Managing Airports* (Elsevier, 2003) ISBN 0750659173

Horonjeff R, McKelvey F and Sproule B – *Planning and Design of Airports* (McGraw-Hill Publishing, 2006) ISBN 0071446419

Journal

Flight International – Reed Business Publishing

Other publications

Civil Aviation Authority – CAP168 – *Licensing of Aerodromes*, Chapter 9 Emergency Planning (including Appendix 9A – Emergency Planning Committee Formation and Appendix 9B – Notes for Guidance in Making Emergency Plans)

Civil Aviation Authority – CAP790 – *Airside Driving and Vehicle Operation*

Civil Aviation Authority – CAP452 – *Aeronautical Radio Station Operator's Guide*

Civil Aviation Authority – CAP413 – *Radiotelephony Manual*

Civil Aviation Authority – CAP683 – *The Assessment of Runway Surface Friction Characteristics*

Civil Aviation Authority – CAP642 – *Airside Safety Management*

Civil Aviation Authority – CAP772 – *Bird-strike Risk Management for Aerodromes*

Websites

www.airways.ch	Airsider – online magazine
www.baa.com	British Airports Authority
www.caa.co.uk	Civil Aviation Authority
www.flightglobal.com	Flight Global
www.londoncityairport.com	London City Airport - LCY
www.swissport.com	Swissport
www.servisair.com	Servisair

Unit 14: Helicopter Operations

Unit reference number: D/602/5694

Level: 3

Credit value: 4

Guided learning hours: 31

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of helicopter operations. They will explore the importance of safe and efficient turnround of helicopters and how health and safety is maintained. They will also develop knowledge of the loading and unloading of helicopters.

Unit introduction

Efficient helicopter operations are a key component in the successful running of a commercial helicopter operation. Whilst there are similarities to aircraft turnround, there are many differences associated with the turnround of helicopters which learners will have the opportunity to explore in this unit. All airports that facilitate commercial airlines also facilitate other types of aircraft, including helicopters which are used for many purposes such as police operations, overhead line surveillance, aerial photography, air ambulance services and passenger and cargo operations, including UK mainland to UK islands and to North Sea rigs. Most helicopter operations requiring regular ground support employ their own staff. Helicopter operations fall under the JAR-OPS 3, soon to be replaced by EU-OPS, and learners will need to be aware of these and other regulations. Learners will develop the knowledge and understanding of different types of helicopter operations, their ground handling arrangements and turnround procedures.

Learners will develop an understanding of the practices and procedures that ensure the safe and efficient turnround of helicopters, about the hazards of working within the ramp environment, the organisations involved and the coordination required to ensure turnround efficiency and safety. Learners will gain knowledge of the methods and procedures used to load and unload baggage, cargo and passengers and the factors that can impact on these operations.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how to ensure safe and efficient turnround of helicopters	1.1 Describe the role of organisations involved in helicopter turnround 1.2 Describe operational procedures used by organisations during helicopter turnround 1.3 Explain how helicopter turnround is co-ordinated to ensure safety and efficiency 1.4 Describe issues affecting safety and efficiency during helicopter turnround 1.5 Explain how helicopters, vehicle and pedestrian movements are managed during helicopter turnround 1.6 Explain the impact of adverse weather conditions on helicopter turnround procedures
2 Understand how to ensure health and safety requirements are met during helicopter operations	2.1 Identify health and safety requirements relating to helicopter turnround 2.2 Describe hazards associated with helicopters 2.3 Describe health and safety practices and procedures involved in embarkation and disembarkation of helicopters 2.4 Explain how safe working practices should be monitored and maintained
3 Know helicopter loading and unloading methods and procedures in relation to baggage, cargo and passengers	3.1 Describe baggage and cargo loading and unloading methods 3.2 Describe factors that impact on baggage and cargo loading and unloading 3.3 Describe passenger embarkation and disembarkation methods and procedure 3.4 Describe factors that impact on the embarkation and disembarkation of passengers

Unit content

1 **Understand how to ensure safe and efficient turnround of helicopters**

Organisations involved: organisations using helicopters eg police, North Sea Operators, mainland operators, island operators (Scillies, Shetlands etc); division of ground handling responsibilities*;* airport operator; helicopter operators; ground handlers; regulatory and control organisations eg UK Border Agency (UKBA), Port Health; emergency services; Civil Aviation Authority (CAA); European Aviation Safety Agency (EASA); roles of organisations

Operational procedures (airport operators): stand allocation eg by helicopter type/size, domestic/international flight; marshalling eg manual and automated systems, follow-me; stand clearance; security eg restricted passenger access

Operational procedures (helicopter operators/ground handlers): within airports or heli-decks; turnround coordination; passenger disembarkation/embarkation; technical inspection; rectification of defects recorded in technical log eg major defect, carried forward defect (CFD); provision of ground power (fixed/mobile); helicopter servicing eg cleaning; baggage security eg accompanied baggage, baggage manifests, rush bags; anti-icing/de-icing; relevance of holdover duration

Operational procedures (regulatory and control): UK Border Agency eg immigration control and deportations, customs control including commercial goods and crew belongings, Port Health including control of passenger-transmitted disease from infected countries and specific control of infectious disease suspected onboard; police intervention eg anti-terrorist police, Special Branch

Operational procedures (other service providers): airside passenger/crew coaching; refuelling eg earthing, ground refuelling points, fuel trucks

Coordination: of organisations eg pilot, ground operations, air traffic control; role of dispatcher; pre-arrival communication with all involved organisations eg through control centres using IT systems, radio technology, verbal and written briefing; allocation of equipment and personnel; liaison between departments eg cargo warehouse and loaders, passenger staff and crew; coordination at helicopter side eg via dispatcher; sequencing of activities eg offloading before onloading, cleaning before passenger boarding, simultaneous or sequential offloading of helicopter holds; positioning of equipment eg ground power, steps, loading equipment, baggage/cargo delivery vehicles, ground movement control (GMC), flight deck crew; use of standardised words and phrases and phonetic alphabet

Safety of turnarounds: using Personal Protective Equipment (PPE) eg ear defenders, hard-capped shoes; management of foreign object debris (FOD); awareness of environment and hazards eg moving vehicles, noise and blast, rotor blades; safe lifting practices; fire prevention eg no smoking, hazardous cargo; helicopter chocking/stabilising

Efficiency of turnrounds: commercial and operational need for punctual departures; sequence of operations; timing of each operation; need for preparation; importance of teamwork and cooperation; barriers to efficiency eg weather, inaccurate communications, lack of effective coordination within and

across organisations; breakdown or lack of equipment; slot times eg purpose, cost factors associated with missed slots

Management of helicopters, vehicles and pedestrians: helicopters eg marshalling, stand markings, anti-collision beacons on helicopters; vehicles eg road markings and routes, restricted areas including taxiways, when reversing, anti-collision beacons on vehicles, reversing klaxons; pedestrians eg escorting passengers

Impact of adverse weather: conditions eg heat, rain, electrical storms, wind, poor visibility, cold, snow; impacts on turnround procedures eg protection of live cargo, baggage and embarking and disembarking passengers, danger of lightning strikes, difficult working conditions, need for follow-me vehicles, de-icing and snow clearance; consequences eg reduced landing/take-off rate, disruption to scheduled arrival time (STA) and scheduled departure time (STD), lengthened turnround times causing delays, reactionary delays, cancellations, increased workloads

2 **Understand how to ensure health and safety requirements are met during helicopter operations**

Health and safety requirements (rules and regulations) relating to helicopter turnround: Health and Safety at Work Act; European Directives; Civil Aviation (CAA), European Aviation Safety Agency (EASA); Air Navigation Order (ANO) (CAP393); Licensing of Aerodromes (CAP168); airport bylaws eg valid identity cards for personnel and vehicles, airside driving permits, adherence to road, stand and taxiway markings and speed limits

Hazards associated with helicopters: helicopter hazards (turbine engines, rotors, tail rotors, doors, taxiing, downwash); helicopter risks (staff, passengers, ingestion into blades and tail rotor, foreign object debris (FOD), collision); general airside hazards (noise, fumes, vehicles, bags, cargo); airside risks (staff, passengers, slip, trip, manual handling, collision, crushing)

Health and safety practices and procedures for embarkation and disembarkation of helicopters: stand checks (stand availability, correct stand for helicopter type, obstructions, FOD); positioning of required equipment eg steps; passenger safety (passenger service escorts, marshallers, passenger routes, passenger walkways); security procedures eg security personnel to meet helicopter, UK Border Agency, security checks (onboard)

How safe working practices are maintained: monitoring and reporting by airport, helicopter operator and ground handlers; mandatory reporting of incidents resulting in actual or potential injury or damage; mandatory safety induction and refresher training (firefighting, first aid); compilation and publication of safety incidents and performance

3 **Know helicopter loading and unloading methods and procedures in relation to baggage, cargo and passengers**

Baggage and cargo loading and unloading methods: types of helicopter able to carry cargo; types of load suitable for helicopters (loose, pallet); types of equipment used to load helicopters eg loose load transporter handling of special cargo eg human remains, radioactive material, Control of Substances Hazardous to Health (COSHH); securing methods eg locks; documentation eg airway bill, loadsheet and notification of dangerous goods to Captain (NOTOC)

Factors impacting on baggage and cargo loading and unloading: limitations of helicopters to carry cargo; helicopter capacity; distribution of load including segregation of incompatible loads; weather and time constraints; incompatible and unserviceable equipment; damaged baggage/cargo; absence or mismatch of documentation; security eg Triple A (AAA – Account and Authorise)

Passenger embarkation and disembarkation: type of helicopter suitable for carrying passengers; boarding methods eg steps, airside coach; boarding procedures (security checks, timing, manual and automated boarding card acceptance); boarding passengers with special needs eg unaccompanied minors, infirm, wheelchair users, passengers with children

Factors impacting on passenger embarkation and disembarkation: limitations of helicopters to carry passengers; readiness of crew; method of boarding or disembarkation eg control of coach boarding if remote stand, passenger safety on walk to helicopter; fuelling whilst onboard (availability of crew to man doors); weather; boarding those with special needs eg passengers with young children, wheelchair passengers; missing passengers

Essential guidance for tutors

Delivery

While there are similarities to aircraft turnround, there are many differences associated with the turnround of helicopters. Helicopters are used for many purposes including: police; overhead line surveillance, eg electricity, telephone; aerial photography; air ambulance; passenger and cargo from UK mainland to UK islands, eg Penzance to Isles of Scilly; carrying cargo and passengers from shore to North Sea rigs. There are lots of other uses and learners should try and identify as many uses as they can. Use of helicopters for the carriage of cargo and passengers is limited and so this unit may be limited in scope for employment opportunities. It could be taught together with *Unit 3: Ramp Handling* or integrated with *Unit 4: Aircraft Dispatch*.

A good starting point for the unit would be for the learner to separate the different helicopter roles such as police work, North Sea operation and establish what types of helicopter suit these roles and what the requirements of the operators would be for ground support. Most helicopter operators requiring regular ground support would, in fact, employ their own staff to suit their individual needs and it is important for the learner to assess these needs in understanding the operational requirements of the helicopter. Helicopter operations fall under JAR-OPS 3 soon to be replaced by EU-OPS, however the content is very similar. It would be useful for learners to visit at least two different types of helicopter operators to find out about ground handling arrangements and turnround procedures. They could compare the differences between these organisations and those of commercial aircraft at regional and major airports.

To cover learning outcomes 1 and 2, learners should be introduced to the many different types of helicopter and their purpose in relation to the organisations that use them. Learners could learn about the safe and efficient turnround of helicopters at the same time as that of commercial aircraft (Unit 3) if this is felt appropriate. Learners should learn about the hazards of working within the ramp environment and the health and safety practices and procedures that ensure the health and safety of the ramp operators, the helicopter crew and the passengers. They should learn about the organisations involved in helicopter turnround and the co-ordination required to ensure efficiency and safety of the turnround. In helicopter operations it is essential that all ground handlers have adequate firefighting and first-aid training before undertaking any duties around helicopters. In some cases this may be extended to dunker training should the operation be required to be more than three miles off shore and if there are ground handlers on board. In reality, if a helicopter is operating from a major airport then it is unlikely that the ground handlers will have to meet special requirements. Learners engaged in this unit could take firefighting and first-aid courses as this will pay dividends.

Learners will need to appreciate that ramp operations for helicopters will take place in areas of the airport separate from commercial aircraft. Learners will also need to know about ground handling practices and procedures relating to helidecks. The ramp is a harsh environment in which to work and health and safety are both at risk. Attention should be paid to having learners identify the hazards and recognise how they can be minimised for the safety of people working on the ramp, passengers, equipment and helicopters. Airfield and stand drawings, available from aviation websites, books and local airport public affairs departments, can help. Learners would benefit from being able to see helicopter operations in action,

particularly the activities involved in helicopter turnround. Visits to helicopter operators and to helidecks would be beneficial as would speakers from the industry, eg Air Ambulance, police.

It is essential that learners be provided with the opportunity to research relevant laws and regulations appertaining to helicopter operations. For learning outcome 2 learners can access legislation and regulations, eg Health and Safety Act 1974, Air Navigation Order 2005, CAA publication CAP642 – Airside Safety Management. The HSE website provides useful information about health and safety in aviation, including helicopter turnrounds.

Learning outcome 3 takes a closer look at the loading and unloading methods and procedures for baggage, cargo and passengers for helicopters. Useful sources of support information include websites, aviation books and industry speakers. At this stage, it would be appropriate to introduce further debate and/or role play on factors which may impact on baggage, cargo and passenger loading/unloading and the efficiency of the turnround. Scenarios might include bad weather and breakdown of equipment. Learners could take on the roles of various organisations to identify and resolve the impact on their organisation and the turnround.

Having covered all the learning outcomes, tutors should develop a range of scenarios to demonstrate the sequencing and coordination of a turnround. They should select different types of helicopter operation such as one carrying passengers from mainland to island or one carrying cargo and staff from shore to North Sea oil rig. Learners could investigate those who operate these routes and briefly compare them with turnround of commercial aircraft at a regional or major airport.

It is essential to include one or more visits to airports and a helideck. While it is difficult to gain airside access, many airports have spectators' galleries from which ramp activity can be viewed. Learners should be able to relate what they have learned to what they observe. Case studies can stimulate class debate and the learning process.

The aviation industry is high profile, so learners should be encouraged to seek out media stories and to read some of the many aviation magazines and websites that relate to helicopter operations.

Additionally, it would be very beneficial to link with one or more helicopter operators who might be willing to give a presentation, either on-airport or off-airport. Speakers from ground handler dispatch departments who deal with helicopters or airport operators' airfield management can be particularly valuable, as are those from one or more of the regulatory organisations (eg UK Border Agency – UKBA).

Assessment

If this unit is being delivered as part of a work-based training programme for learners involved with helicopter operations, a practical approach can be used for the assessment. This could include a demonstration of activities and/or a written or verbal presentation on situations experienced. If this is classroom-based delivery, the detail and complexity of the subject indicates written or verbal assessment that identifies the components and integrates them. Overall, learners should be able to demonstrate their understanding of the components and how they integrate, and the impact organisations, activities and situations can have, on each other.

To meet 1.1, learners must describe the role of organisations involved in helicopter turnround. Organisations used should fall within the main groups, ie airport operator, helicopter operator, ground handlers, regulatory and control

organisations, emergency services, CAA/EASA. The evidence can be based on one particular airport and learners can name the actual organisations involved. The evidence for 1.1 can be integrated with the evidence for 1.2.

To meet 1.2, learners must briefly describe the operational procedures used by the different types of organisations during helicopter operations, covering those listed in the unit content. At least two ramp-handling activities should be included for airport operators, four for helicopter operators/ground handlers, and two for regulatory and control bodies.

To meet 1.3, learners must provide an explanation of why coordination is required to ensure safe and efficient helicopter turnround and how it is achieved. All items listed in the content should be addressed within the evidence. This includes recognition of the types of coordination and communication methods used and the need for sequencing activities. Examples can be provided to support written or verbal evidence.

To meet 1.4, learners must describe three issues relating to safety of turnround and three relating to efficiency of turnround. Examples should be provided to support these descriptions.

To meet 1.5, learners must provide an explanation of how aircraft, vehicle and pedestrian movements are managed during turnround. This could be based on the turnround of one or more helicopters. Learners should support their evidence with examples, maps and diagrams.

To meet 1.6, learners must provide an explanation of the effects of at least four types of weather conditions on helicopter turnrounds and the actions taken to resolve/minimise those effects. Learners should include examples (real if possible) to support their evidence and illustrate their findings.

To meet 2.1, learners must identify the rules and regulations relating to helicopter turnround as listed in the unit content. Learners should include at least five airport by-laws.

To meet 2.2, learners must briefly describe the hazards and risks associated with helicopters, covering all items listed in the unit content. They should support their descriptions with examples.

To meet 2.3, learners must describe the health and safety practices and procedures involved in the embarkation and disembarkation of helicopters addressing all items in the unit content.

To meet 2.4, learners must provide an explanation of how monitoring, reporting, training and publication of safety incidents and performance all contribute to maintaining safe working practices.

To meet 3.1, learners must describe baggage and cargo loading and unloading methods. This will require a correct identification of the types of load, eg loose, palletised, and a description of the equipment and procedures used for each. Learners must also identify and describe at least two types of special cargo and the methods for handling

To meet 3.2, learners must provide three examples to demonstrate their understanding of factors which can impact on baggage and cargo handling, and describe why they have that impact. Evidence for 3.1 and 3.2 can be integrated.

To meet 3.3, learners must describe the main passenger embarkation and disembarkation methods and procedures, highlighting the differences depending on the method used.

To meet 3.4, learners must give two embarkation examples and one disembarkation example to demonstrate an understanding of factors which impact on passenger embarkation and disembarkation, eg during torrential rain. Evidence for 3.3 and 3.4 can be integrated.

Essential resources

Learners must have access to library and research facilities, including current trade publications. Visits are highly recommended as are industry guest speakers.

Learners should have access to accurate and up-to-date industry case studies.

Indicative resource materials

Other publication

Civil Aviation Authority – Paper 2002/02: *Final Report on the Helicopter Operations Monitoring* (HOMP) Trial

Websites

http://www.nifc.gov/ihog/	National Interagency Fire Center - Interagency Helicopter Operations Guide (March 2006)
www.caa.co.uk	Civil Aviation Authority
www.easa.europa.eu	European Aviation Safety Agency
www.hse.gov.uk	Health and Safety Executive
www.iata.org	International Air Transport Association

Unit 15: Air Cargo Ground Handling

Unit reference number: K/602/5696

Level: 3

Credit value: 6

Guided learning hours: 50

Unit aim and purpose

The aim of this unit is for learners to gain knowledge and understanding of the ground handling requirements of air cargo. Learners will gain an understanding of the preparation required, the handling procedures for dispatching air cargo and the associated documentation. They will also develop their understanding of the training requirements associated with the role.

Unit introduction

There are many reasons why shippers choose to send their goods by air. Some items, such as newspapers or urgent mail, need to be delivered to the other side of the world the next day. Often, during the release of an international company's latest piece of technology, nothing but rapid worldwide delivery after its product launch will be acceptable to its customers. Similarly, the increase in manufacturers worldwide dependent on the 'just-in-time' approach to component supply means that, as stock is no longer stored; orders placed need to be fulfilled promptly so there is no delay on the production line.

This unit recognises and forms a critical foundation of working in an airport environment and dealing with air cargo. The purpose of the unit is for learners to gain comprehensive knowledge and understanding of the ground-handling requirements of air cargo. Learners will learn to appreciate the vigorous security and safety elements of dealing with air cargo both during arrival, stowage and loading cargo on aircraft. In addition to specific cargo airlines, commercial airlines gain significant revenue from carrying cargo, particularly with airlines that operate with wide-bodied aircraft. Even with a full load of passengers and baggage, the construction of the wide-bodied aircraft leaves plenty of lower deck space which can be used to carry cargo. The air cargo business is a dynamic and ever-evolving worldwide industry. Either actual misloading of an aircraft or incorrect use of correct load-related data for aircraft systems set up can severely affect aircraft control. It is essential that all aircraft baggage and freight loaded complies with the restrictions on carriage of dangerous goods. It is essential that the dispatcher/turnround manager specifies the loading requirement correctly and has a reliable method by which they can be satisfied that their instructions have been carried out as requested.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Understand how to plan the preparation of cargo for transportation by air	1.1 Explain the difference between Nett, Tare and Gross weight 1.2 Describe the requirements to ensure that all cargo is check weighed 1.3 Outline the supervisor's responsibility to ensure that Unit Load Device (ULD) serviceability checks are carried out 1.4 Outline the supervisor's responsibility to ensure that Unit Load Device (ULD) building meets aircraft configuration requirements 1.5 Describe the requirements for protecting cargo from weather elements 1.6 Explain the importance of co-ordination between different departments when load planning
2 Understand handling procedures for different types of air cargo	2.1 Describe security procedures for Known and Unknown cargo 2.2 Describe procedures for the handling of Dangerous Goods 2.3 Describe the handling requirements for live animals 2.4 Describe the handling requirements for special cargo 2.5 Explain how provision for the carriage of explosives is implemented
3 Know the training requirements for personnel working within an air cargo environment	3.1 Describe the licence requirements of cargo agents 3.2 Describe the requirement for Dangerous Goods training 3.3 Describe the supervisor's requirements for carrying out risk assessments regarding the training requirements of personnel

Learning outcomes	Assessment criteria
4 Understand the importance of complying with procedures related to air cargo	4.1 Explain the purpose of cargo build sheets 4.2 Describe the requirement for Notification to Captain (NOTOCs) 4.3 Describe the requirement for a Consignment Security Certificate 4.4 Explain the requirement to coordinate air cargo documentation 4.5 Explain the supervisor's responsibility with regards to the release of freight
5 Be able to complete documentation required for air cargo	5.1 Complete cargo build sheets 5.2 Amend cargo build sheets in line with loading discrepancies

Unit content

1 **Understand how to plan the preparation of cargo for transportation by air**

Cargo weight: nett; tare; gross; weight methods eg metric weight, cubic weight – cube calculation, Quality Net Calculators (QNC); packaging eg wooden, crates, padding, cardboard, labeling; weight specifications eg maximum weight, volume of piece, space utilisation, unit capacity

Cargo check weighed requirements: documentation (loadsheets, balance charts, air-way bills, manual load sheets – calculation of MRW, MTOW and MLW, barcoding, consignment security certificate)

Unit Load Device (ULD) – supervisor role: serviceability checks prior to use eg prior to loading for any signs of damage or wear; airline individual parameters for damage/serviceability checks (AHM); individual checks eg visual checks (curtains and straps are present and functional) assessing absence of straps and potential of causing damage to aircraft; visual check of unit walls and floor (deformity, tears, cuts, sharp edges); assessment of cargo size (potential damage to aircraft or load inside unit or persons using unit); unit shape (ability to be loaded on aircraft, dimensions compatible with aircraft; individual carrier's regulations on lengths of cuts and tears; certification of ULD (FAA – Technical Standards Order (TSO) C90c and EASA – ETSO C90c)

ULD aircraft configuration requirements: weight limitations (max gross weights, maximum weight, maximum dimensions); unit designs eg ability to fit different aircraft types, consideration of size and space; height restriction; open units – PMC/PAG regulations on height of loaded boxes; consideration of aircraft contour; units with 'overhang' may not fit through doors; floor loading awareness; aircraft weight limitations; maximum number of ULDs; responsibilities to identify safety checks and procedures checks (supervisor, dispatcher)

Cargo protection from weather elements: stages of travel (prior to loading, during travel and after landing); identification of cargo type; weather factors on cargo eg snow, rain, sun; temperature and air pressure for live animals; pressurised hold space; aircraft hold (temperature controlled); animals requirements eg light, heat, space, considerations of other forms of cargo, arriving into a hot or cold climate FISH/PEF/FOOD/PER/EAT requirements (cooling, landing in extreme heat, temperature control on landing)

Department coordination when load planning: departments (load control, dispatcher, cargo, shipper); communication to ensure efficient cargo handling eg cargo department liaise with both load control/dispatch and link them with the shipper; assessment of available space to ensure full utilisation (cargo/bags, size of cargo maximum weight allowances, unit compatibility, max unit weight, max height and 'mixed class' compatibility turnaround management eg monitor, supervise, checks to ensure cargo correct handling; aircraft checks (planned for safe and efficient performance or in balance or 'trim', load is distributed for holds evenly, disposition of dead load between available loads); cargo staging; IATA DGR acceptance; records for future planning (volumes and revenue, best yield and space); loading documentation (Load Instruction Report –LIR stating

all units safely and securely loading as planned with no damage or change to any package or unit)

2 **Understand handling procedures for different types of air cargo**

Security procedures for known cargo – approved for safety and security handling of cargo by Department for Transport (DfT): CAA process for known shippers (correctly packed, security screened, sterile); Department for Transport approval (lock and seal cargo, documented); process on arrival at airport (all seals and documents checked and cargo will be subject to fewer checks after providing evidence it is still sterile)

Security procedures for unknown cargo: shipper (not approved to ship known cargo); cargo handling (different procedures to known cargo, different cargo handling on arrival at airport only for security screening); dispatcher/turnround manager procedures (signing a declaration confirming cargo secure); procedures for unknown cargo (100% screened, if initial checks are not clear further, more-detailed screening will occur); additional checks (drivers' details and relevant ID, vehicle and freight physical checks, X-ray screening, physical examination)

Handling requirements for dangerous goods: definition (any substance which has potential to cause harm to safety if people, aircraft or environment); role of ICAO (dangerous goods training, agents annual training); IATA Dangerous Goods Regulations (DGR) (passenger, cargo flights, quantities, packing of goods, markings, hazard labels); hazardous goods (9 classes); individual responsibilities (shipper, cargo acceptance agents); acceptance check list (64-point tick sheet); regulations on loading of certain animals eg cats, dogs; cargo manifest; airway bill (AWB); NOTOC

Handling requirements for live animals: documentation (vet certificate, customs certificate, valid health and vaccination certificates, entry permits and other documents required by countries visiting or transiting through); IATA code (AVI); handling at both arrival and departure station eg conditions, temperature, pressure, securing load on aircraft, animal container general care and loading, load spreading and restraint requirement; checks (compatibility and mixed loading charts)

Handling requirements for special cargo: examples of special cargo (VAL – Valuable Cargo, DIP – Diplomatic Mail, HEA – Heavy Cargo (150 kilograms and over per piece), LHO – Living Human Organs/Blood, HUM – Human Remains in Coffin); handling requirements listed by shipper, including DGR; completion of NOTOC; reasons for not listing (value, dangers of pilfering on departure/arrival, media attention)

Carriage of explosives: mandatory regulations (IATA, DGR); dangerous goods classification and sub-classification; regulations of air travel (majority not permitted on passenger flights); DGR manual requirements (quantities, labelling); policy on training and handling (DGR manual, acceptance check list)

3 **Know the training requirements for personnel working within an air cargo environment**

Licence of cargo agents: regulatory approval organisations (DfT, ICAO, IATA CAA/FAA); airline and airport regulations; packing regulations (UN Recommendations on the Transport of Dangerous Goods, standards of packing/weights); European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR); DGR forms and declarations; secure and safe (including screening and compliant with HSE and DGR); staff CRB checked, trained in security and safety methods for accepting, handling, building and looking after all cargo they deliver to aircraft; customs regulations (country of departure and arrival, duty paid, illegal items)

Dangerous goods training: requirements and regulations (IATA dangerous goods regulations, 24-month training); different levels of training pending on individual job role (cabin crew, check in, loading team, dispatch and flight deck); label recognition; DGR training (awareness, handling and supervision)

Supervisor's requirements of risk assessments: awareness of risk and training, ability to avoid and minimise risks (check packing is correct, correct markings); determine training requirements (risk rating, identify location, resources required, hazards, ensure all agents handling goods receive correct training); reasons (minimise danger at work to the individual and organisation)

4 **Understand the importance of complying with procedures related to air cargo**

Purpose of cargo build sheets: description of how cargo is constructed (unit size and shape, dimensions); airway bill – AWB numbers (quantities, and weights of individual items); identification of heavy items (prevention of crushing other items); special handling instructions eg hazardous items

Notification to captain (NOTOCs): purpose (signed legal document, advise captain of a number of issues); contents of NOTOC (IATA IMP name, DGR class, proper shipping name – PSN, AWB) additional information (QTY in kgs and grams, loading position of aircraft, items checked in accordance with IATA DGR); role of dispatcher (sign confirming all goods loaded in accordance with IATA DGR, no leaking or damage to any packing) role of captain (sign to confirm awareness of all dangerous goods loading, items not accepting) emergency procedures code (DRL, ERG)

Consignment Security Certificate: requirements (state that consignment has been subjected to and passed CAA/DfT procedures); screening handling by CAA approved and trained personnel; certificate declaration (consignment has not been tampered with since all security clearance)

Coordinate air cargo documentation: requirements – detailed descriptions (goods, quantities, sufficient copies, fully visible); provide evidence eg handled correctly, in line with airline-handling procedures, approved for travel in line with safety, security and custom regulations, released into the arriving country in line with local customs; airway bill (AWB); cargo manifest; consignment security certificate

Supervisor's role in the release of freight: role with documentation (checking documentation, checking labels, tagging); role with customs eg ensure customs and safety processes have been adhered prior to releasing arriving freight, local environment is not contaminated, no law is broken from customs import

perspective; additional role eg liaising with other departments, organise training, compliance with aircraft configuration

5 **Be able to complete documentation required for air cargo**

Cargo build sheets: complete cargo build sheets from given data

Loading discrepancies: identification of discrepancies eg incorrect packed items, missing items, over-sized items, paperwork incorrectly completed, incompatible; amend cargo build sheets in line with loading discrepancies

Essential guidance for tutors

Delivery

A copy of the Airport Handling Manual (AHM) should be used in the delivery of this unit.

This unit gives learners opportunities to enter the world of air cargo, and understand the requirements and responsibilities involved. Learners should be given the opportunity to examine the latest cargo terminal designs, together with the latest aircraft cargo-handling technology. Either actual misloading of an aircraft or incorrect use of correct load-related data for aircraft systems set up can severely affect aircraft control. It is essential that all aircraft baggage and freight loaded complies with the restrictions on carriage of dangerous goods. Learners should be provided with case study material to support their learning, which will help with the delivery of this unit. It is essential that the dispatcher/turnround manager specifies the loading requirement correctly and has a reliable method by which they can be satisfied that their instructions have been carried out as requested. It is crucial to aircraft safety in flight that it is loaded in such a way that the specified maximum-allowable weights are not exceeded and that the centre of gravity as loaded will be and remain within the permitted flight envelope for all stages of the intended flight.

For those learners not already employed in this area, visits to air cargo companies should be set up where possible, eg British Airways World Cargo. A visit at the start of the unit would be useful, along with subsequent visits to enhance unit content. Visiting different air cargo organisations would enable learners to make comparisons and contrasts. A starting point would be with local business and freight-handling contacts. Most large air cargo operators have detailed webpages where learners can research the ULDs used, prices, insurance etc.

For learning outcome 1, learners are firstly required to explain the difference between nett, tare and gross weight. Net is cargo weight only, including any packaging, tare is weight of unit and any curtains and fixings used as a container for carrying cargo in aircrafts. Check weight is the physical checking of actual cargo weight on arrival at airport. Learners will need to understand the calculations if cargo is 'loose' and not in a unit then it is weighed and listed as net weight. If cargo is in a unit then the total is weighed and recorded as the gross weight. To then obtain the net weight the tare (which should be known) is subtracted. Most cargo is transported in ULDs because of the design of larger aircraft; all units are checked prior to use, and prior to loading for any signs of damage or wear. There are distinct parameters for damage/serviceability checks but these may be different for airline (learners are encouraged to research the regulations within the different airlines). All units have maximum gross weights. This must be adhered to because of size and space, for example, AKE or LD3 is normal for A330, but if fitted on B767 fewer can be loaded. For open units such as PMC/PAG there will be a height restriction on how high boxes can be loaded. Also, the aircraft contour will be known and must be considered. Units with 'overhang' may not fit through doors. All cargo must be considered for elements of weather before loading, during travel and after landing: What is the cargo, what are local conditions, what are conditions in flight, what are conditions on landing?

For learning outcome 2, learners must firstly describe the different security procedures for known and unknown cargo. Learners should be guided to the CAA process for known shippers – this includes checking that the cargo has been

correctly packed and security screened then is 'sterile' from packing or building, right through to delivery to airport where it is accepted by the airline cargo handler. An example of a secure shipper is one which uses a sealed van with no stops en route to airport. Known shippers are approved by DfT. They will lock and seal cargo and this will be documented. On arrival at airport all seals and documents will be checked and cargo will be subject to fewer checks after, providing it is still sterile. Unknown cargo is where the shipper is not approved to ship known cargo.

Learners should also be guided to research DfT, IATA and CAA regulations on the carriage of dangerous goods, defined as any substance which has potential to cause harm to safety of people, aircraft or environment. All handling regulations are laid out in IATA Dangerous Goods Regulations (DGR), tutors should ensure that they are using the current version, as they are revised every year. All these rules have been agreed by ICAO. As part of the regulations, training for acceptance and awareness and handling is prescribed for different levels. Special cargo is normally VAL, DIP, HEA, LHO or other items not listed as DGR or hazardous. Handling requirements will be listed by the shipper. Learners should be made aware that although items may be listed in DGR, the cargo agent will check with the specific airlines' general operations manual or the airport handling manual (AHM). For example VAL and LHO may travel 'in hands of' flight purser or captain. NOTOC is completed using 'other items for load' an example of a special handling condition for VAL is that some airlines do not list it on any movement signals or messages to other stations in case it is stolen on arrival. All policy is implemented through training for recognition and handling, use of DGR manual and acceptance check list. Delivery should cover the examination of regulations in place for transportation of live animals, including the temperature and air pressure requirements for live animals. There are many areas to be covered and learners will need to be familiar with the considerations, for example, most animals will have to be loaded into a pressurised hold space, the hold will have to be temperature controlled and some animals require light. Also, depending on whether the animal will be arriving into a hot or cold climate this may impact on whether it can be left in a hold or on apron area on arrival.

For learning outcome 3, learners must develop an understanding of the role of the cargo agent and have knowledge of the CAA/IATA standards for cargo acceptance and handling of cargo – including the differences if a cargo agent is just booking and forwarding to the airline and airport operator (where they need to follow airline and airport requirements for shipping goods) or if a cargo agent is handling and loading cargo at an airport, then CAA/FAA/IATA approval will need to be sought. Cargo agents will need to demonstrate that they are following all the correct processes for checking cargo, that it is secure and safe (including screening and compliant with HSE and DGR) and that it is kept safe until it has been loaded and dispatched (eg kept in secure area not contaminated by personnel without clearance). The CAA/DfT will also insist (for this type of agent) that they employ only correct secure level cleared staff and all staff are correctly trained in security and safety methods for accepting, handling, building and looking after all cargo they deliver to aircraft.

Learners will need to make reference to the different regulatory bodies, including the CAA, and refer to CAP 675 and CAP 688. Learners need to have a good understanding of risk assessments and the reason they are carried out, therefore it would be helpful for learners to carry out a risk assessment within their own workplace or place of study, where they clearly identify the risks and hazards present.

For learning outcome 4, learners must develop an understanding of the importance of complying with procedures related to air cargo because of the number of

regulations and guidelines in place. NOTOC = NOtification TO Commander/Captain is a signed legal document given to the captain to advise a number of things:

1. cargo builder will sign to say goods have been checked and prepared for travel in accordance with IATA DGR and that there is no leaking or damage to any packing
2. loading team leader/dispatcher will sign to say goods have been loaded in accordance with IATA DGR and there is no damage or leaking to loading or packing
3. captain will sign to say they are aware of all dangerous goods loading and items and are accepting all for carriage.

For learning outcome 5, learners must be able to complete cargo build sheets to provide evidence of their understanding. To enable them to complete these successfully, learners should be given the opportunity to practice. It may be possible to contact air cargo companies and request examples of cargo build sheets, the cargo company might supply factual examples of figures and details for completion. However, if this is not possible a task could be carried out where learners discuss and research the information on cargo build sheets and the tutor supplies figures and details for completion. Learners must have a clear understanding of loading discrepancies where they identify incorrect packed items, missing items, over-sized items, understand the paperwork used and identify documentation that is incorrectly completed or incompatible.

Assessment

To meet 1.1, learners must explain the difference between nett, tare and gross weight and provide calculation examples of all three weight types to support their explanations.

To meet 1.2, learners must describe the requirements to ensure that all cargo is check weighed, taking into account the documentation used.

To meet 1.3, learners are required to outline the supervisor's responsibility to ensure that Unit Load Device (ULD) serviceability checks are carried out. Learners can provide their outlines in diagrammatic format, for example as a flowchart.

To meet 1.4, learners must outline the supervisor's responsibility to ensure that Unit Load Device (ULD) building meets aircraft configuration requirements. Learners can provide their outlines in diagrammatic format, for example as a flowchart.

To meet 1.5, learners must describe the requirements for protecting cargo from weather elements, giving examples of protecting cargo from at least three different weather elements.

To meet 1.6, learners are required to explain the importance of coordination between different departments when load planning. Learners can support their explanations with diagrams and provide examples of coordination situations.

To meet 2.1, learners must describe security procedures for known and unknown cargo referring to the DfT and CAA regulations on known and unknown cargo.

To meet 2.2, learners must describe procedures for the handling of dangerous goods referring to the IATA Dangerous Goods Regulations (DGR) and role of ICAO in relation to DGR.

To meet 2.3, learners must describe the handling requirements for live animals and refer to the paperwork used for their transportation.

To meet 2.4, learners must describe the handling requirements for at least three different types of special cargo taken from HUM, LHO, VAL, DIP, HEA.

To meet 2.5, learners are required to explain how provision for the carriage of explosives is implemented and must make reference to the mandatory regulations (IATA, DGR). Learners can support their explanations by naming different types of explosives.

To meet 3.1, learners must describe the licence requirements of cargo agents and refer to the regulatory approval organisations as stated in the unit content.

To meet 3.2, learners must describe the requirement for dangerous goods training making reference to the IATA Dangerous Goods Regulations (DGR).

To meet 3.3, learners must describe the supervisor's requirements for carrying out risk assessments regarding the training requirements of personnel.

To meet 4.1, learners must explain the purpose of cargo build sheets, providing examples to support their explanations. Evidence can be linked with 5.1 and 5.2.

To meet 4.2, learners are required to describe the requirement for Notification to Captain (NOTOCs), stating what the content and purpose of NOTOCs are, covering the range outlined in the unit content.

To meet 4.3, learners must describe the requirement for a Consignment Security Certificate.

To meet 4.4, learners must explain the requirement to coordinate air cargo documentation.

To meet 4.5, learners are required to explain the supervisor's responsibility with regard to the release of freight.

To meet 5.1, learners are required to complete three cargo build sheets from given data.

To meet 5.2, learners must amend at least three cargo build sheets in line with at least three loading discrepancies (one for each build sheet).

Essential resources

Learners must have access to library and research facilities, including current trade publications that detail and review procedures for handling of air cargo. Visits to cargo companies are highly recommended as are industry guest speakers, for example cargo agents, dispatchers, turnround managers, DfT employees.

Learners should have access to accurate and up-to-date industry case studies in air cargo operations.

Indicative resource materials

Textbooks

Doganis, R – *The Airline Business* (Routledge, 2005) ISBN 978 0415346153

Graham, A – *Managing Airports* (Elsevier, 2003) ISBN 0750659173

Journal

Flight International – Reed Business Information Ltd

Other publications

Civil Aviation Authority – CAP675 – *Transport of Dangerous Goods by Air*

Civil Aviation Authority – CAP688 – *Standards for Clearance Delivery Officers (Ocean)*

IATA – *Dangerous Goods Regulations (DGR)* (52nd Edition, 2011)

Air Navigation Bureau (ANB) – Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284) including Annexe 18

Websites

www.aircanada.com/cargo	Air Canada cargo information
www.bifa.org	The British International Freight Association (BIFA)
www.caa.co.uk	The Civil Aviation Authority CAP 675 and CAP 688
www.baworldcargo.com	British Airways world cargo information
www.hmrc.gov.uk	HM Revenue and Customs
www.iata.org	International Air Transport Association (IATA)
http://www.icao.int/	International Civil Aviation Organization (ICAO)
www.icao.int/icao/en/anb/	Air Navigation Bureau (ANB)
www.skycargo.com	Emirates cargo information
http://www.unece.org/trans/danger/publi/adr/adr2011/11ContentsE.html	Link to the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2011)

Unit ERR1: Employment Rights and Responsibilities in the Passenger Transport Sector

Unit reference number: L/602/5934

Level: 2

Credit value: 3

Guided learning hours: 18

Unit aim and purpose

The purpose of this unit is for learners to demonstrate understanding of employer and employee statutory rights and responsibilities within own organisation and industry under Employment Law.

Unit introduction

This is a three credit unit which can be taken in addition to the Aviation Operations on the Ground units.

Learners should be aware of, and conversant with, the rules, principles and regulations governing employment rights and responsibilities to ensure they understand the conditions under which they work. This understanding protects both the employee and the employer, ensuring that work practice is undertaken in a mutually respectful and safe environment.

This unit is for learners who are taking this qualification as part of the Aviation Operations on the Ground Apprenticeship framework. It has been developed by GoSkills to cover the requirements of Employment Rights and Responsibilities within the Specification of Apprenticeship Standards for qualifications within the passenger transport sector. The unit has been designed to be applied to a work context. It should be contextualised to be relevant to learners' places of work in the passenger transport sector, in this case employment within aviation operations on the ground.

Learning outcomes and assessment criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria determine the standard required to achieve the unit.

On completion of this unit a learner should:

Learning outcomes	Assessment criteria
1 Know employment rights and responsibilities of the employee and employer	1.1 Identify the main points of legislation affecting employers and employees and their purpose relevant to own role, organisation and within own industry 1.2 Identify where to find information and advice on employment rights and responsibilities both internally in own organisation and externally 1.3 Identify sources of information and advice on own industry, occupation, training and own career pathway 1.4 Identify sources of information on the different types of representative bodies related to own industry and their main roles and responsibilities 1.5 Identify any issues of public concern that may affect own organisation and own industry
2 Understand employment rights and responsibilities and how these affect organisations	2.1 Describe organisational procedures, policies and codes of practice used by own organisation on employment rights and responsibilities 2.2 Explain the purpose of following health, safety and other procedures and the effect on own organisation if they are not followed 2.3 Describe employer and employee responsibilities for equality and diversity within own organisation 2.4 Explain the benefits of making sure equality and diversity procedures are followed 2.5 Describe the career pathways available within own organisation and own industry

Unit content

1 **Know employment rights and responsibilities of the employee and employer**

Employee rights and responsibilities: difference between rights and responsibilities; current employment legislation; current anti-discrimination legislation eg gender, race, religion, disability, age; working hours and holiday entitlement; data protection; other relevant examples

Employer rights and responsibilities: duty of care to employees eg safe and healthy workplace, public liability insurance; appropriate training and development; adhere to terms of contract

Sources and types of information on employment issues: HR department; line manager; trade union representative; professional body; Citizens Advice Bureau; Community Legal Advice; internet; trade magazines and journals

Sources of information: line manager, Sector Skills Councils, Jobcentre, relevant websites

Main roles and responsibilities of representative bodies: trade unions, professional bodies, Health and Safety Executive

Issue of public concern: the effect of recent high-profile events on the industry eg Concorde 2000 disaster – caused by FOD on runway, Hudson river ditching 2009 – bird-strike incident

Effects of public concern: legislation and good practice eg Criminal Record Bureau checks, risk assessment; health and safety legislation, disabilities and effects on access to transport

2 **Understand employment rights and responsibilities and how these affect organisations**

Contract of employment: terms and conditions; hours; pay rate; holiday entitlement; format of contract

Interpret information on payslip: gross wages; deductions; net pay; personal information eg National Insurance number, employee number

Grievance procedure: grounds for grievance; informal approach; formal procedure within own workplace

Types of information held on personnel records: personal data eg name, address, telephone number(s), qualifications, National Insurance number, tax code, bank details, disabilities, employment history, absence details, training

Updating information held on personnel records: personal responsibility; data protection considerations

Ways of working with employer: workplace procedures for leave entitlement eg holiday, maternity, paternity, compassionate; procedures to deal with bullying or discrimination; procedures for self-certification

Own role in the workplace: own job description, organisation's aim

Role of the sector: aims and objectives of the employment sector

Career pathways: progression routes within own sector; progression routes within related sectors; importance of continuing professional development

Developing own career path: create a development plan; consult related websites

Essential guidance for tutors

Delivery

This unit includes general topics and others that apply specifically to the learner's workplace. Input should be as varied as possible, making good use of internet resources and websites, together with groupwork, individual study and team activities as well as more traditional written tasks. Learners should be encouraged to read around the subject to gain more understanding of the relevant legislation.

Visiting speakers, who work in various parts of the organisation or for associated organisations, would enliven the programme.

All study should be related to the workplace.

Assessment

This unit should be assessed as part of the learner's work towards an Apprenticeship.

The unit should be assessed predominantly in the workplace. Observation, witness testimony, questioning, professional discussion and written and product evidence are all sources of evidence which can be used.

Naturally occurring evidence should be used where possible. It is likely that learners will undertake an induction process for any work role or work placement. Learners could build a portfolio of evidence or a workbook which, as well as showing evidence of achievement, could be used as a point of reference for future work.

Indicative resource materials

Textbooks

Mitchell Sack S – *The Employee Rights Handbook* (Warner Books, 2000) ISBN 9780446673266

Mitchell Sack S – *The Employee Rights Handbook: Effective Legal Strategies to Protect Your Job from Interview to Pink Slip* (Legal Strategies Inc, 2010) ISBN 9780963630674

Further information and useful publications

To get in touch with us visit our 'Contact us' pages:

- Edexcel, BTEC and Pearson Work Based Learning contact details: qualifications.pearson.com/en/support/contact-us.html
- books, software and online resources for UK schools and colleges: www.pearsonschoolsandfecolleges.co.uk

Key publications:

- *Adjustments for candidates with disabilities and learning difficulties, Access and Arrangements and Reasonable Adjustments, General and Vocational qualifications* (Joint Council for Qualifications (JCQ))
- *Supplementary guidance for reasonable adjustments and special consideration in vocational internally assessed units* (Pearson)
- *General and Vocational qualifications, Suspected Malpractice in Examination and Assessments: Policies and Procedures* (JCQ)
- *Equality Policy* (Pearson)
- *Recognition of Prior Learning Policy and Process* (Pearson)
- *UK Information Manual* (Pearson)
- *BTEC UK Quality Assurance Centre Handbook*

All of these publications are available on our website.

Publications on the quality assurance of BTEC qualifications are also available on our website.

Our publications catalogue lists all the material available to support our qualifications. To access the catalogue and order publications, please visit our website.

Additional resources

If you need further learning and teaching materials to support planning and delivery for your learners, there is a wide range of BTEC resources available.

Any publisher can seek endorsement for their resources and, if they are successful, we will list their BTEC resources on our website.

How to obtain National Occupational Standards

Contact:

GoSkills
Concorde House
Trinity Park
Solihull
West Midlands
B37 7UQ

Telephone: 0121 635 5520
Fax: 0121 635 5521
General email enquiries to: info@goskills.org

Professional development and training

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- developing effective assignments
- building your team and teamwork skills
- developing learner-centred learning and teaching approaches
- building in effective and efficient quality assurance systems.

The national programme of training we offer is on our website. You can request centre-based training through the website or you can contact one of our advisers in the Training from Pearson UK team via Customer Services to discuss your training needs.

BTEC training and support for the lifetime of the qualifications

Training and networks: our training programme ranges from free introductory events through sector-specific opportunities to detailed training on all aspects of delivery, assignments and assessment. We also host some regional network events to allow you to share your experiences, ideas and best practice with other BTEC colleagues in your region.

Regional support: our team of Curriculum Development Managers and Curriculum Support Consultants, based around the country, are responsible for providing advice and support in centres. They can help you with planning and curriculum developments.

To get in touch with our dedicated support teams please visit our website.

Your Pearson support team

Whether you want to talk to a sector specialist, browse online or submit your query for an individual response, there's someone in our Pearson support team to help you whenever – and however – you need:

- Subject Advisors: find out more about our subject advisor team – immediate, reliable support from a fellow subject expert
- Ask the Expert: submit your question online to our Ask the Expert online service and we will make sure your query is handled by a subject specialist.

Please visit our website at qualifications.pearson.com/en/support/contact-us.html

Annexe A

The Pearson qualification framework for the Aviation and Travel and Tourism sector

Level	General qualifications	Diplomas	BTEC vocationally related qualifications	BTEC specialist qualification/professional	NVQ/competence
5			Pearson BTEC Level 5 HND Diploma in Travel and Tourism Management		
4			Pearson BTEC Level 4 HNC Diploma in Travel and Tourism Management		
3		Pearson BTEC Level 3 Principal Learning in Travel and Tourism	Pearson BTEC Level 3 Certificate, Subsidiary Diploma, Diploma and Extended Diploma in Travel and Tourism Pearson BTEC Level 3 Nationals in Aviation Operations – extended until December 2012	Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge)	Pearson Edexcel Level 3 Certificate for Senior Cabin Crew Pearson Edexcel Level 3 S/NVQ in Tourism Services Pearson Edexcel Level 3 S/NVQ in Travel Services Pearson Edexcel Level 3 Diploma in Aviation Operations on the Ground

Level	General qualifications		Diplomas	BTEC vocationally related qualifications	BTEC specialist qualification/professional	NVQ/competence
2		Pearson Edexcel GCSE in Leisure and Tourism (Single and Double Award)	Pearson BTEC Level 2 Principal Learning in Travel and Tourism	Pearson BTEC Level 2 Certificate, Extended Certificate and Diploma in Travel and Tourism	Pearson BTEC Level 2 Certificate in Aviation Operations on the Ground (Knowledge) Pearson BTEC Level 2 Certificate in Introduction to Cabin Crew	Pearson Edexcel Level 2 Certificate for Cabin Crew Pearson Edexcel Level 2 S/NVQ in Tourism Services Pearson Edexcel Level 2 S/NVQ in Travel Services Pearson Edexcel Level 2 Diploma in Aviation Operations on the Ground
1			Pearson BTEC Level 1 Principal Learning in Travel and Tourism	Pearson BTEC Level 1 Certificate, Extended Certificate and Diploma in Travel and Tourism		
Entry				Pearson BTEC Entry Level 3 Award in Travel and Tourism		

Annexe B

Wider curriculum mapping

Pearson BTEC Level 2 qualifications give learners opportunities to develop an understanding of spiritual, moral, ethical, social and cultural issues, as well as an awareness of citizenship, environmental issues, European developments, health and safety considerations and equal opportunities issues.

Spiritual, moral, ethical, social and cultural issues

Throughout the delivery of these qualifications, learners will have the opportunity to actively participate in different kinds of decision-making. They will have to consider fair and unfair situations and explore how to resolve conflict. Working in small groups they will learn how to respect and value others' beliefs, backgrounds and traditions.

Citizenship

Learners undertaking these qualifications will have the opportunity to develop their understanding of citizenship issues.

Environmental issues

Developing a responsible attitude towards the care of the environment is an integral part of this qualification. Learners are encouraged to minimise waste and discuss controversial issues.

European developments

Much of the content of the qualification applies throughout Europe, even though the delivery is in a UK context.

Health and safety considerations

Health and safety is embedded within many of the units in this qualification. Learners will consider their own health and safety at work, how to identify risks and hazards and how to minimise those risks.

Equal opportunities issues

There will be opportunities throughout this qualification to explore different kinds of rights and how these affect both individuals and communities. For example learners will consider their rights at work and the rights of employers, and how these affect the work community.

Annexe C

Mapping with NVQ/Competency qualification

The grid below maps the knowledge covered in the Pearson BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) against the underpinning knowledge of the NVQ replacement competency qualification Pearson Edexcel Level 3 Diploma in Aviation Operations on the Ground (501/0990/X) which has been developed by the SSC, GoSkills, and maps to the National Occupational Standards in Aviation Operations on the Ground.

KEY

\# indicates partial coverage of the NVQ unit

a blank space indicates no coverage of the underpinning knowledge

NVQ/Competency qualification units		BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) units														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AOG1	Recognise airside hazards and minimise risks (J/600/9313)	#														
AOG2	Contribute to the maintenance of aviation health, safety and security (R/600/9315)	#	#												#	#
AOG3	Co-ordinate the maintenance and implementation of aviation security procedures (D/600/9320)		#												#	
AOG5	Co-ordinate health and safety working practices (H/600/9321)	#														

NVQ/Competency qualification units		BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) units														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AOG8	Take action to reduce airside hazards (K/600/9322)			#												
AOG9	Maintain a hazard-free airside environment (M/600/9323)			#												
AOG10	Ensure the safe movement and operation of aircraft, vehicles and personnel on the apron (A/600/9325)			#											#	
AOG13	Maintain effective communications and information transfer in an aviation environment (L/600/9328)													#		
AOG21	Contribute to wildlife control on an airfield (F/600/9424)					#										
AOG27	Support flight control operations (K/600/9434)													#		
AOG28	Maintain flight control operations and operating conditions (T/600/9436)						#									
AOG32	Plan the loading of aircraft (H/600/9450)							#								#
AOG34	Maintain air passenger handling services (M/600/9452)								#							
AOG35	Monitor the weather (T/600/9453)									#						

NVQ/Competency qualification units		BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) units														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AOG44	Co-ordinate the turnaround of aircraft (R/600/9668)			#	#											
AOG70	Develop your own and others' customer service skills (K/601/1555)											#				
AOG73	Provide leadership and direction for own area of responsibility (T/600/9601)												#			

Annexe D

Mapping to Level 2 Functional Skills

The following grid identifies potential opportunities for development of Level 2 Functional Skills.

Level 2	BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) units														
English – Speaking, Listening and Communication	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Make a range of contributions to discussions in a range of contexts, including those that are unfamiliar, and make effective presentations	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
English – Reading															
Select, read, understand and compare texts and use them to gather information, ideas, arguments and opinions	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
English – Writing															
Write a range of texts, including extended written documents, communicating information, ideas and opinions, effectively and persuasively	✓	✓				✓	✓		✓	✓	✓		✓	✓	

Level 2	BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) units														
Mathematics – representing:	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Understand routine and non-routine problems in familiar and unfamiliar contexts and situations						✓	✓								✓
Identify the situation or problems and identify the mathematical methods needed to solve them						✓	✓								✓
Choose from a range of mathematics to find solutions						✓	✓								✓
Mathematics — analysing															
Apply a range of mathematics to find solutions						✓	✓								✓
Use appropriate checking procedures and evaluate their effectiveness at each stage						✓	✓								✓
Mathematics — interpreting															
Interpret and communicate solutions to multistage practical problems in familiar and unfamiliar contexts and situations							✓								
Draw conclusions and provide mathematical justifications							✓								

Level 2	BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) units														
ICT – using ICT	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Plan solutions to complex tasks by analysing the necessary stages							✓								
Select, interact with and use ICT systems safely and securely for a complex task in non-routine and unfamiliar contexts							✓								
Manage information storage to enable efficient retrieval							✓								
ICT – finding and selecting information															
Use appropriate search techniques to locate and select relevant information	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Select information from a variety of sources to meet requirements of a complex task	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Level 2	BTEC Level 3 Certificate in Aviation Operations on the Ground (Knowledge) units														
ICT – developing, presenting and communicating information	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Enter, develop and refine information using appropriate software to meet requirements of a complex task	✓	✓					✓		✓	✓					
Use appropriate software to meet the requirements of a complex data-handling task															
Use communications software to meet requirements of a complex task															
Combine and present information in ways that are fit for purpose and audience	✓	✓					✓		✓	✓			✓	✓	✓
Evaluate the selection, use and effectiveness of ICT tools and facilities used to present information	✓	✓					✓		✓	✓			✓	✓	✓

Annexe E

Glossary of Accreditation Terminology

The following information about this qualification can also be found on the Register of Regulated Qualifications: http://register.ofqual.gov.uk/

Accreditation start/end date	The first/last dates that Pearson can register learners for a qualification.
Certification end date	The last date on which a certificate may be issued by Pearson.
Credit value	All units have a credit value. The minimum credit value that may be determined for a unit is one, and credits can only be awarded in whole numbers. Learners will be awarded credits for the successful completion of whole units.
Guided Learning Hours (GLH)	Guided learning hours are defined as all the times when a tutor, trainer or facilitator is present to give specific guidance towards the learning aim being studied on a programme. This definition includes lectures, tutorials and supervised study in, for example, open learning centres and learning workshops. It also includes time spent by staff assessing learners' achievements. It does not include time spent by staff in day-to-day marking of assignments or homework where the learner is not present.
Learning Aims Database	Link to the Learning Aims Database, which features detailed funding information by specific learning aim reference.
Learning Aim Reference	Unique reference number given to the qualification by the funding authorities on accreditation.
Level	All units and qualifications have a level assigned to them. The level assigned is informed by the level descriptors defined by Ofqual, the qualifications regulator.
Performance tables	This qualification is listed on the Department for Education (DfE) website School and College Achievement and Attainment Tables (SCAAT) as performance indicators for schools and colleges.
Qualifications Number (QN)	Unique reference number given to the qualification by the regulatory authorities on accreditation.
Register of Regulated Qualifications	Link to the entry on the Register of Regulated Qualifications for a particular qualification. This database features detailed accreditation information for the particular qualification.
Section 96	Section 96 is a section of the Learning and Skills Act 2000. This shows for which age-ranges the qualification is publicly funded for under-19 learners.
Title	The accredited title of the qualification.

Annexe F

BTEC Specialist and Professional qualifications

BTEC qualifications on the NQF	Level	BTEC Specialist and Professional qualifications	BTEC qualification suites
BTEC Level 7 Advanced Professional qualifications BTEC Advanced Professional Award, Certificate and Diploma	7	**BTEC Level 7 Professional qualifications** BTEC Level 7 Award, Certificate, Extended Certificate and Diploma	
BTEC Level 6 Professional qualifications BTEC Professional Award, Certificate and Diploma	6	**BTEC Level 6 Professional qualifications** BTEC Level 6 Award, Certificate, Extended Certificate and Diploma	
BTEC Level 5 Professional qualifications BTEC Professional Award, Certificate and Diploma	5	**BTEC Level 5 Professional qualifications** BTEC Level 5 Award, Certificate, Extended Certificate and Diploma	**BTEC Level 5 Higher Nationals** BTEC Level 5 HND Diploma
BTEC Level 4 Professional qualifications BTEC Professional Award, Certificate and Diploma	4	**BTEC Level 4 Professional qualifications** BTEC Level 4 Award, Certificate, Extended Certificate and Diploma	**BTEC Level 4 Higher Nationals** BTEC Level 4 HNC Diploma
BTEC Level 3 qualifications BTEC Award, Certificate, Extended Certificate and Diploma	3	**BTEC Level 3 Specialist qualifications** BTEC Level 3 Award, Certificate, Extended Certificate and Diploma	**BTEC Level 3 Nationals** BTEC Level 3 Certificate, Subsidiary Diploma, Diploma and Extended Diploma

BTEC qualifications on the NQF	Level	BTEC Professional and Specialist qualifications	BTEC qualification suites
BTEC Level 2 qualifications BTEC Award, Certificate, Extended Certificate and Diploma	2	**BTEC Level 2 Specialist qualifications** BTEC Level 2 Award, Certificate, Extended Certificate and Diploma	**BTEC Level 2 Firsts** BTEC Level 2 Certificate, Extended Certificate and Diploma
BTEC Level 1 qualifications BTEC Award, Certificate, Extended Certificate and Diploma	1	**BTEC Level 1 Specialist qualifications** BTEC Level 1 Award, Certificate, Extended Certificate and Diploma	**BTEC Level 1 qualifications** BTEC Level 1 Award, Certificate and Diploma (vocational component of Foundation Learning)
	E	**BTEC Entry Level Specialist qualifications** BTEC Entry Level Award, Certificate, Extended Certificate and Diploma	**BTEC Entry Level qualifications (E3)** BTEC Entry Level 3 Award, Certificate and Diploma (vocational component of Foundation Learning)

NQF = National Qualifications Framework

For most qualifications on the **NQF**, the accreditation end date is normally 31 August 2010 or 31 December 2010.

Qualification sizes	
Award	1—12 credits
Certificate	13 — 36 credits
Diploma	37+ credits

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For information about Edexcel, BTEC or LCCI qualifications visit qualifications.pearson.com

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