IFE Level 4 Certificate in Fire Science and Fire Safety

Unit 4: Aviation Fire Operations

Unit Reference Number: K/505/5934

Introduction

This unit focuses on the strategies and activities required to assess and resolve fire and rescue incidents in aviation contexts. It covers pre-planning for incidents, resolving incidents and post-incident activities.

Learning Outcomes

Candidates who achieve this unit should be able to:

- assess incidents in aviation contexts (civil and military) and identify appropriate strategies to resolve them
- explain the principles that underpin the provision of firefighting and rescue facilities at airports and airfields
- understand the issues to be taken into account in reviewing and determining incident status, assuming responsibility and taking over command and control operations
- understand how to provide leadership and how to work with colleagues and external stakeholders

Unit Status

Optional

Content

1. Emergency Planning and Procedures

Assessment Objective	Knowledge, Understanding and Skills
1.1 Understand the importance of pre-planning for emergencies and know how to develop a plan	• Preparing for appropriate response • How to protect responders, the public and the environment • How to mitigate the impact of incident
1.2. Identify and assess the issues to take into consideration when planning for emergencies	• Airport location and topography • Access • Rendezvous points and marshalling areas • Water supplies and drainage systems • Rescue and firefighting response and capability • Communications • Air traffic control

1

	• Aircraft hazards • Features that are useful for planning procedures • Determining the best position for standby for emergency vehicles • Observation and watching duties
1.3 Explain the involvement of external partners in pre-planning and explain how to engage with each partner	• Stakeholders and local partners • Joint working in planning and incident review • Importance of involving the local community • Detail the role of each emergency service at the scene of an aircraft accident
1.4 Detail the categorisation (civil and military) of emergencies at airports and assess the implications	• Aircraft Accident • Aircraft Accident Imminent • Aircraft Crash – Off-airfield • Full Emergency • Local Standby • Aircraft Ground Incident • Bomb Alert/Bomb Suspected • Weather Standby • Domestic Fire
1.5 Describe the areas of an airport, explain safety implications and be able to plan for incidents	Areas to include: • Runway • Aircraft stand • Air bridge • Apron • Airside/landside security • Taxiway • Airport terminal buildings • Airport cargo buildings • Baggage areas • Maintenance facilities • Fuel storage

1.6 Describe the range of aircraft, explain safety implications and be able to plan for incidents	• Types of aircraft:
	   o Fixed wing
	   o Rotary wing (helicopters, autogyro etc.)
	   o Gliders
	   o Microlights
	• Civilian and military contexts
	• Incidents on and off airport to include:
	   o Scheduled/chartered flights
	   o Military
	   o Private flights
	   o Air shows and other events

1.7 Explain the importance of maintaining operational readiness and explain how this can be managed	• Training requirements of rescue and firefighting personnel • Training needs analysis • Methods of training available to test contingency and pre-determined emergency plans and how they can be improved • Large-scale training exercise involving all responding emergency services to major aircraft disasters

2

	• Maintaining availability of resources • Procedures in relation to operational readiness
1.8 Assess how the lessons learned from aviation disasters can used in pre-planning and maintaining operational readiness	• Dissemination of information nationally and internationally

2. Incident Command and Management in Aviation Contexts

Assessment Objective	Knowledge, Understanding and Skills
2.1 Understand the key roles, responsibilities and limits of authority	• Role and responsibilities of the Incident Commander at Tactical level • Performance criteria involved in leading, monitoring and supporting people to resolve operational incidents • Role and responsibilities of Command Support at Tactical level incidents, including the role of Command Support Officer • Potential limits to the authority of the Incident Commander
2.2 Understand the importance of successful leadership and the application of effective decision making during operational incidents	• Need for effective command decision making • How to select and apply a range of tactics to resolve different types of operational incidents • The term 'situational awareness' and its relevance to the role of Incident Commander • Key elements of leadership within the role of Incident Commander
2.3 Understand the principles of successful risk management at operational incidents	• Key points in minimising and controlling risks to operational personnel • Relationship between the analytical risk assessment process and the safe and effective management of risk at operational incidents • How to identify and control a strong appetite for risk in others
2.4 Understand the benefits of inter-operability and the contribution of other agencies to the provision of specialist advice and support	• Need for effective liaison with other agencies to achieve desired outcomes • Provision of information to other agencies which may assist in their decision making • Benefits of inter-operability in obtaining and acting upon specialist advice and support from other agencies
2.5 Explain the principles for general control, tactics and strategy in relation to resolving emergency aviation incidents on airport and off airport	• Objectives of ventilation at fires and the principles involved • Strategy and tactics involved in rescue work and how they are used in practice to accomplish efficient rescues • Procedures for ensuring the safety of both personnel and public • Need for evacuation and how this can be achieved

3

	• Firefighting procedures and tactics in fires involving hazardous materials. • Inter-relationship of logistics operations and technical support at incidents • Aims of salvage/damage control operations and the principles and technicalities involved • Problems of command and control in the early stages of major civilian aircraft accidents • Issues to take into consideration in establishing inner and outer cordon distances
2.6 Detail the principles of good site management at the scene of a major aircraft incident	• The concepts of critical areas and control
2.7 Analyse the environmental hazards that might be encountered and determine approaches to minimise negative effects	• Prevention of pollution of water courses and rivers by collection and impounding of firefighting run-off water • Environmental hazards associated with firefighting foams • Hazards of vapour cloud/toxic gas cloud off site during and after fire or other operations
2.8 Assess the implications of liaison with the media before, during and after a major incident	• Role of a media centre at a major incident and the liaison agreements with the emergency services • Factors to be considered in running a press conference during a major incident

3. Provision for Firefighting and Rescue Facilities at Airports and Airfields

Assessment Objective	Knowledge, Understanding and Skills
3.1 Outline the criteria to be taken into account when designing and providing airport fire stations	• Specification and considerations to be taken into account when designing and providing new airport fire appliances
3.2 Explain how to deploy equipment and other resources to resolve incidents including fires and other emergencies on airport and off airport scenarios	• Different types of firefighting media and equipment and its operational use • Selection and deployment of resources • Capabilities and limitations of personnel, appliances, special appliances and equipment

4. Communications

Assessment Objective	Knowledge, Understanding and Skills
4.1 Understand the methods and types of communication systems available both at incidents and remotely	• Importance of effective communication in recognising poor or inaccurate information and taking action to rectify • Types and methods of communication available to an Incident Commander at Tactical level • Range of remote information sources available to an Incident Commander • Role of Command Support in establishing effective communications at incidents

4

	• Requirement to ensure effective briefings are undertaken
4.2 Describe the planning, design, operation and functions of control centres suitable for emergency services	• Methods by which stations can be alerted from a control centre
4.3 Describe and evaluate the communications equipment available	• Types of radio schemes and systems for fire service general and incident use • Computer aided mobilising systems • Possible future developments in the use of technologically advanced systems for mobilisation and communications and their implications

5. Heliports

Assessment Objective	Knowledge, Understanding and Skills
5.1 Explain how to deploy equipment and other resources to resolve incidents including fires and other emergencies in relation to heliports	• Define and show an understanding of the terms "obstacle limitation surfaces" and "transitional surfaces" • The main features to be considered in the designing of off-shore heliports • Concept of critical area as applied to helicopters • Response times for firefighting and rescue personnel at surface level and at elevated heliports • Provision of Aerodrome Rescue and Firefighting (ARFF) Services for helicopters at Unlicensed Onshore operating sites.

6. Post-incident Procedures and Considerations

Assessment Objective	Knowledge, Understanding and Skills
6.1 Understand the principles of debriefs	• How to conduct a post-incident debrief appropriate to the type and scale of incident through open and constructive discussion and review • How to gather and review all relevant information from internal and external sources • How to implement remedial measures to improve future practice and performance • How to identify trends and their implications on performance • How to provide constructive feedback to other agencies to assist inter-operability
6.2 Evaluate the effects and consequences of incidents	• Indirect socio-economic consequences of fires, other emergency incidents and major disasters • Environmental effects and control measures in relation to fires • Post-incident/crash groups (including external partners) to analyse and formulate reports/recommendations

6.3 Understand fire investigation principles and determine the requirements for preservation of evidence at a scene and for post-incident actions	• Techniques of fire investigation into the cause and damage that is inflicted by fire, emergency incident or major disaster • How to preserve the site and evidence and the gathering of other evidence
6.4 Explain the need for post-accident counselling for rescue personnel	• Critical Incident Stress in the context of rescue workers and ways in which the effects can be minimised
6.5 Explain the procedures and implications in dealing with fatalities	• Removal and moving of bodies including the recording of positions and locations • Factors to be taken into account in setting up a temporary morgue • Hazards of handling human remains at the site of a major aircraft accident and at the temporary morgue • Health and safety legal considerations to be taken into account when planning and establishing a temporary morgue

Date issued: 06 August 2018