IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ)

Qualification Number: 500/5922/1

Introduction

The IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ) has been developed by the Institution of Fire Engineers (IFE), representatives of Fire and Rescue Services and other fire professionals. The content and structure of the qualification has been established to reflect best professional practice.

Aims of the Qualification

The IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ) has been designed to enable individuals to demonstrate a wide range of critical knowledge and understanding relevant to the role of Crew Manager in the Fire and Rescue Service. Success in the qualification will enable individuals to demonstrate that they can apply their knowledge and skills to provide solutions in a wide range of fire and rescue situations.

Additionally, success in achieving this qualification will enable candidates to meet the academic requirement for membership of the Institution at Technician grade (TIFireE).

Target Audience

The qualification will meet the needs of:

- those employed in Fire and Rescue Service roles across the world, particularly those who are either already in Crew Manager roles or those who wish to develop and demonstrate knowledge and understanding relevant to the role of Crew Manager in preparation for promotion to this role;
- those operating in specialist fire and rescue contexts, such as aviation or fire prevention/fire safety roles, who need to develop and apply a wide range of knowledge and understanding in their role;
- other fire professionals who wish to demonstrate their knowledge and understanding of fire engineering science, operations, fire safety and management in the fire and rescue context;
- individuals throughout the world wishing to achieve membership of the IFE at Technician grade (TIFireE) and to progress to higher levels.

Date issued: 26 August 2016

Qualification Structure

In order to achieve the IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ), candidates must achieve four mandatory units as follows:

- Unit 1: Fire Engineering Science
- Unit 2: Fire Operations
- Unit 3: Fire Safety
- Unit 4: Management and Administration in Fire and Rescue Services

Form of Assessment

Each unit is assessed separately by an examination.

In each case, the examination, which is one hour in duration, comprises two sections.

Section one

There are 20 marks available for this section of the examination. It contains 20 multiple choice questions and each question is worth one mark. Questions may target any assessment objective identified within the unit. Candidates should attempt all questions in this section of the examination.

Section Two

There are 30 marks available for this section of the examination. Questions in this section take the form of short written answer questions and provide candidates with the opportunity to demonstrate their knowledge and understanding across the content specified in the unit syllabus. Candidates should attempt all questions in this section of the examination.

Sample examination questions are available on the IFE's website.

Grading and Certification

Unit Achievement

Each unit is assessed separately.

Achievement at unit level is not graded. Successful candidates are awarded a Pass Certificate.

In order to achieve a Pass, candidates must obtain at least 50% of the marks available. (Note: grade boundaries are reviewed and confirmed by an expert awarding panel review following each examination session in line with standard examination and awarding procedures.)

Achievement of the IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ)

In order to achieve the IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ), candidates must achieve a Pass in all four mandatory units. The final certificate is not graded – successful candidates will be awarded a Pass Certificate.

Candidates do not need to achieve all four units at the same examination session. Candidates who achieve fewer than four units at one examination session will receive a Unit Certificate for each unit achieved. In order to achieve the full IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ), candidates must achieve all four units within five years.

Entry Requirements

There are no formal entry requirements and candidates are not required to achieve other qualifications prior to undertaking this qualification. However, candidates are advised that this specification provides progression from the Level 2 Certificate in Fire Science, Operations and Safety (VRQ); therefore, candidates who have previously achieved an IFE qualification at Level 2 will be able to build upon relevant knowledge and understanding.

Candidates will need to be able to communicate effectively in writing in order to respond to the written answer questions. In addition, candidates are advised that mathematical skills will be required in order to complete the Fire Engineering Science (unit 1) examination.

Progression

Candidates who are successful in achieving the IFE Level 3 Certificate in Fire Science, Operations, Fire Safety and Management (VRQ) will have developed knowledge and understanding that will prepare them to undertake further study. Candidates may wish to extend their knowledge and understanding at Level 3 and progress to the IFE Level 3 Diploma. Alternatively, they may wish to progress to the IFE Level 4 Certificate or other qualifications at Level 4. Candidates may choose to progress to specific units only (e.g. Fire Safety) if they prefer to extend aspects of their knowledge rather than achieving full qualifications.

Unit 1: Fire Engineering Science

Unit Reference Number: Y/505/5749

Introduction

This unit provides candidates with the opportunity to develop and demonstrate their understanding of fire engineering science and fire behaviour.

The content of the unit has been designed to reflect the technical knowledge that fire professionals need in order to understand the behaviour of fire including the chemistry of fire and the mechanics of firefighting and rescue equipment.

Learning Outcomes

Candidates who achieve this unit should be able to:

- carry out mathematical calculations accurately
- understand and apply the chemistry of fire
- understand and apply the principles of hydraulics
- understand and apply the principles of electricity
- understand how fire engineering science underpins activities in fire and rescue situations
- apply understanding of fire engineering science to solve problems and make decisions

Unit Status

This is a mandatory unit.

Content

1. Mathematics and Mechanics

Assessment Objective	Knowledge, Understanding and Skills
1.1 Carry out mathematical processes	Processes to include: • Transposition and transformation of formulae • Use of standard form of numbers • Simple trigonometry
1.2 Carry out calculations to determine the area, volume and capacity of various shapes	• Shapes including squares, triangles, rectangles, trapeziums, circles, spheres, cylinders, cubes, cuboids, irregularly shaped objects • How to calculate area, volume, capacity • Units of measurement for different purposes • Presentation of calculations

1.3 Define, understand and use terms related to the physical properties of matter	• Mass • Density • Vapour density • Liquids of different density • Gases of different density • Matter and energy • Melting point, boiling point and evaporation
1.4 Define basic terms and be able to carry out basic calculations that involve physical mechanics	• Force • Gravity • Friction • Motion • Momentum • Mass • Weight • Pressure • Velocity • Acceleration • Power • Energy • Work
1.5 Define and carry out calculations involving a) Mechanical Advantage b) Moments of Force	• Definition of “Mechanical Advantage” • Definition of “Moments of Force” • Method of calculation

2. Heat

Assessment Objective	**Knowledge, Understanding and Skills**
2.1 Define the terms “heat” and “temperature” and explain the relationship between them	• Definition of “heat” • Definition of “temperature” • Relationship between heat and temperature • Definition of “critical temperature” • Definition of “critical pressure”
2.2 Understand the effect of heat on materials	Effect of a change of temperature on: • Solids • Liquids • Gases Processes of heat transmission: • Conduction • Convection • Radiation Principles of thermal expansion • The thermal expansion of solids • The coefficient of linear expansion • Thermostats

	• The coefficient of superficial and cubical expansion of solids • Thermal expansion of liquids • Cubical expansion • The effect of expansion on density • The expansion of gases • Temperature, pressure, volume
2.3 Define the gas laws and carry out calculations	Define and use: • Boyle's Law • Charles' Law • The Law of Pressures • The General Gas Law

3. Hydraulics

Assessment Objective	Knowledge, Understanding and Skills
3.1 Define and carry out calculations involving: a) Density b) Relative density c) Specific gravity d) Pressures in fluids	• Definitions of the terms • Methods of calculation • Understand the significance of the difference in specific gravities between liquids such as petrol and water
3.2 Define atmospheric pressure and describe methods of measuring and calculating it	• Definition of "atmospheric pressure" • Methods of measuring it • Method of calculation
3.3 Understand and carry out calculations relating to flow of water in hose and pipelines	• The conditions required to enable water to flow in hose or pipelines • How to calculate the quantity of water flowing • How to calculate the velocity of water
3.4 Explain the relationship between pressure, nozzle diameter and discharge from a branch and carry out the relevant calculations	• How to calculate the discharge of water • How to calculate the discharge through nozzles • The practical considerations of high nozzle pressures
3.5 Define the term "jet reaction" and be able to calculate jet reaction forces	• Definition of "jet reaction" • Formulae for calculations
3.6 Understand and explain the operation of pumps and carry out basic calculations	• Definition and calculation of water power • Definition of brake power • Calculate pump efficiency • The working of a siphon • The factors to be overcome when pumping/lifting from open water

4. Chemistry

Assessment Objective	Knowledge, Understanding and Skills
4.1 Define and use chemical terms	Terms to include: • Atom • Element • Compound • Mixture • Solution • Solubility • Suspension • Metal • Non-metal
4.2 Describe the construction of an atom and show how the electron shell configuration has an effect on reactivity	• Definition of "reactivity" • Components of an atom – protons, neutrons, electrons, shell • Elements that are most reactive • Elements that are least reactive • Periodic Table

4.3 Understand and apply chemistry to fire	• Understand that combustion is a type of chemical reaction
	• Types of flame: premixed flame, diffusion flame
	• Explain the term flammable with respect to a fuel/oxygen mixture
	• Principles involved in the extinction of fire by:
	  ○ Smothering
	  ○ Cooling
	  ○ Starvation
	• The principle and components of the fire tetrahedron: fuel, heat, oxygen and chemical chain

4.4 Define the terms flashpoint, fire point and spontaneous ignition temperatures	Definition of: • Flashpoint • Fire point • Spontaneous ignition temperatures

4.5 Describe the classes of fire and name the extinguishing media appropriate for each class	• Classes of fire:
	  ○ Ordinary combustibles- paper, plastic, wood, fabric, etc.
	  ○ Flammable liquids- fuel, oil, kerosene,
	  ○ Electrical equipment/Fires involving energised electrical equipment
	  ○ Flammable Metals- magnesium, aluminium, etc
	  ○ Cooking related e.g. grease, lard, etc.
	• Define the term "calorific value"

4.6 Explain the action of fire extinguishing media	• Water • Inert gas • Foam • Vaporising liquids • Carbon dioxide and inert gases • Dry chemical powders

	• Blanketing • Beating

5. Electricity

Assessment Objective	Knowledge, Understanding and Skills
5.1 Define and use basic electrical units to solve problems	Define and use the following in calculations: • Volts • Amperes • Ohms • Watts • Joules • Electrical current
5.2 Describe and use Ohm's Law to solve problems	• Principles of Ohm's Law • Use Ohm's Law to solve problems
5.3 Identify types of electrical cable and explain their use	Types to include: • PVC • Other plastic sheathed • Mineral-insulated • Copper sheathed
5.4 Describe the different types of protective devices and explain their use	Types to include: • Residual Current Device (RCD) • Miniature circuit breakers (MCB) • Fuses
5.5 Recognise potentially dangerous domestic loading conditions	Conditions to include: • Overloading sockets • Incorrect use of extension leads • Incorrect/unsafe wiring conditions • Non-compliant electrical conditions
5.6 Explain the purpose and significance of conductors and insulators	• Purpose of conductors • Examples of conductors e.g. copper, aluminium • Examples of insulators for different purposes

Unit 2: Fire Operations

Unit Reference Number: R/505/5751

Introduction

This unit focuses on the strategies and activities required to successfully resolve diverse fire and rescue operational scenarios.

Learning Outcomes

Candidates who achieve this unit should be able to:

- identify and explain the factors to be taken into account when pre-planning for incidents
- understand the issues and strategies to be employed when firefighting or carrying out rescues
- understand the operation and deployment of firefighting equipment

Unit Status

This is a mandatory unit.

Content

1. Pre-Planning

Assessment Objective	Knowledge , Understanding and Skills
1.1 Understand and explain the value of pre-planning for incidents	• Significance of topography • The nature of premises and processes • Water supplies and extinguishing media • Liaison with key site personnel and responsible persons • The safety of emergency and non-emergency personnel working alongside • The safety of members of the public and bystanders • The mitigation of environmental impact • Other external partners/stakeholders • On arrival tactics • Information gathering for local risks

2. Incident Command and Management

Assessment Objective	Knowledge, Understanding and Skills
2.1 Understand and explain the application of Command and Control principles and procedures	• Risk assessment methodology • Fire and Rescue Service responsibilities at incidents • Use of control units and forward controls on the incident ground and their relationship to Fire and Rescue Service control centres • Understand the following within the Incident Command System: o The levels of control (operational, tactical and strategic) o The main elements of the *Incident Command System* o The principles and benefits of *sectorisation* o The importance of limiting the *Span of Control* o The tactical modes employed for firefighting o The use of support or functional roles o Firefighter safety at operational incidents
2.2 Understand incident management techniques	• The first actions on arrival at an incident • Briefing of oncoming personnel and crews • Handover of command to relief or senior officers • The process of Dynamic Risk Assessment • How to assess assistance needs • Environmental considerations • The selection, use and limitations of specialised appliances • The use of breathing apparatus at all stages in an incident, including safety, emergency and relief procedures • The indications of dangerous conditions applicable to specific incidents • Methods of ventilation • Methods of reaching and attacking the seat of the fire

3. Fire and Rescue Procedures – General Principles and Operations

Assessment Objective	Knowledge, Understanding and Skills
3.1 Understand the process and principles of fire development in relation to the procedures for extinguishing fires in different contexts.	• Methods of identifying different types of burning material • Ways in which fires can spread detected and undetected both internally and externally • Principles and benefits of ventilation • Flashover, backdraught and fire gas explosion.
3.2 Understand and describe the appropriate method of attack and procedures for dealing with fires that occur in different contexts.	• Incidents in the built environment involving fires in: o buildings under construction and demolition or derelict o high rise properties or buildings with atriums, basements and tunnels o roofs o leisure facilities, camp sites and temporary structures o commercial premises and industrial/petrochemical processes o hospitals, health care and educational establishments o prisons and places of lawful detention o places of research and laboratories. o historical buildings and premises containing valuable artefacts including Heritage buildings, museums and galleries • Fires involving transportation by road, rail, air and waterways, to include: o Modes of transportation, ie vehicles rolling stock, aircraft and vessels o Infrastructure, such as roads, terminals, stations, docks, marinas, etc. • Wildfires to include rural areas such as forests, heath land, wildland, crops, bush etc. • Farms, farm buildings, processes and equipment
3.3 Understand the value and aims of salvage operations both pre, during and after firefighting operations	• Salvage procedures and considerations • Active prevention of avoidable damage • Mitigating the effects of fire and firefighting operations • Subsequent restoration and protection relevant to the premises
3.4 Understand the general principles and methodologies involved in dealing with rescue situations	• Rescues from the built environment, to include: o Entry into and searching of buildings and collapsed structures o Release of trapped persons from machinery, lifts, escalators o Rescues from sub surface and confined spaces, to include: o Entry into and searching of tunnels and shafts o Vat, silo, sewer, trench, pit, chimney

	• Rescues from transportation incidents, to include extrication of persons from vehicles, trains, aircraft, ships and boats
	• Rescues from height, to include working at height or with ropes including:
	  ○ buildings, cranes, shafts, cliffs and other permanent or temporary structures
	• Rescues from water and unstable ground to include:
	  ○ People, property and vehicles from flood water
	  ○ Incidents involving still and fast flowing water
	  ○ Incidents involving ice, mud and other free flowing solids
	• Rescues from incidents involving hazardous materials, to include hazmat release by defect, natural occurrence, or human act.

4. Post-Incident Action

Assessment Objective	Knowledge , Understanding and Skills
4.1 Understand how to close down the operational phase of an incident	• Measures to hand over control of an incident to the appropriate person, agency or authority • Actions to identify and mitigate hazards and associated risks within operational restraints • The principles and the value of debriefs and how to apply these principles in different contexts

4.2 Describe the requirements for scene preservation when required for further investigations	• How to identify and preserve potential evidence identified at the incident to support a subsequent investigation
	• Purpose of investigation
	• Scene control measures to:
	  ○ ensure maximum preservation of evidence
	  ○ minimise the risk of scene contamination
	• Contemporaneous notes
	• Principles that underpin the collation and analysis of evidence
	• Preparation of materials for handover to a specialist investigator

5. Water Supplies and Extinguishing Media

Assessment Objective	Knowledge, Understanding and Skills
5.1 Describe the provision of water supply systems for firefighting purposes	• Water distribution systems • The purpose of a ring main and its principal components • The causes of poor flow in mains • Hydrant installation and its principal components
5.2 Describe the characteristics and use of the various types of	• Categories of firefighting foam

firefighting foam and foam making equipment	• The uses of the following: protein, fluoroprotein, synthetic, film forming, alcohol resistant foam • Performance characteristics of foam making equipment, including compressed air foam systems (CAFS) • The relative expansion ratios associated with low, medium and high expansion foam making
5.3 Detail the different types of portable fire extinguishers and describe the operating characteristics	• Categories of extinguishers, to include: o water o foam o dry powder o carbon dioxide o wet chemical • Performance requirements and ratings/class of extinguishers • Type of operation, stored pressure or gas cartridge • Operational use and considerations when using portable fire extinguishers

6. Fire and Rescue Equipment

Assessment Objective	Knowledge, Understanding and Skills
6.1 Explain the operating principles and use of pumps	• The operating principles of centrifugal and peripheral pumps including high-pressure pumps • The operating principles and application of ejector pumps • Advantages and disadvantages of different types of pump • The basic principles of high volume pumping and the circumstances in which it would be used • Foam generation utilising a fire pump or compressed air foam system • Testing and maintenance procedures to be adopted for such items
6.2 Describe the principles of operation of the common primers	Primers • Reciprocating • Water ring • Water seal • Gas ejector – exhaust gas
6.3 Describe pump cooling systems	• Direct • Indirect
6.4 Outline the pump gauges and ancillary equipment along with potential pump faults	• The gauges to be found on a typical fire service pump and their purpose • Methods of using suction hose in a range of applications • Potential faults and other symptoms that may arise when working from a pressure-fed supply or open water

6.5 Describe the different types of hose	• Characteristics of good delivery hose • Methods of testing delivery and suction hose • The principles of the design and operation of various types of coupling for delivery and suction hose
6.6 Describe the design and use of branches, monitors and breechings	• Hand held branches, controlled and uncontrolled • Dividing and collecting breechings • Ground and aerial monitors • Jet and spray nozzles • Foam branches and foam making equipment
6.7 Describe the use of ladders and the procedures for safe working at height	• Safety precautions to be observed when handling, pitching and climbing ladders • General principles of working with ladders • Safe and unsafe working angles when pitching ladders • Acceptable alternative uses for fire service ladders • Testing and maintenance procedures to be adopted for such items
6.8 Describe the performance requirements and the construction of the various types of Breathing Apparatus and associated equipment	• Principal component parts and the passage of air from the cylinder at high pressure to the wearer in a specific type of compressed air apparatus • Breathing Apparatus communications equipment • Safety procedure used to control the use of Breathing Apparatus • Hand operated resuscitation apparatus and typical automatic resuscitator • Testing and maintenance procedures to be adopted for such items
6.9 Describe the detection, identification and monitoring equipment used in relation to hazardous materials	Types of equipment to include: • Radiation measuring equipment • Personal protective equipment • Decontamination equipment • Principles of clothing design to give total environmental protection by being 'gas tight', or limited protection against splashing by harmful chemicals • Testing and maintenance procedures to be adopted for such items
6.10 Describe the characteristics and applications of the various types of ropes and lines used in the Fire and Rescue Service	• Natural and man-made ropes • Construction of these types of rope • Care of and causes of damage to ropes and lines • Testing and maintenance procedures to be adopted for such items
6.11 Describe the performance requirements and the construction of the various types of water and unstable rescue equipment and ancillaries	• PPE - drysuits, personal floatation devices, life jackets, helmets • Throwlines and safety lines • Inflatable Rescue Boats, outboard motor engines, fuel supplies and ancillary equipment • Mud paths and lances

	• Testing and maintenance procedures to be adopted for such items

Unit 3: Fire Safety

Unit Reference Number: L/505/5750

Introduction

This unit focuses on fire safety issues in relation to the built environment, covering methods of construction and methods for detecting and protecting buildings and people from fire.

Learning Outcomes

Candidates who achieve this unit should be able to:

- understand the basic methods of building construction and the implications of different structures and materials in case of fire
- analyse fire resistance in relation to buildings and building materials
- understand and explain the operation of fire protection equipment
- explain and apply the principles of fire safety

Unit Status

This is a mandatory unit.

Content

1. Elements of Construction

Assessment Objective	Knowledge, Understanding and Skills
1.1 Identify and describe the elements of structure within a building	Elements to include: • Function of a column and principal materials used in construction (including timber, brick, stone, reinforced concrete, cast iron, steel) • Function and types of beams (including structural, continuous) and the reaction of an applied load on a beam • Function of walls (external walls, separating walls, compartment walls, load-bearing walls or part-load bearing walls) • Principal types of load-bearing wall construction • Principles of brick wall construction • Role of cavity walls • Floors (timber-joisted, compressed board panels, reinforced concrete and hollow block) • Methods of supporting floor joists in or on walls • Roofs and component parts

	• Staircases and component parts
1.2 Explain the construction and function of doors and fire doors	• Construction and operating principles of the different types of doors • Function of doors in relation to fire • Use of fire doors for smoke control purposes • Fire doors and their associated components
1.3 Describe the physical effects of fire on a range of building elements and materials and describe the methods used to improve their fire resistance	• Building elements to include those listed in 1.1 above • Building materials to include: o Timber (including laminates) o Brick o Stone o Steel o Aluminium o Concrete (reinforced and pre stressed) o Glass o Building boards and building slabs o Sandwich panels o Insulating materials o Paint o Plastics o Photovoltaic panels • Glazing including different types of glazing found in buildings and the performance in fire of the different types of glazing • Modern methods of building construction and implications in fire situations • Fire resistance in relation to stability, integrity and insulation
1.4 Identify the advantages and disadvantages of using different materials	Materials to include: • Steel • Lead • Copper • Zinc • Aluminium • Concrete (reinforced and pre stressed) • Timber • Stone • Brick • Laminated timber

2. Fixed Installations

Assessment Objective	Knowledge, Understanding and Skills

2.1 Understand the types and purpose of sprinkler systems and describe their operation	• Five main types of sprinkler installations:
	  ○ Wet type
	  ○ Dry pipe
	  ○ Alternative (wet and dry)
	  ○ Pre-action
	  ○ Recycling pre-action
	• Systems based on wet pipe and dry pipe may also include extensions of the following additional type: tail end dry type and deluge
	• Two categories of sprinkler heads:
	  ○ Fusible solder
	  ○ Quartzoid bulb
	• The relationship between the different colours of sprinkler heads
	• The controls, gauges and alarms of an automatic sprinkler system
	• Accepted sources of water supply: town mains, elevated private reservoir, gravity tank, suction and booster pumps, and pressure tanks

2.2 Understand the purpose of drencher systems and describe their operation	• Main types of drencher system and their operation
2.3 Understand the purpose of water spray projector systems and describe the operation of these systems	• The action of water and steam in extinguishing an oil fire • Differentiate between the two types of water spray systems installed as fixed equipment
2.4 Understand and describe the design principles and component parts of rising mains	• Dry and Wet • Downcomers
2.5 Understand and describe extinguishing systems that do not use water	Systems include: • Gas flooding systems – CO2, FM200, Nitrogen, Inert Gas
2.6 Understand and describe the principles underlying simple smoke control and ventilation systems	• Principles of smoke control and ventilation systems
2.7 Outline the use, siting and maintenance of portable and fixed extinguishing equipment	• Sprinkler Systems • Drenchers • Water spray projectors and water mist systems • Rising mains • Foam systems • Gas/vapour systems • Dry powder systems

3. Alarm Systems

Assessment Objective	Knowledge, Understanding and Skills
3.1 Identify situations when using manual means of warning of fire are suitable and understand their limitations	Types of manual system to include: • Hand gong • Call point only system • Handbell • Voice
3.2 Understand and describe the design and operating principles of electrical fire alarm systems	• The operating principles of open and closed circuit alarm systems • The different types of automatic fire detection systems • The types of detectors used in the installation and operation of electrical fire alarm systems • Stages in fire development in relation to automatic fire detectors • Reduction of false alarms and unwanted fire signals • Impact of false alarms

4. Fire Safety Practice

Assessment Objective	Knowledge, Understanding and Skills

4.1 Describe and understand the principles of means of escape in case of fire	• Definition of "means of escape"
	• Evacuation strategies
	• Principles of means of escape in relation to:
	  ○ Construction
	  ○ Time of evacuation
	  ○ Occupancy
	  ○ Exits
	  ○ Travel distance
	  ○ Management control

4.2 Understand and describe the principles of access and the provision of facilities for fire appliances and firefighters	• Access to premises and facilities
4.3 Understand the importance of a fire risk assessment and the principles underpinning the process	• The need for the fire risk assessment process and review • The key elements of a fire safety management system • Definition of the terms "hazard" and "risk" in relation to fire safety • Human behaviour that may be presented in fire situations
4.4 Understand and describe how community fire safety strategies can contribute to reducing the incidence of fire	• Engaging with local community and partners to provide fire safety advice • Plans to work with community groups

Unit 4: Management and Administration in Fire and Rescue Services

Unit Reference Number: Y/505/5752

Introduction

This unit focuses on the importance of effective management and administration skills in fire and rescue contexts. It covers organisation structure, leadership and management, performance management, organisation systems and administration and training and development.

Learning Outcomes

Candidates who achieve this unit should be able to:

- understand the structure of organisations and the links between different parts of the organisation
- identify and evaluate factors affecting the performance of individuals, teams and organisations
- understand how to manage and motivate teams
- understand health and safety issues
- apply management and administration practices to fire and rescue service contexts

Unit Status

This is a mandatory unit.

Content

1. Elements of Organisation

Assessment Objective	Knowledge, Understanding and Skills
1.1 Understand and describe the principles of organisational structure and assess the implications for organisation performance	• Organisational structure • Characteristics of an effective structure • Potential results of an inappropriate structure • Presentation of structures/organograms • Chain of command • Responsibilities and reporting relationships • Functional management/departments
1.2 Describe roles and responsibilities within an organisation, explain relationships between roles and assess the implications for organisation performance	• Responsibilities of top level managers, middle managers, first line supervisors and front line staff • Purpose and content of job descriptions and person specifications • Define and describe the relationship between task needs, group needs and individual needs

	• Importance of performance management at organisation and individual level • Importance of team work and team building • Managing relations with other teams and departments

1.3 Understand the importance of planning and explain how organisations use different types of plan	• Types of plans to include:
	  o Strategic Plan
	  o Business Plan
	  o Project Plan
	  o Team/Department Plan
	• SWOT analysis and use of SWOT analysis in the development of plans
	• Features of plans
	• Setting objectives
	• Prioritising
	• Role of managers in developing plans and delivering outcomes

1.4 Identify and explain the importance of the three Es	Three Es: • Economy • Efficiency • Effectiveness
1.5 Explain the importance of operational risk management and explain how organisations manage risk	• Identifying risk • Managing risk • Risk Register
1.6 Explain the importance of health and safety at work and explain how organisations manage health and safety issues	• Duties of employers with regard to health and safety • Duties of employees with regard to health and safety • Risk assessment and safety statement • Safe Person Concept • Health and safety issues

2. Leadership and Management

Assessment Objective	**Knowledge, Understanding and Skills**
2.1 Understand and assess the contribution of leadership and management to organisation success	• Management skills • Leadership qualities and skills • Managing team and individual employee performance
2.2 Describe different leadership styles and assess the advantages and disadvantages of different styles in different situations	Leadership styles to include: • Autocratic • Bureaucratic • Charismatic • Democratic • Laissez-faire • People-oriented and task-oriented styles • Transactional • Transformational

	• Situational
2.3 Understand and apply recognised management theories	Management theories to include: • Scientific Management • Hierarchy of Needs • Hawthorne Studies • Theory of Motivation • Theory X and Theory Y
2.4 Understand the importance of staff motivation in driving high performance and identify issues that influence motivation	Issues affecting motivation and performance including: • Organisational design • Objectives and targets • Delegation • Communication • Excessive conflict • Management • Training
2.5 Explain the principles that underpin effective allocation of work and delegation	• Factors affecting decisions to delegate • Successful and unsuccessful delegation strategies
2.6 Understand the principles that underpin an effective approach to counselling	• Identification of when counselling may be appropriate • Features of a good counselling procedure
2.7 Understand the principles that underpin an effective approach to discipline	• Definition of “discipline” • Features of a good disciplinary procedure • Stages of a disciplinary procedure
2.8 Understand the importance of valuing equality and diversity for an organisation and the principles that underpin equality and diversity	• Definition of “equality” • Definition of “diversity” • Definition of “direct discrimination” • Definition of “indirect discrimination” • Equality and diversity policies

3. Organisation Systems and Administration

Assessment Objective	**Knowledge, Understanding and Skills**
3.1 Explain the importance of good record keeping and identify methods of managing records	• The need for record keeping in an organisation • Advantages of good record keeping • Types of record keeping systems • Reviewing systems of record keeping • Types of records maintained
3.2 Explain the importance of budgets and budgetary control	• Definition of the term “budget” • Revenue costs and capital expenditure • Features of a good budget • Advantages of budgetary control • Problems associated with budgetary control
3.3 Explain the importance of meetings in contributing to the delivery of objectives	• Types of meetings: one-to-one, team, cross-team, external • Planning for meetings • Managing meetings

	• Recording meetings • Processing actions arising from meetings
3.4 Explain the implementation and importance of quality assurance systems	• Implementation • Contribution to organisation performance

4. Training and Development

Assessment Objective	Knowledge, Understanding and Skills
4.1 Understand how managers can use learning and development opportunities to improve team performance and plan for the future	• The benefits of training, development and learning for individuals and organisations • Evaluating the benefits of training • The role of the manager in training and development • Training needs analysis
4.2 Identify and describe different types of training and explain the benefits of each	• Types of training: o Induction o On-the-job o Continuing Professional Development
4.3 Assess the advantages and disadvantages of different methods of training	• Methods of training – on and off the job to include: o Training course o e-learning o self-study o discussion group o case study o secondment o on-the job
4.4 Identify the features of a good training programme	• Objectives • Plan/Schedule for training • Delivery options including on and off the job components • Training aids including IT resources • Assessment/Qualifications • Evaluation of learning
4.5 Understand the purpose and value of exercises	• Purpose of exercises • Types of exercise – discussion-based, table top, live and combinations of these • Developing exercise plans