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Version: 3
Specification date: October 2018
Publication date: February 2021

Registered Charity Number: 1010444

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International General Certificate in Occupational Health and Safety

Syllabus

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Syllabus summary

Element		Recommended tuition hours	Recommended self-study hours	Assessment
1	Why we should manage workplace health and safety	3	20	Open book examination (OBE) Unit IG1: Management of health and safety Elements 1.1, 1.2 and 3.4 are also assessed by the practical assessment (Unit IG2)
2	How health and safety management systems work and what they look like	2		
3	Managing risk – understanding people and processes	14		
4	Health and safety monitoring and measuring	7		

Element		Recommended tuition hours	Recommended self-study hours	Assessment
5	Physical and psychological health	7	20	Practical assessment Unit IG2: Risk assessment
6	Musculoskeletal health	6		
7	Chemical and biological agents	6		
8	General workplace issues	10		
9	Work equipment	5		
10	Fire	3		
11	Electricity	2		

Syllabus

Learning outcomes and assessment criteria

Learning outcome The learner will be able to:	Related content	Assessment criteria	Assessment
Justify health and safety improvements using moral, financial and legal arguments	1.1–1.2	Discuss the moral, financial and legal reasons for managing health and safety in the workplace Explain how health and safety is regulated and the consequences of non-compliance	OBE, practical
Advise on the main duties for health and safety in the workplace and help their organisation manage contractors	1.3	Summarise the main health and safety duties of different groups of people at work and Explain how contractors should be selected, monitored and managed	OBE
Work within a health and safety management system, recognising what effective policy, organisational responsibilities and arrangements should look like	2.1–2.2	Give an overview of the elements of a health and safety management system and the benefits of having a formal/certified system Discuss the main ingredients of health and safety management systems that make it effective – policy, responsibilities, arrangements	OBE
Positively influence health and safety culture and behaviour to improve performance in their organisation	3.1–3.3	Describe the concept of health and safety culture and how it influences performance Summarise how health and safety culture at work can be improved Summarise the human factors which positively or negatively influence behaviour at work in a way that can affect health and safety	OBE

Syllabus

Learning outcome The learner will be able to:	Related content	Assessment criteria	Assessment
Do a general risk assessment in their own workplace – profiling and prioritising risks, inspecting the workplace, recognising a range of common hazards, evaluating risks (taking account of current controls), recommending further control measures, planning actions	1.1 1.2 3.4 5–11	Explain the principles of the risk assessment process and Produce a risk assessment of a workplace which considers a wide range of identified hazards (drawn from elements 5 – 11) and meets best practice standards ('suitable and sufficient')	OBE, practical
Recognise workplace changes that have significant health and safety impacts and effective ways to minimise those impacts	3.5	Discuss typical workplace changes that have significant health and safety impacts and ways to minimise those impacts	OBE
Develop basic safe systems of work (including taking account of typical emergencies) and knowing when to use permit-to-work systems for special risks	3.6–3.8	Describe what to consider when developing and implementing a safe system of work for general activities Explain the role, function and operation of a permit-to-work system Discuss typical emergency procedures (including training and testing) and how to decide what level of first aid is needed in the workplace	OBE

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Learning outcome The learner will be able to:	Related content	Assessment criteria	Assessment
Take part in incident investigations	4.2	Explain why and how incidents should be investigated, recorded and reported	OBE
Help their employer to check their management system effectiveness – through monitoring, audits and reviews	4.1, 4.3, 4.4	<p>Discuss common methods and indicators used to monitor the effectiveness of management systems</p> <p>Explain what an audit is and why and how it is used to evaluate a management system</p> <p>Explain why and how regular reviews of health and safety performance are needed</p>	OBE

Syllabus content

Element 1: Why we should manage workplace health and safety	
1.1	Morals and money <ul style="list-style-type: none">• Moral expectations of good standards of health and safety• The financial cost of incidents (insured and uninsured costs).
1.2	Regulating health and safety <ul style="list-style-type: none">• What enforcement agencies do and what happens if you don't comply• The part played by international standards (like ISO 45001)• The International Labour Organisation's (ILO) Convention C155 and Recommendation R164:<ul style="list-style-type: none">> employers' responsibilities (C155 Article 16 and R164 recommendation 10)> workers' responsibilities and rights (C155 Article 19 and R164 recommendation 16)• Where you can find information on national standards.
1.3	Who does what in organisations <ul style="list-style-type: none">• Roles of directors/managers/supervisors• How top management can demonstrate commitment by:<ul style="list-style-type: none">> making resources available to design, implement and maintain the occupational health and safety management system> defining roles and responsibilities> appointing senior managers with specific responsibility for health and safety> appointing competent people (internal and external, including specialists) to help the organisation meet its health and safety obligations> reviewing health and safety performance• Responsibilities of organisations who share a workplace to work together on health and safety issues (C155 Article 17, R164 Recommendation 11)• How clients and contractors should work together:<ul style="list-style-type: none">> the duties they owe each other ('Safety and health in construction', ILO Code of Practice - Chapter 2)

Element 1: Why we should manage workplace health and safety

- > effective planning and co-ordination of contracted work
- > pre-selection and management of contractors.

Element 2: How health and safety management systems work and what they look like

2.1 What they are and the benefits they bring

- The basics of a health and safety management system: the 'Plan, Do, Check, Act' model (see ISO 45001:2018 and ILO-OSH2001)
- The benefits of having a formal/certified health and safety management system.

2.2 What good health and safety management systems look like

- The occupational health and safety policy (see clause 5.2 ISO 45001:2018):
 - > role
 - > typical content
 - > proportionate to the needs of the organisation
- Responsibilities – all workers at all levels of an organisation have responsibility for health and safety
- Practical arrangements for making it work:
 - > the importance of stating the organisation's arrangements for planning and organising, controlling hazards, consultation, communication, monitoring compliance, assessing effectiveness
- Keeping it current: when you might need to review the health and safety management system, including passage of time, technological, organisational or legal changes, and results of monitoring.

Element 3: Managing risk – understanding people and processes

3.1 Health and safety culture

- Meaning of the term 'health and safety culture'
- Relationship between health and safety culture and health and safety performance
- Indicators of an organisation's health and safety culture:
 - > incidents, absenteeism, sickness rates, staff turnover, level of compliance with health and safety rules and procedures, complaints about working conditions
- Influence of peers on health and safety culture.

3.2 Improving health and safety culture

- Gaining commitment of management
- Promoting health and safety standards by leadership and example and appropriate use of disciplinary procedures
- Competent workers
- Good communication within the organisation:
 - > benefits and limitations of different methods of communication (verbal, written and graphic)
 - > use and effectiveness of noticeboards and health and safety media
 - > co-operation and consultation with the workforce and contractors, including:
 - benefits of worker participation (including worker feedback)
 - the role of health and safety committees
- When training is needed:
 - > induction (key health and safety topics to be covered)
 - > job change
 - > process change
 - > introduction of new legislation
 - > introduction of new technology.

Element 3: Managing risk – understanding people and processes

3.3 How human factors influence behaviour positively or negatively

- Organisational factors, including: culture, leadership, resources, work patterns, communications
- Job factors, including: task, workload, environment, display and controls, procedures
- Individual factors, including: competence, skills, personality, attitude and risk perception
- Link between individual, job and organisational factors.

3.4 Assessing risk

- Meaning of hazard, risk, risk profiling and risk assessment
- Risk profiling: What is involved? Who should be involved? The risk profiling process
- Purpose of risk assessment and the 'suitable and sufficient' standard it needs to reach (see HSG65: 'Managing for health and safety')
- A general approach to risk assessment (5 steps):
 - > identify hazards:
 - sources and form of harm; sources of information to consult; use of task analysis, legislation, manufacturers' information, incident data, guidance
 - > identify people at risk:
 - including workers, operators, maintenance staff, cleaners, contractors, visitors, public
 - > evaluate risk (taking account of what you already do) and decide if you need to do more:
 - likelihood of harm and probable severity
 - possible acute and chronic health effects
 - risk rating
 - principles to consider when controlling risk (section 3.10.1 ILO-OSH 2001 – 'Guidelines on occupational safety and health management systems')
 - practical application of the principles – applying the general hierarchy of control (clause 8.1.2 of ISO 45001:2018)
 - application based on prioritisation of risk

Element 3: Managing risk – understanding people and processes

- use of guidance; sources and examples of legislation
- applying controls to specified hazards
- residual risk; acceptable/tolerable risk levels
- distinction between priorities and timescales
- > record significant findings
- > reasons for review
- Application of risk assessment for specific types of risk and special cases:
 - > examples of when they are required, including fire, DSE, manual handling, hazardous substances, noise
 - > why specific risk assessment methods are used for certain risks – to enable proper, systematic consideration of all relevant issues that contribute to the risk
 - > special case applications to young people, expectant and nursing mothers; also consideration of disabled workers and lone workers.

3.5 Management of change

- Typical types of change faced in the workplace and the possible impact of such change, including: construction works, change of process, change of equipment, change in working practices
- Managing the impact of change:
 - > communication and co-operation
 - > risk assessment
 - > appointment of competent people
 - > segregation of work areas
 - > amendment of emergency procedures
 - > welfare provision
- Review of change (during and after).

Element 3: Managing risk – understanding people and processes

3.6 Safe systems of work for general work activities

- Why workers should be involved when developing safe systems of work
- Why procedures should be recorded/written down
- The differences between technical, procedural and behavioural controls
- Developing a safe system of work:
 - > analysing tasks, identifying hazards and assessing risks
 - > introducing controls and formulating procedures
 - > instruction and training in how to use the system
- Monitoring the system.

3.7 Permit-to-work systems

- Meaning of a permit-to-work system
- Why permit-to-work systems are used
- How permit-to-work systems work and are used
- When to use a permit-to-work system, including: hot work, work on non-live (isolated) electrical systems, machinery maintenance, confined spaces, work at height.

3.8 Emergency procedures

- Why emergency procedures need to be developed
- What to include in an emergency procedure (see HSG268: 'The health and safety toolbox')
- Why people need training in emergency procedures
- Why emergency procedures need to be tested
- What to consider when deciding on first aid needs in a workplace:
 - > shift patterns
 - > location of site
 - > activities carried out
 - > number of workers
 - > location relative to hospitals/emergency services.

Element 4: Health and safety monitoring and measuring

4.1 Active and reactive monitoring

- The differences between active and reactive monitoring
- Active monitoring methods (health and safety inspections, sampling and tours) and their usefulness:
 - > differences between the methods; frequency; competence and objectivity of people doing them; use of checklists; allocation of responsibilities and priorities for action
- Reactive monitoring measures and their usefulness:
 - > data on accidents, dangerous occurrences, near misses, ill-health, complaints by workforce, and enforcement action and incident investigations
- Why lessons need to be learnt from beneficial *and* adverse events
- The difference between leading and lagging indicators.

4.2 Investigating incidents

- The different levels of investigations: minimal, low, medium and high (see HSG245)
- Basic incident investigation steps:
 - > step one: gathering the information
 - > step two: analysing the information
 - > step three: identifying risk control measures
 - > step four: the action plan and its implementation
- How occupational accidents and diseases are recorded and notified by the organisation (Recording and notification of occupational accidents and diseases, ILO Code of Practice – chapters 4–7)

4.3 Health and safety auditing

- Definition of the term 'audit' (clause 3.32, ISO 45001:2018)
- Why health and safety management systems should be audited, including:
 - > negative: identifying failing of a management system
 - > positive: organisational learning and assurance
- Difference between audits and inspections

Element 4: Health and safety monitoring and measuring

- Types of audit: product/services, process, system
- Advantages and disadvantages of external and internal audits
- The audit stages:
 - > notification of the audit and timetable for auditing
 - > pre-audit preparations, including competent audit team, time and resources required
 - > information gathering
 - > information analysis
 - > completion of audit report.

4.4 Review of health and safety performance

- Why health and safety performance should be reviewed
- What the review should consider:
 - > level of compliance with relevant legal and organisational requirements
 - > accident and incident data, corrective and preventive actions
 - > inspections, tours and sampling
 - > absences and sickness
 - > quality assurance reports
 - > audits
 - > monitoring data/records/reports
 - > external communications and complaints
 - > results of participation and consultation
 - > objectives met
 - > actions from previous management reviews
 - > legal/good practice developments
 - > assessing opportunities for improvement and the need for change

Element 4: Health and safety monitoring and measuring

- Reporting on health and safety performance
- Feeding review outputs into action and development plans as part of continuous improvement.

Element 5: Physical and psychological health

5.1 Noise

- The physical and psychological effects of exposure to noise
- The meaning of commonly used terms: sound pressure, intensity, frequency, the decibel scale, dB(A) and dB(C)
- When exposure should be assessed; comparison of measurements to exposure limits established by recognised standards
- Basic noise control measures, including: isolation, absorption, insulation, damping and silencing; the purpose, use and limitations of personal hearing protection (types, selection, use, maintenance and attenuation factors)
- Role of health surveillance.

5.2 Vibration

- The effects on the body of exposure to hand–arm vibration and whole-body vibration
- When exposure should be assessed; comparison of measurements to exposure limits established by recognised standards
- Basic vibration control measures, including: alternative methods of working (mechanisation where possible); low-vibration emission tools; selection of suitable equipment; maintenance programmes; limiting the time workers are exposed to vibration (use of rotas, planning work to avoid long periods of exposure); suitable PPE
- Role of health surveillance.

5.3 Radiation

- The types of, and differences between, non-ionising and ionising radiation (including radon) and their health effects
- Typical occupational sources of non-ionising and ionising radiation
- The basic ways of controlling exposures to non-ionising and ionising radiation

Element 5: Physical and psychological health	
	<ul style="list-style-type: none">• Basic radiation protection strategies, including the role of the competent person in the workplace• The role of monitoring and health surveillance.
5.4	Mental ill-health <ul style="list-style-type: none">• The frequency and extent of mental ill-health at work• Common symptoms of workers with mental ill-health: depression, anxiety/panic attacks, post-traumatic stress disorder (PTSD)• The causes of, and controls for, <i>work-related</i> mental ill-health (see the HSE's Management Standards):<ul style="list-style-type: none">> demands> control> support> relationships> role> change• Home–work interface: commuting, childcare issues, relocation, care of frail (vulnerable) relatives• Recognition that most people with mental ill-health can continue to work effectively.
5.5	Violence at work <ul style="list-style-type: none">• Types of violence at work including: physical, psychological, verbal, bullying• Jobs and activities which increase the risk of violence, including: police, fire, medical, social workers, those in customer services, lone workers, those working with people under the influence of drugs and alcohol, those who handle money or valuables• Control measures to reduce risks from violence at work.
5.6	Substance abuse at work <ul style="list-style-type: none">• Risks to health and safety from substance abuse at work (alcohol, legal/illegal drugs and solvents)• Control measures to reduce risks from substance abuse at work.

Element 6: Musculoskeletal health

6.1 Work-related upper limb disorders

- Meaning of musculoskeletal disorders and work-related upper limb disorders (WRULDs)
- Possible ill-health conditions from poorly designed tasks and workstations
- Avoiding/minimising risks from poorly designed tasks and workstations by considering:
 - > task (including repetitive, strenuous)
 - > environment (including lighting, glare)
 - > equipment (including user requirements, adjustability, matching the workplace to individual needs of workers).

6.2 Manual handling

- Common types of manual handling injury
- Good handling technique for manually lifting loads
- Avoiding/minimising manual handling risks by considering the task, the individual, the load and the working environment.

6.3 Load-handling equipment

- Hazards and controls for common types of load-handling aids and equipment: sack trucks and trolleys; pallet trucks; people-handling aids; fork-lift trucks; lifts; hoists for loads and people; conveyors and cranes
- Requirements for lifting operations:
 - > strong, stable and suitable equipment
 - > positioned and installed correctly
 - > visibly marked with safe working load
 - > lifting operations are planned, supervised and carried out in safe manner by competent persons
 - > special requirements for lifting equipment used for lifting people
- Periodic inspection and examination/testing of lifting equipment.

Element 7: Chemical and biological agents

7.1 Hazardous substances

- Forms of chemical agent: dusts, fibres, fumes, gases, mists, vapours and liquids
- Forms of biological agents: fungi, bacteria and viruses
- Difference between acute and chronic health effects
- Health hazard classifications: acute toxicity; skin corrosion/irritation; serious eye damage/eye irritation; respiratory or skin sensitisation; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single and repeated exposure); aspiration hazard.

7.2 Assessment of health risks

- Routes of entry of hazardous substances into the body
- The body's defence mechanisms (superficial and cellular)
- What needs to be taken into account when assessing health risks
- Sources of information:
 - > product labels
 - > safety data sheets (who must provide them and information that they must contain)
- Limitations of information used when assessing risks to health
- Role and limitations of hazardous substance monitoring.

7.3 Occupational exposure limits

- Purpose of occupational exposure limits
- Long-term and short-term limits
- Why time-weighted averages are used
- Limitations of exposure limits
- Comparison of measurements to recognised standards.

Element 7: Chemical and biological agents

7.4 Control measures

- The need to prevent exposure or, where this is not reasonably practicable, adequately control it
- Common measures used to control exposure to hazardous substances ('Ambient factors in the workplace', ILO Code of Practice – chapters 4.3–4.5)
- Additional controls that are needed for substances that can cause cancer, asthma or genetic damage that can be passed from one generation to another.

7.5 Specific agents

- Health risks, controls and likely workplace activities/locations where the following specific agents can be found:
 - > asbestos (excluding removal and disposal)
 - > blood-borne viruses
 - > carbon monoxide
 - > cement
 - > *Legionella*
 - > *Leptospira*
 - > silica
 - > wood dust.

Element 8: General workplace issues

8.1 Health, welfare and work environment

- Health and welfare:
 - > supply of drinking water, washing facilities, sanitary conveniences, accommodation for clothing, rest and eating facilities, seating, ventilation, heating and lighting
- The effects of exposure to extremes of temperature; control measures.

8.2 Working at height

- What affects risk from working at height, including vertical distance, fragile roofs, deterioration of materials, unprotected edges, unstable/poorly maintained access equipment, weather and falling materials
- Hierarchy for selecting equipment for working safely at height:
 - > avoid working at height by, for example, using extendable tools to work from ground level; assembly of components/equipment at ground level
 - > prevent a fall from occurring by using an existing workplace that is known to be safe, such as a solid roof with fixed guardrails; use of suitable equipment such as mobile elevating work platforms (MEWPs), scaffolds; work restraint systems
 - > minimise the distance and/or consequence of a fall, by collective measures such as safety nets and airbags installed close to the level of work, and personal protective measures such as fall-arrest systems
- Main precautions necessary to prevent falls and falling materials, including proper planning and supervision of work, avoiding working in adverse weather conditions
- Emergency rescue
- Provision of training, instruction and other measures
- General precautions when using common forms of work equipment to prevent falls, including: ladders, stepladders, scaffolds (independent tied and mobile tower), MEWPs, trestles, staging platforms and leading edge protection systems
- Prevention of falling materials through safe stacking and storage.

Element 8: General workplace issues	
8.3	Safe working in confined spaces <ul style="list-style-type: none">• Types of confined spaces and why they are dangerous• The main hazards associated with working within a confined space• What should be considered when assessing risks from a confined space• The precautions to be included in a safe system of work for confined spaces• When a permit-to-work for confined spaces would not be required.
8.4	Lone working <ul style="list-style-type: none">• What a lone worker is and typical examples of lone working• Particular hazards of lone working• Control measures for lone working• What should be considered when assessing risks of lone working.
8.5	Slips and trips <ul style="list-style-type: none">• Common causes of slips and trips, including: uneven or unsuitable surfaces, trailing cables, obstructions in walkways, unsuitable footwear• Main control measures for slips and trips, including: non-slip surfaces, maintenance, housekeeping.
8.6	Safe movement of people and vehicles in the workplace <ul style="list-style-type: none">• Hazards to pedestrians:<ul style="list-style-type: none">> being struck by moving, flying or falling objects> collisions with moving vehicles> striking against fixed or stationary objects• Hazards from workplace transport operations (vehicle movement, non-movement)

Element 8: General workplace issues

- Control measures to manage workplace transport:
 - > safe site (design and activity)
 - suitability of traffic routes (including site access and egress pedestrian-only zones and crossing points)
 - spillage control
 - management of vehicle movements
 - environmental considerations: visibility/lighting, gradients, changes of level, surface conditions (use of non-slip coatings)
 - segregating pedestrians and vehicles and measures to be taken when segregation is not practicable
 - protective measures for people and structures (barriers, marking signs, warnings of vehicle approach and reversing)
 - site rules (including speed limits)
 - > safe vehicles
 - suitable vehicles
 - maintenance/repair of vehicles
 - visibility from vehicles/reversing aids
 - driver protection and restraint systems
 - > safe drivers
 - selection and training of drivers
 - banksman (reversing assistant)
 - management systems for assuring driver competence, including local codes of practice.

8.7 Work-related driving

- Managing work-related driving:
 - > plan
 - assess the risks

Element 8: General workplace issues

- policy
- work-related driving taken account of by top management
- roles and responsibilities
- > do
 - co-operation between departments (where relevant)
 - adequate systems in place, including maintenance strategies
 - communication and consultation with the workforce
 - provision of adequate instruction and training
- > check
 - monitor performance (ensures the policy is working correctly)
 - ensure all workers report work-related road incidents or near misses
- > act
 - review performance and learn from experience
 - regularly update the policy
- Work-related driving control measures:
 - > safe driver (competence – checks on level of skill/experience, validity of driving licence; provision of instruction; fitness to drive)
 - > safe vehicle (vehicles fit for purpose for which they are being used; maintained in a safe condition; adequate safety devices; maximum load weight not exceeded; adequate restraints for securing goods)
 - > safe journey (planning of routes; realistic work schedule – enough time to complete the journey safely, allowing for driving breaks; consideration of weather conditions; consideration of legal driving hours where relevant)

Element 8: General workplace issues

- Hazards associated with the use of electric and hybrid vehicles:
 - > silent operation/pedestrians not being aware of vehicles manoeuvring
 - > availability and location of charging points
 - > electric shock for high voltage components and cabling
 - > retained electrical charge in components even when the vehicle is switched off
 - > unexpected movement of the vehicle or engine components due to the motor's magnetic forces
 - > potential for the release of explosive gases and harmful liquids from damaged batteries.

Element 9: Work equipment

9.1 General requirements

- Providing suitable equipment
- Preventing access to dangerous parts of machinery
- When the use and maintenance of equipment with specific risks needs to be restricted
- Providing information, instruction and training about specific risks to people at risk, including users, maintenance staff and managers
- Why equipment should be maintained and maintenance conducted safely
- Emergency operation controls, stability, lighting, markings and warnings, clear workspace.

9.2 Hand-held tools

- General considerations for selecting hand-held tools (whether powered or manual):
 - > requirements for safe use
 - > condition and fitness for use
 - > suitability for purpose
 - > location to be used in (including flammable atmosphere)
- Hazards of a range of hand-held tools (whether powered or manual) and how these hazards are controlled.

Element 9: Work equipment

9.3 Machinery hazards

- Potential consequences as a result of contact with, or exposure to, mechanical or other hazards (see ISO 12100:2010 (Table B.1))
- Hazards of a range of equipment:
 - > manufacturing/maintenance machinery (including bench-top grinder, pedestal drill)
 - > agricultural/horticultural machinery (including cylinder mower, strimmer/brush cutter, chainsaw)
 - > retail machinery (including compactor)
 - > construction machinery (including cement mixer, bench-mounted circular saw)
 - > emerging technologies (including drones, driver-less vehicles).

9.4 Control measures for machinery

- The basic principles of operation, advantages and limitations of the following control methods:
 - > guards: fixed, interlocking and adjustable/self-adjusting
 - > protective devices: two-hand, hold-to-run, sensitive protective equipment (trip devices), emergency stop controls
 - > jigs, holders, push-sticks
 - > information, instruction, training and supervision
 - > personal protective equipment
- Use of the above control methods for the range of equipment listed in 9.3
- Basic requirements for guards and safety devices:
 - > compatibility with process
 - > adequate strength, maintained
 - > allow for maintenance without removal
 - > do not increase risk or restrict view
 - > are not easily bypassed.

Element 10: Fire	
10.1	Fire principles <ul style="list-style-type: none">• The fire triangle: sources of ignition; fuel and oxygen in a typical workplace; oxidising materials• Classification of fires (different local classifications will be accepted)• Principles of heat transmission and fire spread: convection, conduction, radiation, direct burning• Common causes and consequences of fires in workplaces.
10.2	Preventing fire and fire spread <ul style="list-style-type: none">• Control measures to minimise the risk of fire starting in a workplace:<ul style="list-style-type: none">> eliminate/reduce quantities of flammable and combustible materials used or stored> control ignition sources, including suitable electrical equipment in flammable atmospheres> use good systems of work> good housekeeping• Storage of flammable liquids in workrooms and other locations• Structural measures to prevent the spread of fire and smoke: properties of common building materials (including fire doors); compartmentation; protection of openings and voids.
10.3	Fire alarms and fire-fighting <ul style="list-style-type: none">• Common fire-detection and alarm systems• Portable fire-fighting equipment: siting, maintenance and training requirements• Extinguishing media: water, foam, dry powder, carbon dioxide, wet chemical; advantages and limitations• Access for fire and rescue services and vehicles.
10.4	Fire evacuation <ul style="list-style-type: none">• Means of escape: travel distances, stairs, passageways, doors, emergency lighting, exit and directional signs, assembly points• Emergency evacuation procedures• Role and appointment of fire marshals• The purpose of fire drills, including roll call

Element 10: Fire

- Provisions for people with disabilities
- Emergency escape routes to be recorded in building plans.

Element 11: Electricity

11.1 Hazards and risks

- Electric shock and its effects on the body; what affects severity: voltage, frequency, duration, resistance, current path; electrical burns (from direct and indirect contact with an electrical source)
- Common causes of electrical fires, including portable devices overheating during charging
- Workplace electrical equipment, including portable: what is likely to lead to accidents (unsuitable equipment; inadequate maintenance; use of defective/poorly maintained electrical equipment; use of electrical equipment in wet environments)
- Secondary effects, including falls from height
- Work near overhead power lines; contact with underground power cables during excavation work
- Work on mains electricity supplies.

11.2 Control measures

- Protection of conductors
- Strength and capability of equipment
- Advantages and limitations of protective systems: fuses, earthing, isolation of supply, double insulation, residual current devices, reduced and low voltage systems
- Use of competent people
- Use of safe systems of work (no live working unless no other option; isolation; locating buried services; protection against overhead cables)
- Emergency procedures following an electrical incident
- Inspection and maintenance strategies: user checks; formal inspection and tests of the electrical installation and equipment; frequency of inspection and testing; records of inspection and testing; advantages and limitations of portable appliance testing (PAT).