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Guide to the NEBOSH International General Certificate in Occupational Health and Safety



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Guide to the NEBOSH International General Certificate in Occupational Health and Safety (November 2014 specification)

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1. Introduction

The International General Certificate in Occupational Health and Safety is suitable for managers, supervisors and staff based outside the UK from all types of organisations making day-to-day decisions at work that need a broad understanding of health and safety issues and be able to manage risks effectively. Nearly 55,000 people have achieved this qualification since it was introduced in 2004.

The NEBOSH International General Certificate is also suitable for those embarking on a career in health and safety, providing a valuable foundation for further professional study (such as the NEBOSH International Diploma in Occupational Health and Safety).

The International General Certificate is modelled on the NEBOSH National General Certificate in Occupational Health and Safety, the most widely recognised health and safety qualification of its kind in the UK. The key difference between the two qualifications is in the applicability of legal requirements. Rather than being guided by a specifically UK framework, the International General Certificate takes a risk management approach based on best practice and international standards, such as International Labour Organisation (ILO) codes of practice, with special reference to the model proposed in the ILO's "Guidelines on Occupational Safety and Health Management Systems" (ILO-OSH 2001). Local laws and cultural factors form part of the study programme where relevant and appropriate.

1.1 Benefits for employers

Despite the increasing global recognition of the importance of health and safety at work, accidents and work-related ill-health continue to affect all types of workplaces and occupations. The ILO (http://www.ilo.org/global/about-the-ilo/media-centre/issue-briefs/WCMS_206117/lang--en/index.htm) estimates that approximately 5,800 people die daily (approximately one worker dies every 15 seconds) as a result of occupational accidents or work-related diseases; more than 2.3 million deaths worldwide per year. At least 14% of these deaths are due to the 317 million accidents at work that occur annually. There are an estimated 500 –2000 non-fatal injuries for every fatal injury (including 160 million cases of work-related disease), many of which result in lost earnings, lost jobs and permanent disability and poverty.

In addition to the direct costs of sick pay and absence, employers can find themselves dealing with criminal prosecution, claims for compensation, adverse publicity and harm to both business reputation and profitability. In the UK alone, the estimated annual cost of occupational injury and illness in 2011/12 is £4.3 billion to UK employers and £13.4 billion to the British economy <http://www.hse.gov.uk/statistics/>. In 2003, the ILO estimated the cost to the global economy at an estimated \$1.25 trillion (\$1,250,000 million).

The vast majority of workplace injuries, accidents and ill-health are avoidable by good health and safety management. By saving money, improving productivity and raising workforce morale, effective health and safety management should be recognised as an essential element of a successful management strategy.

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Many larger organisations choose the NEBOSH qualifications as a key part of their supervisors' or management development programme. By ensuring that line managers have a sound understanding of the principles of risk management they build an effective safety culture in the organisation. Smaller organisations, operating in lower risk environments, often choose the NEBOSH International General Certificate in Occupational Health and Safety as the appropriate qualification for the manager taking the lead on health and safety issues.

This course can be delivered within an organisation, or employees can attend accredited training courses run by our network of accredited course providers. NEBOSH accredited course providers offer a variety of flexible course formats, so training can be arranged according to employer needs.

1.2 Professional membership

Holders of NEBOSH International General Certificate in Occupational Health and Safety are entitled to Associate Membership (AIOSH) of the Institution of Occupational Safety and Health (IOSH). The qualification also meets the academic requirements for Technical membership (Tech IOSH) of the Institute of Occupational Safety and Health (IOSH – www.iosh.co.uk) and Associate membership (AIIRSM) of the International Institute of Risk and Safety Management (IIRSM – www.iirsm.org).

1.3 Qualification level and UK accreditation

The NEBOSH International General Certificate is accredited and credit rated by the Scottish Qualifications Authority Accreditation (SQA Accreditation – www.sqa.org.uk) for delivery across the UK. It is rated within the Scottish Credit and Qualifications Framework (SCQF - www.scqf.org.uk) at SCQF Level 6 with 15 SCQF credit points.

For users in England, Wales and Northern Ireland, this is comparable to a Vocationally-Related Qualification (VRQ) at Level 3 within the National Qualifications Framework (NQF) and Qualifications and Credit Framework (QCF), or A-Level standard.

For further information please refer to the “*Qualifications can cross boundaries*” comparison chart issued by the UK regulators, available from the SQA website (www.sqa.org.uk).

1.4 Key topics covered

- International standards for health and safety at work
- Implementation of health and safety management systems
- Identification of workplace hazards
- Methods of hazard control
- Practical application of knowledge and understanding

1.5 Course tuition and private study time requirements

Unit IGC1: 36 hours tuition and 23 hours private study	Total: 59 hours
Unit GC2: 42 hours tuition and 26 hours private study	Total: 68 hours
Unit GC3: 2 hours tuition and 4 hours private study	Total: 6 hours

A programme of study therefore needs to be based around a minimum of **80 taught hours** and approximately **53 hours of private study** for an overall total of **133 Hours**.

A full-time block release course would be expected to last for a minimum of two weeks (ten working days) and a part-time day release course would be spread over at least ten weeks. For candidates studying by open or distance learning, the tuition hours should be added to the recommended private study hours to give the minimum number of hours that this mode of study will require.

Quoted hours *do not* include assessment time, ie, sitting written examinations or the practical application unit (see 1.5).

1.6 Entry requirements

There are no specific barriers, in terms of academic qualifications, skills or experience to entry to the NEBOSH International General Certificate programme. However, it should be noted that where the assessments are offered in English, they must be answered in English only. This includes a requirement to write a short report based on the candidate's own workplace. Candidates should discuss this with the accredited course provider before undertaking the qualification.

1.7 Minimum standard of English required for candidates

The standard of English required by candidates studying for the NEBOSH International General Certificate must be such that they can both understand and articulate the concepts contained in the syllabus. It is important to stress that the onus is on accredited course providers to determine their candidates' standards of proficiency in English.

NEBOSH recommends to accredited course providers that candidates undertaking this qualification should reach a minimum standard of English *equivalent* to an International English Language Testing System score of **6.0** or higher in IELTS tests in order to be accepted onto a International General Certificate programme.

For further information please see the latest version of the IELTS Handbook or consult the IELTS website: http://www.ielts.org/institutions/test_format_and_results.aspx

Candidates wishing to assess their own language expertise may consult the IELTS website For information on taking the test: <http://www.ielts.org/faqs.aspx> .

1.8 Languages

Unit examinations are available for 'on demand' examinations in other languages; please refer to your course provider for further details. However, it must be noted that if Units GC2 and/or GC3 are taken in a language other than English these will **not** be able to be used as exemptions against the same units of the National General Certificate in Occupational Health and Safety.

Examinations in languages other than English **cannot** be taken in the UK.

1.9 Legislation

The syllabus refers to international conventions, standards and UK legislation.

Course providers will be expected to teach candidates ILO conventions/recommendations. Where this qualification is delivered overseas, accredited course providers may refer to examples of local legislation as part of the course programme but examination questions will not cover specific legislation. Questions will refer to international conventions, standards and good practice as indicated in the syllabus.

Unit GC2 is a common unit between the National and International General Certificate qualifications and the examinations will, therefore, contain no specific questions on legislation; however, candidates will be expected to apply relevant UK legislation OR international conventions/recommendations to the given scenario where appropriate to gain marks.

1.10 Legislative updates

Relevant new conventions, standards and legislation will become examinable in detail six months after their date of introduction. However, candidates will be expected to be essentially up-to-date at the time of the examination and, whilst a detailed knowledge will not be expected, reference to new or impending conventions, standards and legislation, where relevant to an examination question, will be given credit.

Please note, NEBOSH will not ask questions related to legislation, conventions and recommendations that have been repealed, revoked or otherwise superseded.

NB: Accredited course providers are expected to ensure their course notes remain current with regard to new legislation, conventions and recommendations.

1.11 National Occupational Standards (NOS) and best practice

The syllabus is mapped to the relevant National Occupational Standard (NOS):

- NOS for Health and Safety (Standalone units) published by Proskills Standards Setting Organisation (www.proskills.co.uk).

The mapping of the syllabus units to each NOS can be found on pages 11-12.

1.12 Qualification type

NEBOSH qualifications are categorised as 'Other' qualifications by SQA Accreditation in Scotland. These are categorised as Vocationally-Related Qualifications (VRQs) in England, Wales and Northern Ireland.

VRQs provide the knowledge and practical skills required for particular job roles through a structured study-based training programme, that combine the testing of knowledge and understanding in written examinations with practical application of learning in the workplace.

VRQs are a popular type of qualification because they are nationally recognised, flexible and offer routes for progression to employment or further study.

1.13 Qualification progression

Unit IGC1 is common to:

- NEBOSH International General Certificate in Occupational Health and Safety
- NEBOSH International Certificate in Construction Health and Safety
- NEBOSH International Certificate in Fire Safety and Risk Management

This enables students seeking to develop specialist knowledge to combine units across these NEBOSH qualifications. Unit IGC1 holders do not need to re-sit this examination providing it was successfully achieved within the five year completion period for each qualification.

Units GC2 and GC3 are common to:

- NEBOSH National General Certificate in Occupational Health and Safety
- NEBOSH International General Certificate in Occupational Health and Safety

This, therefore, enables candidates to obtain both the National and International General Certificate qualifications by passing just four units, ie, Units IGC1, GC2 and GC3 to form the International General Certificate and Unit NGC1 to complete the National General Certificate (Units GC2 and GC3 passed as part of the International General Certificate can be used as exemptions for the National General Certificate).

Candidates wishing to further develop their health and safety expertise may consider studying:

- NEBOSH International Diploma in Occupational Health and Safety
- NEBOSH International Technical Certificate in Oil and Gas Operational Safety.

This is designed to provide students with the expertise required to undertake a career as a health and safety practitioner and also provides a sound basis for progression to postgraduate study.

Further information regarding our qualification portfolio can be found on our website: www.nebosh.org.uk/qualifications

1.14 Programmes offered by NEBOSH-accredited course providers

Accredited course providers can be located using the 'Where to study' tab on our website: www.nebosh.org.uk

NB: Candidates are advised to check up-to-date information on course dates with accredited course providers directly.

1.15 Examination dates

'Standard' examination dates for this qualification are available in March, June, September and December annually. Accredited course providers may request 'on-demand' examinations on a date of their choosing for this qualification.

1.16 Specification date

The November 2014 specification for this qualification replaces the previous January 2013 specification for all examinations from (and including) 7 October 2015.

1.17 Syllabus development and review

The syllabus has been developed by NEBOSH following extensive consultation with key stakeholders, notably accredited course providers, professional bodies, employers, standards setting organisations, enforcement bodies and subject experts. NEBOSH would like to take this opportunity to thank all those who participated in the development, piloting and implementation of this qualification.

1.18 Further information for candidates

Further information for candidates including a syllabus summary, qualification overview leaflet and a sample Examiners' report can be found via the NEBOSH website (www.nebosh.org.uk). Examiners' reports may be purchased from the NEBOSH online shop.

1.19 Further information for accredited course providers

Further information for accredited course providers including policies and procedures and guidance on the practical unit can be found in the Accredited course providers' section of the NEBOSH website.

2. Qualification structure

2.1 Unit assessment

The International General Certificate in Occupational Health and Safety is divided into three units. All units are mandatory unless an exemption can be applied (see 2.2). There are no optional units. Candidates may choose to take one, two or all three units at the same time or at different times.

Unit IGC1: Management of international health and safety

- Unit IGC1 is a taught unit, assessed by one two-hour written examination
- Each written examination consists of ten 'short-answer' questions (8 marks each) and one 'long-answer' question (20 marks)
- Each examination paper covers the whole IGC1 unit syllabus. All questions are compulsory
- Candidate scripts are marked by external examiners appointed by NEBOSH
- A sample examination paper can be found in Section 5.

Unit GC2: Controlling workplace hazards

- Unit GC2 is a taught unit, assessed by one two-hour written examination
- Each written examination consists of ten 'short-answer' questions (8 marks each) and one 'long-answer' question (20 marks)
- Each examination paper covers the whole GC2 unit syllabus. All questions are compulsory
- Candidate scripts are marked by external examiners appointed by NEBOSH
- A sample examination paper can be found in Section 5.

Unit GC3: Health and safety practical application

- Unit GC3 is assessed by one practical assessment carried out in the candidate's own workplace
- This is held on a date set by the accredited course provider and must normally be taken within 10 working days of a written examination
- The practical examination is internally assessed by the accredited course provider and externally moderated by NEBOSH
- Guidance for candidates and accredited course providers is available in a separate document available on the NEBOSH website (www.nebosh.org.uk).

NEBOSH applies best practise in relation to assessment setting and marking. NEBOSH uses external assessment for written examinations and assignments: scripts are sent to NEBOSH and undergo rigorous marking, checking and results determination processes to ensure accuracy and consistency.

2.2 Unit exemptions

Exemptions for the following units are available:

- Unit IGC1: Management of international health and safety
- Unit GC2: Controlling workplace hazards
- Unit GC3: Health and safety practical application

Exemptions are allowable for a set time period, usually 5-years. Candidates/accredited course providers must, therefore, refer to the NEBOSH website (www.nebosh.org.uk) for an up-to-date list of applicable exemptions and the rules for use of the exemptions.

2.3 Achieving the qualification

Candidates will need to pass **all three units** within a **five year** period to achieve the overall qualification. The five year period commences from the result declaration date of the first successful unit.

Exemptions for all three units are available; please refer to the NEBOSH website (www.nebosh.org.uk) for an up-to-date list of applicable exemptions.

2.4 Unit pass standard

The pass standard for each unit may vary according to pre-determined criteria but is normalised to 45% for the written papers (IGC1 and GC2) and 60% for the practical application unit (GC3).

2.5 Unit certificates

Candidates who are successful in an individual unit will be issued with a unit certificate, normally within 40 working days of the issue of the result notification. Units are not graded and the unit certificates will show a 'Pass' only.

2.6 Qualification grades

When candidates have been awarded a unit certificate for all three units (ie, have achieved a Pass in units IGC1, GC2 and GC3), the marks are added together and a final grade is awarded as follows:

Pass	150 - 179 marks
Credit	180 - 209 marks
Distinction	210 marks or more

2.7 Qualification parchment

Once a candidate has achieved a Pass in all three units and the qualification grade awarded they are normally considered to have completed the qualification. An overall qualification parchment will be issued within 40 working days of the result declaration date for the third successfully completed unit.

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However, once the result of the third successfully completed unit has been issued the candidate has **20 working days** from the date of issue of that result to either:

- Inform NEBOSH in writing of their intention to re-sit a successful unit for the purposes of improving a grade* (see Section 2.8)
- Submit an Enquiry About Result (EAR) request (see Section 3.3).

* In the event that the candidate does not re-sit the unit(s) as intended, on expiry of the units (five years from the declaration date of the first successful unit), a qualification parchment will automatically be issued showing the original declaration date.

2.8 Re-sitting unit/s

If a candidate's performance in a unit is lower than a pass, the candidate may re-sit just the unit in which they have been unsuccessful providing that they re-sit **within 5-years of the result declaration date for their first successful unit** (also see Section 2.3). Where a candidate has yet to achieve a successful unit of a qualification, the 5-year rule does not apply until a unit has been successfully achieved.

Candidates who wish to improve the mark from a unit they have successfully passed in order to improve their qualification grading to a credit or distinction, may do so providing that they re-sit the unit/s within the qualifying period (see section 2.3). The candidate must notify NEBOSH in writing if they wish to do this (see section 2.7). Any candidate who re-sits a successful unit, and does not surpass their original mark, eg, is referred in the paper, will keep the *original* mark awarded. Re-sit marks are not capped. There is no limit to the number of re-sits within this five year period.

Candidates who register for any unit of the International General Certificate whilst awaiting a result from a previous sitting of an examination for the same qualification may not seek a refund of the registration fee if they retrospectively claim exemption from any part of the qualification, subsequent to the issue of the awaited result.

3. Policies

3.1 Requests for access arrangements/reasonable adjustments

Access arrangements and reasonable adjustments are modifications which are approved in advance of an examination to allow attainment to be demonstrated by candidates with either a permanent or long-term disability or learning difficulty, or temporary disability, illness or indisposition.

Requests for access arrangements/reasonable adjustments must be made to NEBOSH by accredited course providers at least one month before the assessment.

For further details see the NEBOSH *“Policy and procedures for access arrangements, reasonable adjustments and special consideration”* available from the NEBOSH website (www.nebosh.org.uk).

3.2 Requests for special consideration

Special consideration is a procedure that may result in an adjustment to the marks of candidates who have not been able to demonstrate attainment because of temporary illness, injury, indisposition or an unforeseen incident at the time of the assessment.

Candidates who feel disadvantaged due to illness, distraction or any other reason during the assessment must report this to the invigilator (or the accredited course provider in the case of a practical examination) before leaving the examination room and request that their written statement, together with the invigilator’s comments on the statement, be sent by the accredited course provider to NEBOSH.

Requests for special consideration must be made to NEBOSH by the accredited course provider as soon as possible and no more than seven working days after the assessment.

For further details see the NEBOSH *“Policy and procedures for access arrangements, reasonable adjustments and special consideration”* available from the NEBOSH website (www.nebosh.org.uk).

3.3 Enquiries about results and appeals

NEBOSH applies detailed and thorough procedures to moderate and check assessment results before they are issued. This includes a particular review of borderline results. It thereby ensures that the declared results are a fair and equitable reflection of the standard of performance by candidates.

There are, however, procedures for candidates or accredited course providers to enquire about results that do not meet their reasonable expectations. An ‘enquiry about result’ (EAR) must be made in writing within one month of the date of issue of the result to which it relates.

For details see the NEBOSH *“Enquiries About Results (EARs) and appeals policy and procedures”* document available from the NEBOSH website (www.nebosh.org.uk).

3.4 Malpractice

Malpractice is defined as any deliberate activity, neglect, default or other practice by candidates and/or accredited course providers that compromise the integrity of the assessment process, and/or the validity of certificates. Malpractice may include a range of issues from collusion or use of unauthorised material by candidates, to the failure to maintain appropriate records or systems by accredited course providers, to the deliberate falsification of records in order to claim certificates. Failure by an accredited course provider to deal with identified issues may in itself constitute malpractice.

For further details see the NEBOSH “*Malpractice policy and procedures*” document available from the NEBOSH website (www.nebosh.org.uk).

4. Syllabus - NEBOSH International General Certificate in Occupational Health and Safety (November 2014 specification)

Structure

The qualification is divided into three units. Unit IGC1 is further divided into five elements and Unit GC2 into eight elements.

The matrix below indicates how the syllabus elements map to the relevant National Occupational Standards (See also section 1.11):

- National Occupational Standards (NOS) for Health and Safety (Standalone units) published by Proskills Standards Setting Organisation (www.proskills.co.uk).

Unit IGC1: Management of international health and safety

Element Number	Element Title	Recommended hours	Relevant Proskills units and elements	Page
1	Foundations in health and safety	7	<i>PROHSS 1-3, 5-6</i>	15
2	Health and safety management systems - Plan	3	<i>PROHSS 2-3, 5</i>	17
3	Health and safety management systems - Do	17	<i>PROHSS 1-3, 6</i>	19
4	Health and safety management systems – Check	5	<i>PROHSS 1-3, 8</i>	25
5	Health and safety management systems - Act	4	<i>PROHSS 1-3, 8</i>	27
Minimum unit tuition time		36		
Recommended private study time		23		

Unit GC2: Controlling workplace hazards

Element Number	Element Title	Recommended hours	Relevant Proskills units and elements	Page
1	Workplace hazards and risk control	8	<i>PROHSS 1-3, 6, 8-9</i>	29
2	Transport hazards and risk control	4	<i>PROHSS 1-3, 6, 8-9</i>	33
3	Musculoskeletal hazards and risk control	6	<i>PROHSS 1-3, 6, 8-9</i>	36
4	Work equipment hazards and risk control	6	<i>PROHSS 1-3, 6, 8-9</i>	39
5	Electrical safety	3	<i>PROHSS 1-3, 6, 8-9</i>	42
6	Fire safety	6	<i>PROHSS 1-3, 6, 8-9</i>	44
7	Chemical and biological health hazards and risk control	6	<i>PROHSS 1-3, 6, 8-9</i>	47
8	Physical and psychological health hazards and risk control	3	<i>PROHSS 1-3, 6, 8-9</i>	51
	Minimum unit tuition time	42		
	Recommended private study time	26		

Unit GC3: Health and safety practical application

Element Number	Element Title	Recommended hours	Relevant Proskills units and elements	Page
1	Health and safety practical application	2	<i>PROHSS 1-3, 5-6, 8-9</i>	54
	Minimum unit tuition time	2		
	Recommended private study time	4		
	<i>Minimum total tuition time</i>	80		
	<i>Recommended total private study time</i>	53		
	<i>Total overall hours</i>	133		

4.1 Unit IGC1: Management of international health and safety

Element 1: Foundations in health and safety

Learning outcomes

- 1.1 Outline the scope and nature of occupational health and safety
- 1.2 Explain the moral, social and economic reasons for maintaining and promoting good standards of health and safety in the workplace
- 1.3 Explain the role of national governments and international bodies in formulating a framework for the regulation of health and safety.

Content

1.1 The scope and nature of occupational health and safety

- The multi-disciplinary nature of health and safety; the barriers to good standards of health and safety (complexity, competing and conflicting demands, behavioural issues)
- Meanings and distinctions between:
 - health, safety and welfare.

1.2 The moral, social and economic reasons for maintaining and promoting good standards of health and safety in the workplace

- The size of the health and safety 'problem' in terms of the numbers of work-related fatalities and injuries and incidence of ill-health
- Societal expectations of good standards of health and safety
- The need to provide a safe place of work, safe plant and equipment, safe systems of work, training and supervision, and competent workers
- The business case for health and safety: costs of insured and uninsured accidents and ill-health; employers' liability insurance.

1.3 The role of national governments and international bodies in formulating a framework for the regulation of health and safety

- Employers' responsibilities
- Workers' responsibilities and rights
- The role of enforcement agencies and the consequences of non-compliance
- International standards and conventions (eg, International Standards Organisation (ISO) and the International Labour Organisation - ILO)
- Sources of information on National Standards.

Recommended tuition time not less than 7 hours

Element 2: Health and safety management systems - Plan

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 2.1 Outline the key elements of a health and safety management system
- 2.2 Explain the purpose and importance of setting policy for health and safety
- 2.3 Describe the key features and appropriate content of an effective health and safety policy.

Content

2.1 The key elements of a health and safety management system

- With reference to ILO Guidelines on Occupational Safety and Health Management Systems (ILO-OSH 2001)
 - policy (Plan)
 - organising (Plan)
 - planning and implementing (Do)
 - evaluation - monitoring, review, measurement, investigation (Check)
 - auditing (Check)
 - action for improvement - preventative and corrective action; continual improvement (Act)
- With reference to OHSAS 18001: Occupational health and safety management systems
 - policy (Plan)
 - planning (Plan)
 - implementation and operation (Do)
 - checking and corrective action (Check)
 - management review (Act)
 - continual improvement (Act)

2.2 The purpose and importance of setting policy for health and safety

- The role of the health and safety policy in decision-making; the needs of different organisations.

2.3 The key features and appropriate content of an effective health and safety policy

- Stating the overall aims of the organisation in terms of health and safety performance:
 - general statement of intent
 - setting overall objectives and quantifiable targets (specific, measurable, achievable, reasonable, time bound (SMART) principles)

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- basic concept of benchmarking
- views of interested parties
- technological options
- financial, operational, and business requirements
- signatory to statement

- Defining the health and safety roles and responsibilities of individuals within the organisation:
 - organising for health and safety: allocation of responsibilities; lines of communication; feedback loops; the role of the line managers in influencing the health and safety policy and monitoring effectiveness

- Specifying the arrangements for achieving general and specific aims:
 - health and safety arrangements: the importance of specifying the organisation's arrangements for planning and organising, controlling hazards, consultation, communication and monitoring compliance with, and assessing the effectiveness of, the arrangements to implement the health and safety policy

- The circumstances that may lead to a need to review the health and safety policy (eg, passage of time, technological, organisational or legal changes, results and monitoring)

- Standards and guidance relating to health and safety policy.

Recommended tuition time not less than 3 hours

Element 3: Health and safety management systems - Do

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 3.1 Outline the health and safety roles and responsibilities of employers, directors, managers, supervisors, workers and other relevant parties
- 3.2 Explain the concept of health and safety culture and its significance in the management of health and safety in an organisation
- 3.3 Outline the human factors which influence behaviour at work in a way that can affect health and safety
- 3.4 Explain how health and safety behaviour at work can be improved
- 3.5 Explain the principles and practice of risk assessment
- 3.6 Explain the preventive and protective measures
- 3.7 Identify the key sources of health and safety information
- 3.8 Explain what factors should be considered when developing and implementing a safe system of work for general activities
- 3.9 Explain the role and function of a permit-to-work system.
- 3.10 Outline the need for emergency procedures and the arrangements for contacting emergency services
- 3.11 Outline the requirements for, and effective provision of, first aid in the workplace.

Content

3.1 Organisational health and safety roles and responsibilities of employers, directors, managers, supervisors, workers and other relevant parties

- Organisational roles of directors/managers/supervisors
- Top management demonstrating commitment by:
 - ensuring availability of resources so the occupational health and safety management system is established, implemented and maintained
 - defining roles and responsibilities
 - appointing member of senior management with specific responsibility for health and safety
 - appointing one or more competent persons and adequate resources to provide assistance in meeting the organisation's health and safety obligations (including specialist help where necessary)
 - role in reviewing health and safety performance
- The roles and responsibilities of:
 - middle managers and supervisors for the health and safety of workers
 - persons with primary health and safety functions
 - workers for the health and safety of themselves and others who may be affected by their acts or omissions

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- persons in control of premises for the health and safety of those who are not directly employed by the organisation using the premises as a place of work and for those using plant or substances provided, eg, contractors
- the self-employed for the health and safety of themselves and others
- The supply chain and requirements on suppliers, manufacturers and designers of articles and substances for use at work in relation to the health and safety of their products and the provision of information
- The relationship between client and contractor and the duties each has to the other and to the other's workers; effective planning and co-ordination of contracted work
- Principles of assessing and managing contractors
 - scale of contractor use
 - pre-selection and management of contractors
- Shared responsibilities in the case of joint occupation of premises: co-operation and co-ordination.

3.2 Concept of health and safety culture and its significance in the management of health and safety in an organisation

- Meaning and extent of the term 'health and safety culture'
- Relationship between health and safety culture and health and safety performance
- Indicators which could be used to assess the effectiveness of an organisation's health and safety culture:
 - tangible outputs or indicators of an organisation's health and safety culture (eg, accidents, absenteeism, sickness rates, staff turnover, level of compliance with health and safety rules and procedures, complaints about working conditions)
- Influence of peers.

3.3 Human factors which influence behaviour at work

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

3.4 How health and safety behaviour at work can be improved

- Securing commitment of management
- Promoting health and safety standards by leadership and example and appropriate use of disciplinary procedures

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- Competent personnel with relevant knowledge, skills and work experience
- Identifying and keeping up to date with legal requirements
- Effective communication within the organisation:
 - merits and limitations of different methods of communication (verbal, written and graphic)
 - use and effectiveness of notice boards and health and safety media such as films, digital media, company intranet, posters, toolbox talks, memos, worker handbooks
 - co-operation and consultation with the workforce and contractors where applicable (roles and benefits of worker participation, safety committees and worker feedback)
- Training:
 - the effect of training on human reliability
 - opportunities and need for training provision (induction and key health and safety topics to be covered, job change, process change, introduction of new legislation, introduction of new technology).

3.5 Principles and practice of risk assessment

- Meaning of hazard, risk and risk assessment:
 - hazard: 'something with the potential to cause harm (this can include articles, substances, plant or machines, methods of work, the working environment and other aspects of work organisation)'
 - risk: 'the likelihood of potential harm from that hazard being realised'
 - risk assessment: 'identifying preventive and protective measures by evaluating the risk(s) arising from a hazard(s), taking into account the adequacy of any existing controls, and deciding whether or not the risk(s) is acceptable'
- Objectives of risk assessment; prevention of workplace accidents
- Risk assessors:
 - composition of risk assessment team
 - competence
- Criteria for a 'suitable and sufficient' risk assessment
- Identification of hazards
 - sources and form of harm; task analysis, legislation, manufacturers' information, incident data
- Identifying population at risk:
 - workers, operators, maintenance staff, cleaners, contractors, visitors, public, etc
- Evaluating risk and adequacy of current controls:
 - likelihood of harm and probable severity
 - risk rating
 - apply the general hierarchy of control with reference to OHSAS 18001
 - application based on prioritisation of risk
 - use of guidance; sources and examples of legislation
 - applying controls to specified hazards

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- residual risk; acceptable / tolerable risk levels
- distinction between priorities and timescales
- Recording significant findings:
 - format; information to be recorded
- Reviewing: reasons for review (eg incidents, process / equipment / worker / legislative changes; passage of time)
- Special case applications to young persons, expectant and nursing mothers; disabled workers and lone workers.

3.6 Preventive and protective measures

- General principles of the preventive and protective measures with reference to ILO-OSH 2001: Guidelines on Occupational Safety and Health Management Systems:
 - eliminate the hazard/risk;
 - control the hazard/risk at source, through the use of engineering controls or organisational measures;
 - minimise the hazard/risk by the design of safe work systems, which include administrative control measures;
 - where residual hazards/risks cannot be controlled by collective measures, the employer should provide for appropriate personal protective equipment, including clothing, at no cost, and should implement measures to ensure its use and maintenance.

Hazard prevention and control procedures or arrangements should be established and should:

- be adapted to the hazards and risks encountered by the *organisation*;
- be reviewed and modified if necessary on a regular basis;
- comply with national laws and regulations, and reflect good practice;
- consider the current state of knowledge, including information or reports from *organisations*, such as labour inspectorates, occupational safety and health services, and other services as appropriate.

3.7 Sources of health and safety information

- Internal to the organisation (eg, accident/ill health/absence records, inspection, audit and investigation reports, maintenance records)
- External to the organisation (eg, manufacturers' data, legislation, EU (European Union) / HSE (Health and Safety Executive) publications, trade associations; International, European and British Standards, ILO (International Labour Organisation) Occupational Safety and Health Administration (USA), Worksafe (Western Australia) and other authoritative texts, IT sources).

3.8 Factors that should be considered when developing and implementing a safe system of work for general work activities

- Employer's responsibility to provide safe systems of work
- Role of competent persons in the development of safe systems
- Importance of worker involvement in the development of safe systems
- Importance and relevance of written procedures

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- The distinction between technical, procedural and behavioural controls
- Development of a safe system of work
- Analysing tasks, identifying hazards and assessing risks
- Introducing controls and formulating procedures
- Instruction and training in the operation of the system
- Monitoring the system
- Definition of and specific examples of confined spaces and lone working and working and travelling abroad in relation to safe systems of work.

3.9 Role and function of a permit-to-work system

- Meaning of permit-to-work system
- Role and function in controlling a permit-to-work
- Operation and application of a permit-to-work system
- Circumstances in which a permit-to-work system may be appropriate, with reference to: hot work, work on electrical systems, machinery maintenance, confined spaces, work at height.

3.10 Emergency procedures and the arrangements for contacting emergency services

- Importance of developing emergency procedures
- What needs to be included in an emergency procedure
 - why an emergency procedure is required
 - size and nature of potential emergencies and the consequences if they occur
 - procedures for raising the alarm
 - action of the employees on site
 - dealing with the media
 - arrangements for contacting emergency and rescue services
- Importance of training and testing emergency procedures.

3.11 Requirements for, and effective provision of, first-aid in the workplace

- First-aid requirements
- Role, training and number of first-aiders
- Requirements for first-aid boxes
- Coverage in relation to shift work and geographical location.

Recommended tuition time not less than 17 hours

Element 4: Health and safety management systems - Check

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 4.1 Outline the principles, purpose and role of active and reactive monitoring
- 4.2 Explain the purpose of, and procedures for, investigating incidents (accidents, cases of work-related ill-health and other occurrences)
- 4.3 Describe the legal and organisational requirements for recording and reporting incidents

Content

4.1 Active and reactive monitoring

- Active monitoring procedures including the monitoring of performance standards and the systematic inspection of plant and premises
- Role of safety inspections, sampling, surveys and tours and their roles within a monitoring regime
- Factors governing frequency and type of inspection; competence and objectivity of inspector; use of checklists; allocation of responsibilities and priorities for action
- Effective report writing: style, structure, content, emphasis, persuasiveness, etc
- Reactive monitoring measures including data on incidents, dangerous occurrences, near misses, ill-health, complaints by workforce and enforcement action.

4.2 Investigating incidents

- Role and function of incident investigation as a reactive monitoring measure
- Distinction between different types of incident: ill-health, injury accident, dangerous occurrence, near-miss, damage-only; typical ratios of incident outcomes and their relevance in terms of the proportion of non-injury events; utility and limitations of accident ratios in accident prevention (Bird's Triangle)
- Basic incident investigation procedures
- Interviews, plans, photographs, relevant records, checklists
- Immediate causes (unsafe acts and conditions) and root causes (management systems failures)
- Remedial actions.

4.3 Recording and reporting incidents

- Internal systems for collecting, analysing and communicating data
- Organisational requirements for recording and reporting incidents
- Reporting of events to external agencies. Typical examples of major injuries, diseases and dangerous occurrences that might be reportable to external agencies
- Lessons learnt.

Recommended tuition time not less than 5 hours

Element 5: Health and safety management systems 4 - Act

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 5.1 Explain the purpose of, and procedures, for health and safety auditing
- 5.2 Explain the purpose of, and procedures for, regular reviews of health and safety performance.

Content

5.1 Health and safety auditing

- Meaning of the term 'health and safety audit'
- Scope and purpose of auditing health and safety management systems; distinction between audits and inspections
- Pre-audit preparations, information gathering, notifications and interviews, selection of staff, competence of auditors, time, resources
- Responsibility for audits
- Advantages and disadvantages of external and internal audits
- Actions taken following audit (eg, correcting nonconformities).

5.2 Review of health and safety performance

- Purpose of reviewing health and safety performance
- Who should take part in review
- Review at planned intervals
- Assessing opportunities for improvement and the need for change
- Review to consider:
 - evaluations of compliance with applicable legal and organisational requirements
 - accident and incident data, corrective and preventive actions
 - inspections, surveys, 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

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- legal/good practice developments
- Maintenance of records of management review
- Reporting on health and safety performance
- Feeding into action and development plans as part of continuous improvement
- Role of Boards, Chief Executive/Managing Director and Senior Managers.

Recommended tuition time not less than 4 hours

Unit IGC1: Tutor References

Directives, Conventions and Recommendations

Reference title	Reference detail eg link to Convention	Element/s
Occupational Safety and Health Convention, 1981 (C155)	ILO Link to C155	1, 3
Occupational Safety and Health Recommendation, 1981 (R164)	ILO Link to R164	1, 3
Safety and Health in Construction Convention, 1988 (C167)	ILO Link to C167	3
Safety and Health in Construction Recommendation, 1988 (R175)	ILO Link to R175	3

Other relevant international references

Reference title	Reference detail eg ISBN number	Element/s
Global Database on Occupational Safety and Health Legislation (LEGOSH)	ILO, Link to LEGOSH	1, 3
Guidelines on occupational safety and health management systems	ILO, ILO-OSH 2001, Link to ILO OSH	1, 2, 3, 4, 5
Guidelines for auditing management systems	ISO 19011:2011	5
Occupational health and safety management systems – requirements (OHSAS 18000 series)	OHSAS 18001 ISBN: 978-0-5805-9404-5 OHSAS 18002 ISBN: 978-0-5806-2686-9	1, 2, 3, 4, 5
Recording and Notification of Occupational accidents and Diseases, ILO Code of Practice, Geneva, 1996	ISBN: 92-2-109451-0 Link to recording and notification CoP	4
Safety and health in construction, ILO Code of Practice	ILO Geneva, ISBN: 92-2-107104-9 Link to Construction CoP	3
Training package on workplace risk assessment and management for small and medium size enterprises, 2013	ILO Geneva, ISBN: 978-92-2-127065-2 (web pdf) Link to risk assessment training package	3

Relevant UK references

Reference title	Reference detail eg ISBN number	Element/s
Example risk assessments	HSE, Link to examples	3
Guidance on permit-to-work systems. A guide for the petroleum, chemical and allied industries	HSE Books, ISBN: 978-0-7176-2943-5 Link to HSG250	3
Investigating Incidents and Accidents at Work, HSG245	HSE Books, ISBN: 978-0-7176-2827-8 Link to HSG245	4
Reducing Error and Influencing Behaviour (HSG48)	HSE Books, ISBN: 978-0-7176-2452-2 Link to HSG48	3
Risk assessment, a brief guide to controlling risks in the workplace, INDG163	HSE Books, Link to INDG163	3

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Reference title	Reference detail eg ISBN number	Element/s
Safe Work in Confined Spaces, Approved Code of Practice, Regulations and guidance, L101	HSE Books, ISBN: 978-0-7176-6233-3 Link to L101	3

4.2 Unit GC2: Controlling workplace hazards

Element 1: Workplace hazards and risk control

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 1.1 Outline common health, welfare and work environment requirements in the workplace
- 1.2 Explain the risk factors and appropriate controls for violence at work
- 1.3 Explain the effects of substance misuse on health and safety at work and control measures to reduce such risks
- 1.4 Explain the hazards and control measures for the safe movement of people in the workplace
- 1.5 Explain the hazards and control measures for safe working at height
- 1.6 Outline the hazards and control measures associated with works of a temporary nature.

Content

1.1 Health, welfare and work environment requirements

- Health and welfare provisions:
 - 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; preventive measures
- Prevention of falling materials through safe stacking and storage.

1.2 Violence at work

- Risk factors relating to violence at work (both between employees/workers and third parties)
- Appropriate control measures to reduce risks from violence at work.

1.3 Substance misuse at work

- Types of substances misused at work, eg,
 - alcohol
 - legal/illegal drugs
 - solvents
- Risks to health and safety from substance misuse at work

- Control measures to reduce risks from substance misuse at work.

1.4 Safe movement of people in the workplace

- Hazards in the workplace:
 - typical hazards leading to: slips, trips and falls on the same level; falls from a height; collisions with moving vehicles; being struck by moving, flying or falling objects; striking against fixed or stationary objects
 - conditions and environments in which each hazard may arise, including maintenance activities
- Control measures for the safe movement of people in the workplace:
 - slip resistant surfaces; spillage control and drainage; designated walkways; fencing and guarding; use of signs and personal protective equipment; information, instruction, training and supervision
 - maintenance of a safe workplace: cleaning and housekeeping requirements, access and egress, environmental considerations (lighting), including during maintenance activities.

1.5 Working at height

- Examples of work activities involving a risk of injury from falling from height, and the significance of such injuries
- Basic hazards and factors affecting risk from working at height (including vertical distance, fragile roofs, deterioration of materials, unprotected edges, unstable/poorly maintained access equipment, weather and falling materials)
- Methods of avoiding working at height
- 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 equipment, training, instruction and other measures to minimise distance and consequences of a fall
- Head protection
- Safe working practices for common forms of access equipment, including ladders, stepladders, scaffolds (independent tied and mobile tower), mobile elevating work platforms, trestles, staging platforms and leading edge protection systems
- Inspection of access equipment.

1.6 Hazards and control measures for works of a temporary nature

- The impact on workplaces from hazards associated with works of a temporary nature (including building maintenance, renovation, demolition and excavations)
- Main control measures relating to the management of works of a temporary nature:
 - communication and co-operation
 - risk assessment
 - appointment of competent people
 - segregation of work areas
 - amendment of emergency procedures
 - welfare provision.

Recommended tuition time not less than 8 hours

Element 2: Transport hazards and risk control

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 2.1 Explain the hazards and control measures for the safe movement of vehicles in the workplace
- 2.2 Outline the factors associated with driving at work that increases the risk of an incident and the control measures to reduce work related driving risks.

Content

2.1 Safe movement of vehicles in the workplace

- Hazards and factors affecting level of risk from workplace transport operations including conditions and environments in which each hazard may arise:
 - vehicle movement, eg, driving too fast, especially around bends; reversing; silent operation of machinery; poor visibility (around loads etc), overturning of vehicles; collisions with other vehicles, pedestrians and fixed objects
 - non-movement, eg, loading (including overloading); unloading; securing loads; sheeting; coupling; vehicle maintenance work

- Control measures for safe workplace transport operations:

Safe site

- suitability of traffic routes (including site access and egress)
- management of vehicle movements
- environmental considerations (visibility, gradients, changes of level, surface conditions)
- segregating of 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.

2.2 Driving at work

- Managing work-related road safety
 - policy covers work-related road safety
 - systems to manage work-related road safety
 - monitoring performance to ensure policy is effective eg collection of information, reporting of work-related road incidents by employees
 - organisation and structure (to allow cooperation across departments with different responsibilities for work-related road safety)
 - legal responsibilities of individuals on public roads
- Risk assessment - factors associated with driving at work that increases the risk of being involved in a road traffic incident (distance, driving hours, work schedules, stress due to traffic and weather conditions etc)
- Evaluating the risks
 - the driver (competency, fitness and health, training)
 - the vehicle (suitability, condition, safety equipment, safety critical information, ergonomic considerations)
 - the journey (routes, scheduling, sufficient time, weather conditions)
- Control measures to reduce work-related driving risks.

Recommended tuition time not less than 4 hours

Element 3: Musculoskeletal hazards and risk control

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 3.1 Explain work processes and practices that may give rise to work-related upper limb disorders and appropriate control measures
- 3.2 Explain the hazards and control measures which should be considered when assessing risks from manual handling activities
- 3.3 Explain the hazards and controls to reduce the risk in the use of lifting and moving equipment with specific reference to manually-operated load moving equipment
- 3.4 Explain the hazards and the precautions and procedures to reduce the risk in the use of lifting and moving equipment with specific reference to powered load handling equipment.

Content

3.1 Work-related upper limb disorders

- Meaning of musculoskeletal disease and work related upper limb disorders (WRULDs)
- Examples of repetitive operations such as keyboard operation, assembly of small components, bricklaying and checkout operators; assessment of a display screen equipment workstation
- Matching the workplace to individual needs of workers
- The ill-health effects of poorly designed tasks and workstations
- The factors giving rise to ill-health conditions: task (including repetitive, strenuous); environment (including lighting, glare); equipment (including user requirements, adjustability)
- Appropriate control measures.

3.2 Manual handling hazards and control measures

- Common types of manual handling injury
- Assessment of manual handling risks by considering the task, the load, the individual and the working environment
- Means of avoiding or minimising the risks from manual handling with reference to the task, load, individual and working environment, eg design, automation, mechanisation
- Efficient movement principles for manually lifting loads to reduce risk of musculoskeletal disorders due to lifting, poor posture and repetitive or awkward movements.

3.3 Manually operated load handling equipment

- Hazards and controls for common types of manually operated load handling aids and equipment: trucks and trolleys; pallet trucks; people handling hoists; people handling aids.

3.4 Powered load handling equipment

- Hazards, precautions and procedures for powered load handling equipment eg, fork-lift trucks, lifts, hoists, conveyors and cranes
- Requirements for lifting operations:
 - strong, stable and suitable equipment
 - positioned and installed correctly
 - visibly marked ie safe working load
 - ensure 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.

Recommended tuition time not less than 6 hours

Element 4: Work equipment hazards and risk control

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 4.1 Outline general requirements for work equipment
- 4.2 Explain the hazards and controls for hand-held tools
- 4.3 Describe the main mechanical and non-mechanical hazards of machinery
- 4.4 Explain the main control measures for reducing risk from machinery hazards.

Content

4.1 General requirements for work equipment

- Types of work equipment including: hand tools, power tools and machinery
- Suitability as it relates to provision of equipment; including the requirement for CE (Conformité Européenne) marking within the UK and Europe
- Prevention of access to dangerous parts of machinery
- The need to restrict the use and maintenance of equipment with specific risks
- Extent of information, instruction and training to be provided in relation to specific risks and persons at risk (eg users, maintenance staff and managers)
- The need for equipment to be maintained and for maintenance to be conducted safely
- Importance of operation and emergency controls, stability, lighting, markings and warnings, clear unobstructed workspace
- Responsibilities of users.

4.2 Hazards and controls for hand-held tools

- Hazards and misuse of hand-held tools whether powered or not; requirements for safe use, condition and fitness for use, suitability for purpose and location to be used in (eg flammable atmosphere)
- Hazards of portable power tools (eg, drill, sander) and the means of control.

4.3 Mechanical and non-mechanical hazards of machinery

- Main mechanical and other hazards as identified in BS EN ISO 12100 -1 and how harm may arise
- Hazards presented by a range of equipment including office machinery (eg, photocopier, document shredder); manufacturing/maintenance machinery (eg, bench-top grinder, pedestal drill); agricultural/horticultural machinery (eg, cylinder mower, trimmer / brush cutter, chain-saw); retail machinery (eg, compactor, checkout conveyor system); construction machinery (eg, cement mixer, bench mounted circular saw).

4.4 Control measures for reducing risks from machinery hazards

- The basic principles of operation, merits and limitations of the following:
 - guards: fixed ; interlocking; self-closing 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
- Application of these methods of protection to the range of equipment listed in 4.3
- Basic requirements for guards and safety devices:
 - compatibility with process, adequate strength, maintained, allow for maintenance without removal, not increase risk or restrict view, not easily by-passed.

Recommended tuition time not less than 6 hours

Element 5: Electrical safety

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 5.1 Outline the principles, hazards and risks associated with the use of electricity in the workplace
- 5.2 Outline the control measures that should be taken when working with electrical systems or using electrical equipment in all workplace conditions.

Content

5.1 Principles, hazards and risks associated with the use of electricity at work

- Principles of electricity:
 - basic circuitry for current to flow: relationship between voltage, current and resistance
- Hazards, risks and danger of electricity:
 - electric shock and its effect on the body; factors influencing severity: voltage, frequency, duration, resistance, current path; electrical burns (from direct and indirect contact with an electrical source)
 - electrical fires: common causes
 - workplace electrical equipment including portable: conditions and practices likely to lead to accidents (unsuitable equipment; inadequate maintenance; use of defective apparatus)
 - secondary effects (eg, falls from height)
 - use of poorly maintained electrical equipment
 - work near overhead power lines; contact with underground power cables during excavation work
 - work on mains electricity supplies
 - use of electrical equipment in wet environments.

5.2 Control measures when working with electrical systems or using electrical equipment in all workplace conditions

- 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 persons
 - 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

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- 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).

Recommended tuition time not less than 3 hours

Element 6: Fire safety

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 6.1 Describe the principles of fire initiation, classification and spread
- 6.2 Outline the principles of fire risk assessment
- 6.3 Describe the basic principles of fire prevention and the prevention of fire spread in buildings
- 6.4 Outline the appropriate fire alarm system and fire-fighting arrangements for a simple workplace
- 6.5 Outline the factors which should be considered when implementing a successful evacuation of a workplace in the event of a fire.

Content

6.1 Fire initiation, classification and spread

- Principles of fire: fire triangle; sources of ignition; fuel and oxygen in a typical workplace; oxidising materials
- Classification of fires (different local classification systems will be accepted)
- Principles of heat transmission and fire spread: convection; conduction; radiation; direct burning
- Common causes and consequences of fires in workplaces.

6.2 Fire risk assessment

- The reasons for carrying out a fire risk assessment
- Factors to be considered in carrying out the assessment
- Consideration of temporary workplaces and changes to workplaces.

6.3 Fire prevention and prevention of fire spread

- Control measures to minimise the risk of fire in a workplace:
 - elimination of, or reduction in, the use and storage of flammable and combustible materials
 - control of ignition sources
 - systems of work
 - good housekeeping
- Storage of flammable liquids in work rooms and other locations
- Awareness of structural measures to prevent the spread of fire and smoke: properties of common building materials; protection of openings and voids
- Use of suitable electrical equipment in flammable atmospheres.

6.4 Fire alarm system and fire-fighting arrangements

- Fire detection, fire warning and fire-fighting equipment:
 - common fire detection and alarm systems
 - portable fire-fighting equipment: siting, maintenance and training requirements
 - extinguishing media: water, foam, dry powder, carbon dioxide; advantages and limitations
 - access for fire and rescue services and vehicles.

6.5 Evacuation of a workplace

- 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
- Fire drills; roll call; provisions for people with disabilities
- Building plans to include record of emergency escape.

Recommended tuition time not less than 6 hours

Element 7: Chemical and biological health hazards and risk control

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 7.1 Outline the forms of, the classification of, and the health risks from exposure to, hazardous substances
- 7.2 Explain the factors to be considered when undertaking an assessment of the health risks from substances commonly encountered in the workplace
- 7.3 Explain the use and limitations of occupational exposure limits including the purpose of long term and short term exposure limits
- 7.4 Outline control measures that should be used to reduce the risk of ill-health from exposure to hazardous substances
- 7.5 Outline the hazards, risks and controls associated with specific agents
- 7.6 Outline the basic requirements related to the safe handling and storage of waste

Content

7.1 Forms of, classification of, and health risks from hazardous substances

- Forms of chemical agent: dusts, fibres, fumes, gases, mists, vapours and liquids
- Forms of biological agents: fungi, bacteria and viruses
- Main classification of substances hazardous to health: irritant, corrosive, harmful, toxic/very toxic, carcinogenic, mutagenic and reproductive toxin
- Difference between acute and chronic health effects.

7.2 Assessment of health risks

- Routes of entry of hazardous substances into the body and body reaction in the form of superficial and cellular defence mechanisms with particular reference to the hazardous substances listed in 7.5
- Factors to be taken into account when assessing health risks
- Sources of information:
 - product labels
 - guidance documents eg, UK HSE Guidance Note EH40, EU list of Indicative Limit Values, ACGIH list of Threshold Limit Values (US)
 - manufacturers' safety data sheets and responsibility for their provision; information to be included by supplier
 - limitations of information in 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
- Significance of time weighted averages
- Limitations of exposure limits
- Application of relevant limits eg, Threshold Limit Values, Workplace Exposure Limits, Maximum Allowable Concentrations, etc
- Comparison of measurements to exposure limits established by competent national authorities or internationally recognised standards.

7.4 Control measures

- The need to prevent exposure or, where this is not reasonably practicable, adequately control it
- Principles of Good Practice as regards control of:
 - minimisation of emission, release and spread of hazardous substances through design and operation of processes and task activities
 - account for relevant routes of entry into the body when developing control measures for hazardous substances
 - control measures to be proportional to health risk
 - effectiveness and reliability of control options that minimise the escape and spread of hazardous substances
 - use of personal protective equipment in combination with other measures where adequate controls cannot be achieved otherwise
 - regular checks and review of implemented control measures to confirm continued effectiveness
 - provision of information and training to those working with hazardous substances as to the risks and use of measures to minimise the risks
 - ensuring control measures do not increase overall risk to health and safety
- Common measures used to implement Principles of Good Practice above:
 - elimination or substitution of hazardous substances or form of substance
 - process changes
 - reduced time exposure
 - enclosure of hazards; segregation of process and people
 - local exhaust ventilation: general applications and principles of capture and removal of hazardous substances; components of a basic system and factors that may reduce its effectiveness; requirements for inspection
 - use and limitations of dilution ventilation
 - respiratory protective equipment: purpose, application and effectiveness; types of equipment and their suitability for different substances; selection, use and maintenance
 - other protective equipment and clothing (gloves, overalls, eye protection)
 - personal hygiene and protection regimes
 - health/medical surveillance and biological monitoring
- Further control of substances that can cause cancer, asthma or genetic damage that can be passed from one generation to another.

7.5 Specific agents

- Health risks and controls associated with asbestos
- Managing asbestos in buildings
- Health risks and controls associated with other specific agents: blood borne viruses, carbon monoxide, cement, legionella, leptospira, silica, wood dust; workplace circumstances in which they might be present.

7.6 Safe handling and storage of waste

- Basic environmental issues relating to safe handling and storage of waste (suitable PPE, separate storage of incompatible waste streams).

Recommended tuition time not less than 6 hours

Element 8: Physical and psychological health hazards and risk control

Learning outcomes

On completion of this element, candidates should be able to demonstrate understanding of the content through the application of knowledge to familiar and unfamiliar situations. In particular they should be able to:

- 8.1 Outline the health effects associated with exposure to noise and appropriate control measures
- 8.2 Outline the health effects associated with exposure to vibration and appropriate control measures
- 8.3 Outline the health effects associated with ionising and non-ionising radiation and appropriate control measures
- 8.4 Outline the meaning, causes and effects of work related stress and appropriate control measures.

Content

8.1 Noise

- The physical and psychological effects on hearing of exposure to noise
- The meaning of terms commonly used in the measurement of sound; sound pressure, intensity, frequency; the decibel scale, dB(A) and dB(C)
- The need for assessment of exposure; comparison of measurements to exposure limits established by competent national authorities or internationally recognised standards
- Basic noise control measures (isolation, absorption, insulation, damping and silencing) the purpose, application and limitations of personal hearing protection (types, selection, use, maintenance and attenuation factors)
- Role of health surveillance
- Occupations with potential noise exposure problems: eg, construction, uniformed services, entertainment, manufacturing, call centres.

8.2 Vibration

- The effects on the body of exposure to vibration, with particular reference to hand-arm vibration and whole body vibration
- The need for assessment of exposure; comparison of measurements to exposure limits established by competent national authorities or internationally recognised standards
- Basic vibration control measures including choice of equipment, maintenance, limiting exposure (including duration and magnitude, work schedules / rest periods, clothing to protect against cold)
- Role of health surveillance.

8.3 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 (including radon)
- The basic means of controlling exposures to non-ionising and ionising radiation (including radon)
- Basic radiation protection strategies including the role of the competent person in the workplace
- The role of monitoring and health surveillance.

8.4 Stress

- Meaning of 'work related stress'
- Causes, effects and control measures (demand, control, support, relationships, role, change).

Recommended tuition time not less than 3 hours

Unit GC2: Tutor References

Directives, Conventions and Recommendations

Reference title	Reference detail eg link to Convention	Element/s
Directive 89/656/EEC - use of personal protective equipment	Link to Directive 89/656/EEC	1
Directive 2006/42/EC - machinery directive	Link to Directive 2006/42/EC	4
Directive 2014/35/EU – making available on the market of electrical equipment designed for use within certain voltage limits (recast of Directive 2006/95/EC)	Link to Directive 2014/35/EU	5
Directive 2009/104/EC - use of work equipment	Link to Directive 2009/104/EC	3, 4, 5
Directive 2013/35/EU on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields)	Link to Directive 2013/35/EU	8
ILO Asbestos, Convention and Recommendation, C162 and R172, 1986	Link to C162 Link to R172	7
ILO Chemicals, Convention and Recommendation, C170 and R177, 1990	Link to C170 Link to R177	7
ILO Hours of Work and Rest Periods (Road Transport) Convention 1979 (No. 153) - C153 AND Recommendation 1979 (No. 161)	Link to C153 Link to R161	2
ILO Hygiene (Commerce and Offices), ILO Convention, 1964 (No. 120) - C120 AND Recommendation, 1964 (No. 120)	Link to C120 Link to R120	1
ILO Occupational Cancer, Convention and Recommendation, C139 and R147, 1974	Link to C139 Link to R147	7
ILO Occupational health services, Convention and Recommendation, C161 and R171, 1985	Link to C161 Link to R171	7
ILO Radiation Protection Convention, 1960 (No. 115) – C115 AND Recommendation, 1960, R114	Link to C115 Link to R114	8
ILO Safety and Health in Construction Convention, C167, 1988, ILO AND Recommendation, R175, 1998	Link to C167 Link to R175	1, 2
ILO Welfare Facilities Recommendation, R102, 1956	Link to R102	1
ILO Working Environment (Air, Pollution, Noise and Vibration) Convention, 1977 (No 148) - C148 AND Recommendation, 1977, R156	Link to C148 Link to R156	8
Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	Information on REACH	7
Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP)	Link to CLP Guidance	7

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Other relevant international references

Reference title	Reference detail eg ISBN number	Element/s
Ambient factors in the Workplace, International Labour Organisation (ILO) Code of Practice (CoP)	ISBN 92-2-11628-X Link to Ambient Factors	1, 3, 4, 7, 8
ATEX – the current Directive 94/9/EC has been recast as Directive 2014/34/EU which will be applicable from 20 April 2016. Information on the transition between the two Directives can be found here	Link to 94/9/EC Link to 2014/34/EU	6
Ergonomic Checkpoints: Practical and easy-to-implement solutions for improving safety, health and working conditions, second edition, ILO Geneva 2010	ISBN 978-92-2-122666-6 Link to Ergonomic Checkpoints	3
Graphical symbols – Registered safety signs, ISO 7010:2011,	International Organisation for Standardisation (ISO)	1, 2, 4
Management of alcohol and drug related issues in the workplace, ILO CoP, 1999	ISBN: 92-2-109455-3 Link to Drug/Alcohol CoP	1
Occupational Exposure to Airborne Substances Harmful to Health, ILO Code of Practice,	ISBN: 92-2-102442-3 Link to Airborne Substances CoP	7
Radiation protection of workers, ionising radiations, ILO CoP, 1987	ISBN: 9-22-105996-0 Link to ILO Radiation CoP	8
Safety and Health in Construction, ILO CoP, ILO Geneva 1992	ISBN: 92-2-107104-9 Link to Construction CoP	1, 2
Safety and health in the use of machinery, ILO CoP	Link to Machinery CoP	3, 4
Safety in the Use of Chemicals at Work, International Labour Office (ILO) Code of Practice (CoP), ILO, 1993. <ul style="list-style-type: none"> • Section 6: Operational control measures • Section 7: Design and installation 	ISBN: 92-2-108006-4 Link to Use of Chemicals CoP	6, 7, 8
Safety of machinery – General principles for design – Risk assessment and risk reduction	ISO 12100:2010, ISBN: 978-0-580-74262-0	3, 4
Safety of machinery, basic concepts, general principles for design, basic terminology, methodology	ISO 12100-1:2003+A1:2009, ISBN: 978-0-580-68672-6	3, 4
Safety of machinery, basic concepts, general principles for design, technical principles	ISO 12100-2:2003+A1:2009, ISBN 978-0-580-68673-3	3, 4

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Relevant UK references

Reference title	Reference detail eg ISBN number	Element/s
Buying new machinery, INDG271	HSE Books Link to INDG271	4
Controlling Airborne Contaminants at Work: A Guide to Local Exhaust Ventilation, HSG258, second edition 2011,	HSE Books, ISBN: 978-0-7176-6415-3 Link to HSG258	7
Driving at Work – Managing Work-Related Road Safety, INDG382	HSE Books Link to INDG382	2
Drug misuse at work a guide for employers, INDG91	HSE Books Link to INDG91	1
EH40/2005 Workplace exposure limits, second edition, 2011	HSE Books, ISBN: 978-0-7176-6446-7 http://www.hse.gov.uk/pubns/priced/eh40.pdf	7
Electricity at Work – Safe Working Practices, HSG85	HSE Books, ISBN: 978-0-7176-2164-4 Link to HSG85	5
Fire Safety Risk Assessment series, Communities and Local Government Publications 1. Offices and shops 2. Factories and warehouses 3. Sleeping accommodation 4. Residential care premises 5. Educational premises 6. Small and medium places of assembly 7. Large places of assembly 8. Theatres, cinemas and similar premises 9. Open air events and venues, 10. Healthcare premises, 11. Transport premises and facilities	1. ISBN: 978-1-8511-2815-0 2. ISBN: 978-1-8511-2816-7 3. ISBN: 978-1-8511-2817-4 4. ISBN: 978-1-8511-2818-1 5. ISBN: 978-1-8511-2819-8 6. ISBN: 978-1-8511-2820-4 7. ISBN: 978-1-8511-2821-1 8. ISBN: 978-1-8511-2822-8 9. ISBN: 978-1-8511-2823-5 10. ISBN: 978-1-8511-2824-2 11. ISBN: 978-1-8511-2825-9 Link to Fire Risk Assessment series	6
HSE Stress Management Standards	Link to stress management standards	8
Lighting at Work, HSG38, second edition 1997	HSE Books, ISBN: 978-0-7176-1232-1 Link to HSG38	1
Maintaining Portable and Transportable Electrical Equipment, HSG107	HSE Books, ISBN: 978-0-7176-2805-6 Link to HSG107	5
Managing Asbestos in Buildings: A brief guide, INDG223(rev5)	HSE Books, Link to INDG223	7
Managing the causes of work-related stress; A step by step approach to using the management standards, HSG218	HSE Books, ISBN: 978-0-7176-6273-9 Link to HSG218	8
Radon in the workplace	Link to HSE website: Radon	8
Respiratory Protective Equipment at Work – A Practical Guide, HSG53, fourth edition 2013	HSE Books, ISBN: 978-0-7176-2904-6 Link to HSG53	7
Safety in Working with Lift Trucks, HSG6	HSE Books, ISBN: 978-0-7176-1781-4 Link to HSG6	3
Seating at Work, HSG57, third edition 2002,	HSE Books, ISBN: 978-0-7176-1231-4 Link to HSG57	1
Supplying new machinery, INDG270	HSE Link to INDG270	4
The health and safety toolbox, How to control risks at work, HSG268	HSE Books, ISBN: 978-0-7176-6587-7 Link to HSG268	1, 2, 3, 4, 5, 6, 7, 8
Understanding ergonomics at work, INDG90(rev2),	HSE Books Link to INDG90	1, 3

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Reference title	Reference detail eg ISBN number	Element/s
Upper Limb Disorders in the Workplace – A Guide, second edition 2002, HSG60	HSE Books, ISBN: 978-0-7176-1978-8 Link to HSG60	8
Violence at work: A guide for employers, INDG69	HSE Books, Link to INDG69	1
Work Related Upper Limb Disorders – A Guide, HSG60	HSE Books, ISBN: 978-0-7176-1978-8 Link to HSG60	3
Workplace Transport Safety – Guidance for Employers, HSG136	HSE Books, ISBN: 978-0-7176-6154-1 Link to HSG136	1, 2

4.3 Unit GC3: Health and safety practical application

Learning Outcomes

- Demonstrate the ability to apply knowledge of the unit IGC1 and GC2 syllabus, by successful completion of a health and safety inspection of a workplace
- Complete a report to management regarding the inspection with recommendations.

Content

This unit contains no additional syllabus content. However, completion of study for unit IGC1 and GC2 is recommended in order to undertake the practical application unit GC3.

4.3.1 Purpose and aim

- To carry out, unaided, a safety inspection of a workplace, identifying the more common hazards, deciding whether they are adequately controlled and, where necessary, suggesting appropriate and cost effective control measures
- To prepare a report that persuasively urges management to take appropriate action, explaining why such action is needed (including reference to possible breaches of legislation) and identifying, with due consideration of reasonable practicability, the control measures that should be implemented.

This will require candidates to apply the knowledge and understanding gained from their studies of elements of Units IGC1 and GC2 in a practical environment and to carry out an evaluation of information gathered during the inspection. The practical application may be submitted in the candidate's own handwriting or be word processed.

The submission must include:

- Completed observation sheets covering a number and range of hazards and good practice, identifying suitable control measures and timescales;
- An introduction and executive summary;
- Main findings of the completed inspection;
- Conclusions which summarise the main issues identified in the candidate's workplace;
- Completed recommendations table.

The time allowed to complete the assessment is not restricted but candidates should aim to complete the inspection and the report in two hours.

4.3.2 Marking

Practical applications will be marked by an internal assessor – a person proposed to NEBOSH by an accredited course provider and approved by NEBOSH. Internal assessors will be at least Grad IOSH of the Institution of Occupational Health and Safety or equivalent and working towards chartered membership, CMIOSH, (or similar).

A marking sheet will be completed by the internal assessor for each candidate and attached to the candidate's report. The total percentage mark for each candidate will be transferred to a results sheet and returned to NEBOSH by no later than 15 working days after the examination date of ICG1 and/or GC2.

Candidates must achieve the pass standard (60%) in this unit in order to satisfy the criteria for the qualification.

4.3.3 Assessment location

The practical application must be carried out in the candidate's own workplace. Where the candidate does not have access to a suitable workplace, the accredited course provider should be consulted to help in making arrangements for the candidate to carry out the practical application at suitable premises. Providers seeking to run the practical unit in this way should contact NEBOSH for advice and approval.

Candidates do not require supervision when carrying out the practical application, but the candidate must sign a declaration that the practical application is their own work.

The candidates, employers and internal assessors should be aware that the status of the health and safety review and report undertaken to fulfil the requirements of unit GC3, which is **for educational purposes only**. It *does not* constitute an assessment for the purposes of any legislation or regulations.

4.3.4 Assessment requirements

Assessment of the practical unit (GC3) must normally take place within 10 working days of (before or after) the date of the ICG1 and/or GC2 written papers (the 'date of the examination'). The results sheet completed by the accredited course provider must reach NEBOSH by no later than 15 working days after the date of the examination.

Any practical application not submitted by this deadline will be declared as absent. The candidate will then be required to re-register (and pay the registration fee) at the next standard (or local) sitting date.

If a candidate is absent from the written papers because of illness corroborated by a doctor's note, but successfully completes the GC3 unit within the 10 working day deadline, the result will stand. If a candidate is unable to complete the GC3 unit under similar circumstances, NEBOSH may allow it to be taken at a later date beyond the normal 10 working day deadline.

4.3.5 Submission of completed work

The accredited course provider should advise the candidate of the latest date by which the completed practical application documents must be received by the accredited course provider for marking. It is the responsibility of the accredited course provider to ensure that the results of the practical application (unit GC3) are available to NEBOSH by no later than **15 working days** after the date of the examination for IGC1 and/or GC2 as appropriate.

Candidates planning to post their reports to the accredited course provider are reminded of the need to guard against loss in the post by sending their work by trackable delivery. Candidates are therefore advised to retain copies of both their completed proforma and final management report.

4.3.6 Further information

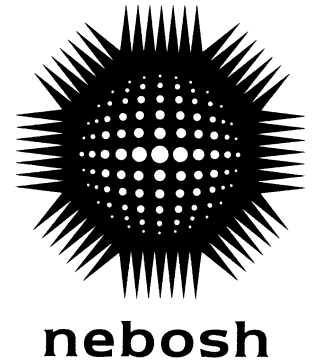
Further detailed information regarding the practical application unit including forms and mark schemes can be found in a separate guidance document for candidates and accredited course providers available from the NEBOSH website (www.nebosh.org.uk): *“Unit GC3: Health and safety practical application: Guidance and information for accredited course providers and candidates”*.

5. Sample examination papers

5.1 Unit IGC1: Management of international health and safety

NEBOSH

UNIT IGC1: MANAGEMENT OF INTERNATIONAL HEALTH AND SAFETY



For: NEBOSH International General Certificate in Occupational Health and Safety
NEBOSH International Certificate in Fire Safety and Risk Management
NEBOSH International Certificate in Construction Health and Safety

[DATE]

2 hours, 0930 to 1130

Answer both Section 1 and Section 2. Answer **ALL** questions.

The maximum marks for each question, or part of a question, are shown in brackets.

Start each answer on a new page.

Answers may be illustrated by sketches where appropriate.

This question paper must be returned to the invigilator after the examination.

SECTION 1

You are advised to spend about **half an hour** on this section, which contains **ONE** question.

- 1 A fire has occurred at a workplace and a worker has been badly injured.
- (a) **Outline** the process for investigating the accident. (10)
 - (b) **Outline** why the investigation report needs to be submitted to senior management. (5)
 - (c) In addition to senior managers, **identify** who may need to know the outcome of the investigation. (5)

SECTION 2

You are advised to spend about **one and a half hours** on this section, which contains **TEN** questions.

- 2** Outline the key elements of a health and safety management system. **(8)**
- 3** (a) (i) Give the meaning of the term 'hazard'. **(2)**
(ii) Give the meaning of the term 'risk'. **(2)**
(b) Identify means of hazard identification that may be used in the workplace. **(4)**
- 4** (a) **Outline** the main health and safety responsibilities of an employer. **(6)**
(b) **Identify** actions that an enforcement agency could take if it finds that an employer is not meeting his/her responsibilities. **(2)**
- 5** **Identify** precautions that could be taken to help ensure the health and safety of visitors to a workplace. **(8)**
- 6** A university has a security worker who works alone when all staff and students have left.
Outline what needs to be considered in order to reduce the health and safety risks to this lone worker. **(8)**
- 7** **Outline** potential barriers to achieving good standards of health and safety. **(8)**
- 8** (a) **Give** the meaning of the term '*permit-to-work*'. **(2)**
(b) **Identify THREE** types of activity that may require a permit-to-work **AND give** the reason why in **EACH** case. **(6)**

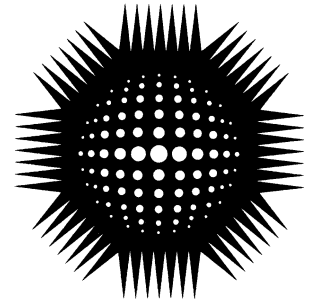
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- 9 (a) **Explain** the difference between consulting and informing workers of health and safety issues. (2)
- (b) **Outline** factors that may determine the effectiveness of a health and safety committee. (6)
- 10 **Identify** documentation that is likely to be inspected in a health and safety audit. (8)
- 11 (a) **Outline** why it is important for an organisation to set health and safety targets. (2)
- (b) **Identify** health and safety targets that an organisation could set. (6)

5.2 Unit GC2: Controlling workplace hazards

NEBOSH

For: **NEBOSH National General Certificate in Occupational Health and Safety**
NEBOSH International General Certificate in Occupational Health and Safety



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UNIT GC2: CONTROLLING WORKPLACE HAZARDS

[DATE]

2 hours, 1400 to 1600

Answer both Section 1 and Section 2. Answer **ALL** questions.

The maximum marks for each question, or part of a question, are shown in brackets.

Start each answer on a new page.

Answers may be illustrated by sketches where appropriate.

This question paper must be returned to the invigilator after the examination.

SECTION 1

You are advised to spend about **half an hour** on this section, which contains **ONE** question.

- 1 Airborne measurements have identified that a local exhaust ventilation system (LEV) is no longer adequately controlling worker exposure to airborne dust. A risk assessment has identified that respiratory protective equipment (RPE) can be used as an interim measure to protect workers while engineers repair the LEV system.
- (a) **Identify** the main components of the LEV system. (4)
- (b) **Outline** factors that may have reduced the effectiveness of the LEV system. (8)
- (c) **Outline** factors that should be considered when selecting the RPE to protect the workers while engineers are working on the LEV system. (8)

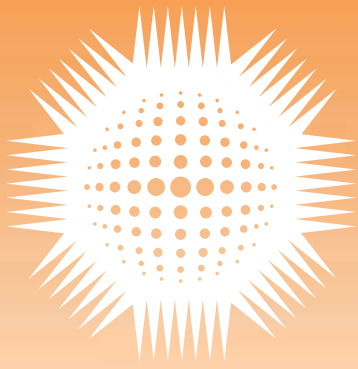
SECTION 2

You are advised to spend about **one and a half hours** on this section, which contains **TEN** questions.

- 2** (a) **Identify** health risks associated with exposure to wood dust. **(2)**
- (b) **Outline** control measures to reduce the health risks from exposure to wood dust. **(6)**
- 3** **Identify** items that should be inspected on a mobile tower scaffold prior to use. **(8)**
- 4** **Outline** how the following two protective measures reduce the risk of electric shock **AND**, in **EACH** case, **give** an example of its application:
- (a) reduced low voltage; **(4)**
- (b) double insulation. **(4)**
- 5** **Outline** factors that should be considered so that persons with sensory impairments and/or physical disabilities can safely evacuate a workplace in the event of a fire. **(8)**
- 6** **Identify** possible hazards that could cause workers to be injured when walking through an external storage area of a workplace. **(8)**
- 7** (a) With reference to mechanical hazards of machinery, **describe** how harm may arise from:
- (i) entanglement; **(1)**
- (ii) shearing; **(1)**
- (iii) drawing in; **(1)**
- (iv) crushing. **(1)**
- (b) **Identify** non-mechanical hazards associated with the use of machinery. **(4)**

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- 8** **Identify** rules that should be followed by a driver when leaving a forklift truck unattended during a work break. **(8)**
- 9** A dental surgery has installed an X-ray facility.
- (a) **Identify** the health effects associated with exposure to X-ray radiation. **(4)**
- (b) **Outline** control measures that could be taken in order to help reduce the risks to the operator from exposure to X-ray radiation. **(4)**
- 10** To reduce the risk of musculoskeletal disorders and back injuries, postal workers have been provided with manually operated trolleys to carry post during their delivery rounds.
- Outline** factors that would need to be considered when carrying out a manual handling assessment of the use of the trolley. **(8)**
- 11** (a) **Outline** control measures that could be used to reduce the exposure of construction workers to high levels of noise from cement mixers. **(4)**
- (b) **Identify** other noise hazards that may be present on construction sites. **(4)**



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