

# ICTQual AB

## Qualification Specification



## Level 8 Professional Diploma in Health, Safety and Environmental Engineering



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# ICTQual AB

## Level 8 Professional Diploma in Health, Safety and Environmental Engineering

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## Qualification Specifications about

# ICTQual Level 8 Professional Diploma in Health, Safety and Environmental Engineering

### About ICTQual AB

ICTQual AB UK Ltd. is a distinguished awarding body based in the United Kingdom, dedicated to fostering excellence in education, training, and skills development. Committed to global standards, ICTQual AB provides internationally recognized qualifications that empower individuals and organizations to thrive in an increasingly competitive world. Their offerings span diverse industries, including technical fields, health and safety, management, and more, ensuring relevance and adaptability to modern workforce needs.

The organization prides itself on delivering high-quality educational solutions through a network of Approved Training Centres worldwide. Their robust curriculum and innovative teaching methodologies are designed to equip learners with practical knowledge and skills for personal and professional growth. With a mission to inspire lifelong learning and drive positive change, ICTQual AB continuously evolves its programs to stay ahead of industry trends and technological advancements.

ICTQual AB's vision is to set benchmarks for educational excellence while promoting inclusivity and integrity. Their unwavering focus on quality and accessibility makes them a trusted partner in shaping future-ready professionals and advancing societal progress globally.

### Course Overview

ICTQual Level 8 Professional Diploma in Health, Safety and Environmental Engineering is an advanced, internationally recognized qualification designed for professionals who want to lead and manage workplace safety, environmental protection, and risk management at a strategic level. This high-level diploma equips learners with the knowledge, leadership skills, and technical expertise required to develop, implement, and manage effective Health, Safety, and Environmental (HSE) systems across various industries including construction, oil & gas, manufacturing, and engineering.

The program focuses on advanced safety engineering principles, environmental sustainability, risk assessment, accident prevention, regulatory compliance, and organizational safety leadership. Participants learn how to design and implement comprehensive HSE management systems, conduct advanced hazard analysis, manage environmental impacts, and ensure compliance with international safety standards and regulations.

Upon completion, graduates gain a prestigious qualification that strengthens their professional credibility and opens opportunities for senior HSE roles in international organizations, government sectors, and multinational companies.

## Certification Framework

<b>Qualification title</b>	<b>ICTQual Level 8 Professional Diploma in Health, Safety and Environmental Engineering</b>
<b>Course ID</b>	ACAI0005
<b>Qualification Credits</b>	180 Credits
<b>Course Duration</b>	9-18 Months
<b>Grading Type</b>	Pass / Fail
<b>Competency Evaluation</b>	Coursework / Assignments / Verifiable Experience
<b>Assessment</b>	The assessment and verification process for ICTQual qualifications involves two key stages:  <b>Internal Assessment and Verification:</b> <ul style="list-style-type: none"><li>✓ Conducted by the staff at the Approved Training Centre (ATC). Ensures learners meet the required standards through continuous assessments.</li><li>✓ Internal quality assurance (IQA) is carried out by the centre's IQA staff to validate the assessment processes.</li></ul> <b>External Quality Assurance:</b> <ul style="list-style-type: none"><li>✓ Managed by ICTQual AB verifiers, who periodically review the centre's assessment and IQA processes.</li><li>✓ Verifies that assessments are conducted to the required standards and ensures consistency across centres</li></ul>

## Entry Requirements

To enrol in the ICTQual Level 8 Professional Diploma in Health, Safety and Environmental Engineering, candidates must meet the following entry requirements:

✓ **Educational Qualifications:**

- A Level 7 Diploma in Occupational Health & Safety, Environmental Management, Engineering, or a closely related discipline
- A Master's Degree in Health & Safety, Environmental Science, Engineering, Industrial Safety, or another relevant field from a recognized institution.

✓ **Professional Experience:**

A Master's Degree in Health & Safety, Environmental Science, Engineering, Industrial Safety, or another relevant field from a recognized institution.

✓ **English Language Competency:**

Applicants should possess sufficient English language proficiency to understand course materials, complete assignments, and participate in research activities.

## Qualification Structure

This qualification consists of 10 mandatory units .This qualification carries 180 Credits, with 900 Guided Learning Hours (GLH) and a Total Qualification Time (TQT) of 1800 hours.

Mandatory Units		
Unit Ref#	Unit Title	Credits
ACAI0005 – 1	Health and Safety Management System (HSMS)	18
ACAI0005 – 2	Health and Safety International Laws and Regulations	18
ACAI0005 – 3	Environmental Management System	18
ACAI0005 – 4	Occupational Health and Industrial Hygiene	18
ACAI0005 – 5	Ergonomics Program	18
ACAI0005 – 6	Fire Safety Management	18
ACAI0005 – 7	Workplace Emergency Management	18
ACAI0005 – 8	Professional Development and Communication at Workplace	18
ACAI0005 – 9	Applied Mathematics for Safety Professionals	18
ACAI0005 – 10	Capstone Research in Occupational Health and Safety Management	18

## Centre Requirements

Even if a centre is already registered with ICTQual AB, it must meet specific requirements to deliver the ICTQual Level 8 Professional Diploma in Health, Safety and Environmental Engineering. These standards ensure the quality and consistency of training, assessment, and learner support.

### 1. Approval to Deliver the Qualification

- ✓ Centres must obtain formal approval from ICTQual AB to deliver this specific qualification, even if they are already registered.
- ✓ The approval process includes a review of resources, staff qualifications, and policies relevant to the program.

### 2. Qualified Staff

- ✓ **Tutors:** Must have relevant qualifications in Environment and Sustainability Management at Level 9 or higher, alongside teaching/training experience.
- ✓ **Assessors:** Must hold a recognized assessor qualification and demonstrate expertise in Automotive Engineering
- ✓ **Internal Quality Assurers (IQAs):** Must be appropriately qualified and experienced to monitor the quality of assessments.

### 3. Learning Facilities

Centres must have access to appropriate learning facilities, which include:

- ✓ **Classrooms:** Modern classrooms equipped with multimedia tools for comprehensive theoretical learning on environmental systems, sustainability strategies, and advanced environmental management technologies.
- ✓ **Practical Areas:** Fully equipped training facilities featuring advanced tools and technologies, including environmental monitoring instruments, waste management systems, renewable energy models, and sustainability assessment tools for hands-on training and skill development.
- ✓ **Technology Access:** Advanced computing resources with industry-standard software (e.g., GIS for environmental mapping, sustainability modelling tools, and data analysis platforms) and reliable internet access for research, project development, and environmental impact assessments.

#### 4. Health and Safety Compliance

- ✓ Centres must ensure that practical training environments comply with relevant health and safety regulations.
- ✓ Risk assessments must be conducted regularly to maintain a safe learning environment.

#### 5. Resource Requirements

- ✓ **Learning Materials:** Approved course manuals, textbooks, and study guides aligned with the curriculum.
- ✓ **Assessment Tools:** Templates, guidelines, and resources for conducting and recording assessments.
- ✓ **E-Learning Systems:** If offering online or hybrid learning, centres must provide a robust Learning Management System (LMS) to facilitate remote delivery.

#### 6. Assessment and Quality Assurance

- ✓ Centres must adhere to ICTQual's assessment standards, ensuring that all assessments are fair, valid, and reliable.
- ✓ Internal quality assurance (IQA) processes must be in place to monitor assessments and provide feedback to assessors.
- ✓ External verification visits from ICTQual will ensure compliance with awarding body standards.

#### 7. Learner Support

- ✓ Centres must provide learners with access to guidance and support throughout the program, including:
- ✓ Academic support for coursework.
- ✓ Career guidance for future progression.
- ✓ Additional support for learners with specific needs (e.g., disabilities or language barriers).

#### 8. Policies and Procedures

Centres must maintain and implement the following policies, as required by ICTQual:

- ✓ Equal Opportunities Policy.
- ✓ Health and Safety Policy.
- ✓ Safeguarding Policies and Procedures.
- ✓ Complaints and Appeals Procedure.
- ✓ Data Protection and Confidentiality Policy.

#### 9. Regular Reporting to ICTQual

[www.ictqualab.co.uk](http://www.ictqualab.co.uk)

[Support@ictqualab.co.uk](mailto:Support@ictqualab.co.uk)

- ✓ Centres must provide regular updates to ICTQual AB on learner enrolment, progress, and completion rates.
- ✓ Centres are required to maintain records of assessments and learner achievements for external auditing purposes.

## Support for Candidates

Centres should ensure that materials developed to support candidates:

- ✓ Facilitate tracking of achievements as candidates progress through the learning outcomes and assessment criteria.
- ✓ Include information on how and where ICTQual's policies and procedures can be accessed.
- ✓ Provide mechanisms for Internal and External Quality Assurance staff to verify and authenticate evidence effectively.

This approach ensures transparency, supports candidates' learning journeys, and upholds quality assurance standards.

## Assessment

This qualification is competence-based, requiring candidates to demonstrate proficiency as defined in the qualification units. The assessment evaluates the candidate's skills, knowledge, and understanding against the set standards. Key details include:

### 1. Assessment Process:

- ✓ Must be conducted by an experienced and qualified assessor.
- ✓ Candidates compile a portfolio of evidence that satisfies all learning outcomes and assessment criteria for each unit.

### 2. Types of Evidence:

- ✓ Observation reports by the assessor.
- ✓ Assignments, projects, or reports.
- ✓ Professional discussions.
- ✓ Witness testimonies.
- ✓ Candidate-produced work.
- ✓ Worksheets.
- ✓ Records of oral and written questioning.
- ✓ Recognition of Prior Learning (RPL).

### 3. Learning Outcomes and Assessment Criteria:

- ✓ **Learning Outcomes:** Define what candidates should know, understand, or accomplish upon completing the unit.
- ✓ **Assessment Criteria:** Detail the standards candidates must meet to demonstrate that the learning outcomes have been achieved.

This framework ensures rigorous and consistent evaluation of candidates' competence in line with the qualification's objectives.

## Unit Descriptors

### ACAI0005 - 1: Health and Safety Management System (HSMS)

This unit provides advanced knowledge of the principles, structure, and implementation of Health and Safety Management Systems (HSMS) within complex organizational and engineering environments. It focuses on internationally recognized frameworks, including ISO 45001, emphasizing risk management, regulatory compliance, and continuous improvement. Learners will develop the ability to design, implement, evaluate, and enhance effective safety management systems that control workplace hazards, strengthen organizational safety culture, and ensure sustainable health and safety performance.

Learning Outcome:	Assessment Criteria:
<p><b>1. Develop a comprehensive understanding of internationally recognized Health and Safety Management Systems (HSMS) such as ISO 45001 and ANSI Z10, and their role in designing effective workplace safety programs.</b></p>	<p>1.1. Explain the key principles, structure, and requirements of internationally recognized Health and Safety Management Systems, including ISO 45001 and ANSI Z10.</p> <p>1.2. Analyze the role of HSMS frameworks in establishing systematic approaches to hazard identification, risk assessment, and workplace safety management.</p> <p>1.3. Evaluate how internationally recognized HSMS standards support regulatory compliance, organizational safety culture, and continuous improvement.</p> <p>1.4. Interpret the core components of an effective health and safety management system, including policy development, leadership commitment, and operational controls.</p> <p>1.5. Apply HSMS concepts to the design of structured workplace safety programs aligned with international best practices.</p>
<p><b>2. Apply the hierarchy of hazard control measures to eliminate or minimize workplace risks and improve organizational safety performance.</b></p>	<p>2.1. Explain the principles and levels of the hierarchy of hazard control measures, including elimination, substitution, engineering controls, administrative controls, and personal protective equipment (PPE).</p> <p>2.2. Identify workplace hazards and assess associated risks requiring appropriate control measures.</p> <p>2.3. Evaluate the effectiveness of different control measures in reducing or eliminating occupational hazards.</p> <p>2.4. Apply the hierarchy of controls to develop appropriate risk control strategies for workplace safety management.</p> <p>2.5. Recommend suitable hazard control solutions to</p>

	improve organizational health and safety performance and minimize operational risks.
<b>3. Utilize advanced hazard identification and risk analysis techniques, including Hazard Analysis, Failure Modes and Effects Analysis (FMEA), Fault Tree Analysis (FTA), Fishbone Analysis, What-If Analysis, Checklist Analysis, and Change Analysis.</b>	<p>3.1. Explain the principles, methodologies, and applications of advanced hazard identification and risk analysis techniques used in occupational health and safety management.</p> <p>3.2. Identify workplace hazards using structured analytical tools such as Hazard Analysis, What-If Analysis, and Checklist Analysis.</p> <p>3.3. Apply systematic risk assessment techniques, including FMEA and Fault Tree Analysis (FTA), to evaluate potential failure points and their consequences.</p> <p>3.4. Analyze root causes of workplace incidents and hazards using Fishbone Analysis and Change Analysis methods.</p> <p>3.5. Evaluate the outcomes of hazard identification and risk analysis processes to recommend effective risk control and prevention strategies.</p>
<b>4. Apply risk assessment and risk matrix methodologies to evaluate, prioritize, and implement effective risk mitigation strategies.</b>	<p>4.1. Explain the principles and methodologies of risk assessment and the use of risk matrices in occupational health and safety management.</p> <p>4.2. Identify workplace hazards and assess the likelihood and severity of associated risks using structured risk assessment techniques.</p> <p>4.3. Apply risk matrix tools to evaluate and prioritize risks based on their potential impact on health, safety, and operational performance.</p> <p>4.4. Analyze risk assessment outcomes to determine appropriate risk mitigation and control measures.</p> <p>4.5. Develop effective risk mitigation strategies to reduce identified risks and enhance overall organizational safety performance.</p>
<b>5. Implement the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) to ensure proper chemical hazard communication and safe handling procedures.</b>	<p>5.1. Explain the principles, structure, and purpose of the Globally Harmonized System (GHS) for chemical classification and hazard communication.</p> <p>5.2. Identify chemical hazards using GHS classification criteria, including physical, health, and environmental hazards.</p> <p>5.3. Interpret GHS labels, pictograms, hazard statements, and Safety Data Sheets (SDS) to determine appropriate safety precautions.</p>

	<p>5.4. Apply GHS requirements to ensure proper labeling, storage, and handling of hazardous chemicals in the workplace.</p> <p>5.5. Evaluate workplace chemical safety practices to ensure compliance with GHS standards and effective hazard communication.</p>
<p><b>6. Design and implement hazardous energy control programs covering electrical, hydraulic, thermal, kinetic, mechanical, and magnetic energy sources.</b></p>	<p>6.1. Explain the principles and requirements of hazardous energy control programs for managing multiple energy sources in the workplace.</p> <p>6.2. Identify potential hazards associated with electrical, hydraulic, thermal, kinetic, mechanical, and magnetic energy sources.</p> <p>6.3. Analyze workplace processes to determine appropriate energy isolation and control measures.</p> <p>6.4. Develop hazardous energy control procedures, including lockout/tagout (LOTO) systems and safe work practices.</p> <p>6.5. Implement and evaluate hazardous energy control programs to ensure effective risk reduction and compliance with relevant safety standards.</p>
<p><b>7. Demonstrate an understanding of fundamental electrical safety principles, including Ohm’s Law, electrical power, impedance, resistance, circuits, and energy control.</b></p>	<p>7.1. Explain the fundamental principles of electrical safety, including voltage, current, resistance, impedance, and electrical circuits.</p> <p>7.2. Interpret Ohm’s Law and electrical power relationships in relation to workplace electrical systems and safety considerations.</p> <p>7.3. Identify potential electrical hazards associated with electrical equipment, circuits, and energy sources.</p> <p>7.4. Analyze the role of electrical safety controls and protective measures in preventing electrical incidents and injuries.</p> <p>7.5. Apply fundamental electrical safety principles to support safe operation, maintenance, and energy control procedures in the workplace.</p>
<p><b>8. Lead and facilitate incident and accident investigations, including root cause analysis, identification of contributing factors, evidence collection, data analysis, and management of high-risk incidents.</b></p>	<p>8.1. Explain the principles, objectives, and procedures of incident and accident investigation within occupational health and safety management systems.</p> <p>8.2. Lead structured incident investigations by coordinating investigation teams and ensuring systematic evidence collection and documentation.</p> <p>8.3. Analyze incident data using root cause analysis</p>

	<p>techniques to identify underlying and contributing factors.</p> <p>8.4. Evaluate investigation findings to determine corrective and preventive actions that reduce the likelihood of recurrence.</p> <p>8.5. Develop comprehensive incident investigation reports and communicate findings and recommendations to relevant stakeholders.</p>
<p><b>9. Understand and apply Management of Change (MOC) principles to ensure safe implementation of operational or organizational changes.</b></p>	<p>9.1. Explain the principles, objectives, and importance of Management of Change (MOC) in maintaining workplace health and safety.</p> <p>9.2. Identify operational, technological, and organizational changes that may introduce new hazards or risks.</p> <p>9.3. Assess potential safety and environmental risks associated with proposed changes using structured risk evaluation methods.</p> <p>9.4. Apply MOC procedures to ensure appropriate review, authorization, and implementation of workplace changes.</p> <p>9.5. Evaluate the effectiveness of MOC processes in preventing incidents and maintaining safe operational conditions.</p>
<p><b>10. Interpret and evaluate leading and lagging safety performance indicators to monitor, measure, and improve safety management systems.</b></p>	<p>10.1. Explain the concepts and significance of leading and lagging indicators in occupational health and safety performance measurement.</p> <p>10.2. Identify appropriate safety performance indicators used to monitor workplace safety and health management systems.</p> <p>10.3. Interpret safety performance data to assess trends, patterns, and potential areas of risk within the organization.</p> <p>10.4. Evaluate the effectiveness of existing safety management systems using leading and lagging performance indicators.</p> <p>10.5. Recommend data-driven improvements to enhance safety performance and strengthen organizational health and safety practices.</p>
<p><b>11. Demonstrate awareness of emerging technologies in health and safety management, including data analytics, robotics, drones, and artificial intelligence for improved risk</b></p>	<p>11.1. Explain the role of emerging technologies such as data analytics, robotics, drones, and artificial intelligence in modern health and safety management.</p>

<p><b>monitoring and workplace safety.</b></p>	<p>11.2. Identify practical applications of advanced technologies for hazard detection, risk monitoring, and workplace safety improvement.</p> <p>11.3. Analyze the potential benefits and limitations of integrating emerging technologies into occupational health and safety practices.</p> <p>11.4. Evaluate how technological innovations can enhance safety performance, incident prevention, and real-time risk management.</p> <p>11.5. Recommend appropriate technological solutions to support proactive safety management and continuous improvement in workplace safety systems.</p>
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**ACAI0005 - 2: Health and Safety International Laws and Regulations**

This unit provides an advanced understanding of international occupational health and safety legal frameworks, standards, and regulatory systems governing workplace safety. It examines key international instruments, including International Labour Organization (ILO) conventions, European Union directives, and major national regulatory models such as UK health and safety legislation. The unit also explores legal responsibilities, compliance requirements, and enforcement mechanisms to support effective health and safety governance and regulatory compliance in global organizational environments.

Learning Outcome:	Assessment Criteria:
<p><b>1. Develop a comprehensive understanding of international occupational health and safety legal frameworks, including International Labour Organization (ILO) conventions and standards, UK legislation such as the Health and Safety at Work etc. Act 1974, Management of Health and Safety at Work Regulations 1999, and relevant European Union Occupational Safety and Health Directives.</b></p>	<p>1.1. Explain the structure and purpose of international occupational health and safety legal frameworks, including key conventions and standards developed by the International Labour Organization (ILO).</p> <p>1.2. Interpret the main provisions and requirements of major UK health and safety legislation, including the Health and Safety at Work etc. Act 1974 and the Management of Health and Safety at Work Regulations 1999.</p> <p>1.3. Analyze the role of European Union Occupational Safety and Health Directives in promoting workplace safety and regulatory compliance.</p> <p>1.4. Evaluate how international and national health and safety legal frameworks influence organizational safety policies and management practices.</p> <p>1.5. Apply relevant legal principles to ensure compliance and effective implementation of occupational health and safety requirements within organizational systems.</p>
<p><b>2. Understand the legal responsibilities, compliance obligations, and professional liabilities associated with health and safety management, including workplace inspections, audits, monitoring, reporting, and procedural reviews in accordance with international best practices.</b></p>	<p>2.1. Explain the legal responsibilities and compliance obligations of employers, employees, and safety professionals in occupational health and safety management.</p> <p>2.2. Identify key requirements for workplace inspections, safety audits, and monitoring processes in accordance with international best practices.</p> <p>2.3. Analyze the role of reporting systems and procedural reviews in maintaining regulatory compliance and effective safety management.</p> <p>2.4. Evaluate organizational practices to determine compliance with legal and professional health and safety responsibilities.</p> <p>2.5. Recommend appropriate measures to strengthen</p>

	compliance, accountability, and professional responsibility within health and safety management systems.
<b>3. Evaluate legal requirements related to contractor management and multi-employer worksites, ensuring compliance with UK, EU, and ILO occupational safety principles and employer duty-of-care responsibilities.</b>	<p>3.1. Explain the legal principles and regulatory requirements governing contractor management and multi-employer worksites.</p> <p>3.2. Identify the responsibilities of employers, contractors, and subcontractors in maintaining occupational health and safety at shared workplaces.</p> <p>3.3. Analyze relevant UK, EU, and ILO occupational safety frameworks related to contractor coordination, communication, and risk management.</p> <p>3.4. Evaluate workplace arrangements to determine compliance with duty-of-care obligations and contractor safety management requirements.</p> <p>3.5. Recommend effective contractor management strategies to ensure safe operations and compliance with international occupational health and safety standards.</p>
<b>4. Understand contract terminology and the contract management lifecycle, including allocation of responsibilities, safety obligations, and risk control within contractual agreements.</b>	<p>4.1. Explain key contract terminology and the stages of the contract management lifecycle within organizational and project environments.</p> <p>4.2. Identify contractual provisions related to allocation of responsibilities, safety obligations, and compliance requirements.</p> <p>4.3. Analyze contractual agreements to determine how health and safety risks and responsibilities are allocated between parties.</p> <p>4.4. Evaluate the role of contract management in ensuring effective implementation of safety requirements and risk control measures.</p> <p>4.5. Apply contract management principles to support compliance with safety obligations and effective risk management within contractual arrangements.</p>
<b>5. Apply proper records management and documentation control practices, including regulatory requirements for document retention, chain-of-custody procedures, and worker data protection in line with UK, EU, and international data protection standards such as</b>	<p>5.1. Explain the principles of records management and documentation control within occupational health and safety management systems.</p> <p>5.2. Identify regulatory requirements for document retention, record keeping, and chain-of-custody procedures in safety management practices.</p>

<p><b>GDPR.</b></p>	<p>5.3. Interpret key data protection requirements related to worker information in accordance with UK, EU, and international standards such as GDPR.</p> <p>5.4. Apply appropriate documentation control procedures to ensure the accuracy, security, and accessibility of safety records.</p> <p>5.5. Evaluate organizational record management practices to ensure compliance with legal, regulatory, and data protection requirements.</p>
<p><b>6. Determine appropriate professional actions within legal, ethical, and professional scope limitations, recognizing when to seek expertise in areas such as cybersecurity, insurance, and legal compliance.</b></p>	<p>6.1. Explain the legal, ethical, and professional responsibilities of health and safety professionals within their defined scope of practice.</p> <p>6.2. Identify situations where specialized expertise, such as legal, cybersecurity, or insurance consultation, is required.</p> <p>6.3. Analyze workplace scenarios to determine appropriate professional actions while maintaining compliance with ethical and legal standards.</p> <p>6.4. Evaluate the risks associated with operating beyond professional competence or authority in safety management roles.</p> <p>6.5. Recommend appropriate referral and consultation procedures to ensure effective decision-making and regulatory compliance.</p>
<p><b>7. Understand the principles of risk transfer and liability management, including outsourcing arrangements, contractual risk-sharing, and insurance mechanisms to manage organizational safety risks.</b></p>	<p>7.1. Explain the fundamental principles of risk transfer and liability management within organizational health and safety practices.</p> <p>7.2. Identify different mechanisms of risk transfer, including outsourcing arrangements, contractual risk-sharing, and insurance coverage.</p> <p>7.3. Analyze how contractual agreements allocate responsibilities and liabilities related to workplace safety risks.</p> <p>7.4. Evaluate the role of insurance and indemnity provisions in managing organizational exposure to safety-related liabilities.</p> <p>7.5. Recommend appropriate risk transfer strategies to support effective management of occupational health and safety risks.</p>
<p><b>8. Assess legal and organizational responsibilities related to worker impairment, including workplace risks associated with drugs, alcohol,</b></p>	<p>8.1. Explain the concept of worker impairment and its impact on occupational health, safety, and workplace performance.</p>

<p><b>fatigue, stress, and other factors affecting occupational health and safety under international labor standards.</b></p>	<p>8.2. Identify workplace risks associated with impairment factors such as drugs, alcohol, fatigue, stress, and other health-related conditions.</p> <p>8.3. Analyze legal and organizational responsibilities for managing impairment risks in accordance with international labor standards.</p> <p>8.4. Evaluate workplace policies and procedures designed to prevent and manage worker impairment.</p> <p>8.5. Recommend appropriate control measures and organizational strategies to mitigate impairment-related risks and ensure workplace safety compliance.</p>
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**ACAI0005 - 3: Environmental Management System (EMS)**

This unit provides a comprehensive understanding of the principles, structure, and implementation of Environmental Management Systems (EMS) in accordance with internationally recognized standards such as ISO 14001. It focuses on environmental policy development, environmental planning, operational controls, performance monitoring, and continuous improvement processes. The unit equips learners with the knowledge to implement effective environmental management practices that support regulatory compliance, environmental protection, and sustainable organizational performance.

Learning Outcome:	Assessment Criteria:
<p><b>1. Develop a comprehensive understanding of environmental hazards including biological, chemical, radiological, and waste-related hazards, and their potential impact on human health and the environment.</b></p>	<p>1.1. Explain the characteristics and sources of major environmental hazards, including biological, chemical, radiological, and waste-related hazards.</p> <p>1.2. Identify potential environmental and occupational health risks associated with different types of environmental hazards.</p> <p>1.3. Analyze the pathways through which environmental hazards can affect human health, ecosystems, and workplace safety.</p> <p>1.4. Evaluate the potential impacts of environmental hazards on occupational health, public safety, and environmental sustainability.</p> <p>1.5. Recommend appropriate control and management measures to reduce environmental hazard risks and protect human health and the environment.</p>
<p><b>2. Evaluate environmental impacts and sustainable management practices related to natural resources, including water management (drainage, wastewater treatment), air quality and emissions control (air pollution, carbon footprint reduction), and land protection (solid waste management, soil protection, and recycling systems).</b></p>	<p>2.1. Explain key environmental management principles related to water resources, air quality, and land protection.</p> <p>2.2. Identify environmental impacts associated with water pollution, air emissions, solid waste generation, and land degradation.</p> <p>2.3. Analyze sustainable management practices for wastewater treatment, emissions control, recycling systems, and soil protection.</p> <p>2.4. Evaluate environmental protection strategies aimed at reducing pollution and minimizing organizational environmental footprints.</p> <p>2.5. Recommend sustainable resource management practices to support environmental protection and regulatory compliance.</p>
<p><b>3. Apply the environmental conservation hierarchy such as reduce, reuse, recycle, and energy recovery, to promote sustainable resource</b></p>	<p>3.1. Explain the principles of the environmental conservation hierarchy, including reduce, reuse, recycle, and energy recovery.</p>

<p><b>utilization and waste minimization.</b></p>	<p>3.2. Identify opportunities within organizational operations to minimize waste and promote efficient resource utilization.</p> <p>3.3. Analyze the environmental and operational benefits of applying conservation and waste minimization strategies.</p> <p>3.4. Apply the conservation hierarchy to develop practical waste reduction and resource management initiatives.</p> <p>3.5. Evaluate the effectiveness of conservation practices in improving environmental sustainability and reducing environmental impact.</p>
<p><b>4. Understand the principles and implementation of Environmental Management Systems (EMS) based on international standards such as ISO 14001, including policy development, environmental planning, monitoring, and continuous improvement.</b></p>	<p>4.1. Explain the principles, structure, and objectives of Environmental Management Systems (EMS) in accordance with international standards such as ISO 14001.</p> <p>4.2. Identify key components of EMS implementation, including environmental policy, planning, operational controls, and performance evaluation.</p> <p>4.3. Analyze the role of environmental monitoring, compliance evaluation, and internal auditing within an effective EMS.</p> <p>4.4. Evaluate how EMS frameworks support environmental protection, regulatory compliance, and sustainable organizational practices.</p> <p>4.5. Apply EMS principles to develop strategies for continuous environmental performance improvement within organizations.</p>
<p><b>5. Understand procedures for waste identification, classification, labeling, treatment, certification, transportation, and disposal in accordance with international environmental regulations and best practices.</b></p>	<p>5.1. Explain the principles and regulatory requirements governing waste management and environmental protection.</p> <p>5.2. Identify different types of waste and classify them according to recognized environmental and hazardous waste standards.</p> <p>5.3. Interpret requirements for proper waste labeling, documentation, and certification in accordance with international environmental regulations.</p> <p>5.4. Analyze procedures for safe waste treatment, storage, transportation, and disposal.</p> <p>5.5. Evaluate waste management practices to ensure compliance with environmental regulations and the adoption of best practices in waste handling</p>

	and disposal.
<p><b>6. Analyze the role of Environment, Health, and Safety (EHS) professionals in supporting Environmental, Social, and Governance (ESG) strategies, ensuring organizations achieve sustainability goals, regulatory compliance, and responsible environmental stewardship.</b></p>	<p>6.1. Explain the principles and components of Environmental, Social, and Governance (ESG) frameworks and their relevance to organizational sustainability.</p> <p>6.2. Identify the responsibilities of EHS professionals in supporting ESG initiatives and sustainability objectives.</p> <p>6.3. Analyze how EHS practices contribute to environmental protection, social responsibility, and effective corporate governance.</p> <p>6.4. Evaluate the role of EHS management in ensuring regulatory compliance and promoting sustainable organizational performance.</p> <p>6.5. Recommend strategies for integrating EHS practices into broader ESG frameworks to enhance sustainability and responsible environmental stewardship.</p>

**ACAI0005 - 4: Occupational Health and Industrial Hygiene**

This unit provides an advanced understanding of occupational health principles and industrial hygiene practices aimed at identifying, evaluating, and controlling workplace health hazards. It examines exposure assessment methods, occupational exposure limits, and control strategies related to physical, chemical, and biological hazards. The unit also addresses occupational health programs, workplace monitoring, and preventive measures designed to protect worker health, prevent occupational diseases, and promote safe and healthy working environments.

Learning Outcome:	Assessment Criteria:
<p><b>1. Develop an understanding of the principles and requirements of occupational health and industrial hygiene programs, including hearing conservation, respiratory protection, workplace monitoring, and medical surveillance systems.</b></p>	<p>1.1. Explain the principles and objectives of occupational health and industrial hygiene programs in protecting worker health and safety.</p> <p>1.2. Identify key components of industrial hygiene programs, including hearing conservation, respiratory protection, and workplace exposure monitoring.</p> <p>1.3. Analyze workplace hazards that require occupational health interventions and industrial hygiene controls.</p> <p>1.4. Evaluate the role of medical surveillance and health monitoring systems in preventing occupational illnesses.</p> <p>1.5. Recommend appropriate occupational health and industrial hygiene measures to manage workplace exposure risks and protect employee well-being.</p>
<p><b>2. Understand fundamental chemistry concepts relevant to occupational health, including chemical classification, composition, nomenclature, chemical reactions, neutralization processes, the ideal gas law, and pH levels.</b></p>	<p>2.1. Explain fundamental chemistry concepts relevant to occupational health, including chemical classification, composition, and nomenclature.</p> <p>2.2. Identify common chemical reactions and processes that may influence workplace safety and environmental health.</p> <p>2.3. Interpret the principles of the ideal gas law and pH levels in relation to occupational exposure and chemical safety.</p> <p>2.4. Analyze the role of chemical neutralization and reaction control in managing hazardous substances.</p> <p>2.5. Apply basic chemistry principles to support safe handling, storage, and management of chemicals in workplace environments.</p>
<p><b>3. Demonstrate knowledge of human anatomy and physiology and how workplace exposures affect body systems and overall worker health.</b></p>	<p>3.1. Explain the basic structure and functions of major human body systems relevant to occupational health.</p>

	<p>3.2. Identify common workplace exposures and their potential effects on different body systems.</p> <p>3.3. Analyze how physical, chemical, biological, and ergonomic hazards can impact worker health and physiological functions.</p> <p>3.4. Evaluate the relationship between occupational exposures and the development of work-related illnesses or disorders.</p> <p>3.5. Recommend appropriate preventive measures to reduce workplace exposures and protect worker health.</p>
<p><b>4. Identify, evaluate, and control workplace exposure hazards by assessing sources, sampling techniques, exposure pathways, control strategies, symptoms, and affected target organs associated with:</b></p> <p><b>Physical hazards</b> such as noise, vibration, ionizing and non-ionizing radiation, temperature stress (heat and cold), lighting, respirable dust, and nanoscale particles.</p> <p><b>Chemical hazards</b> including asphyxiants, corrosives, irritants, sensitizers, reactive substances, carcinogens, mutagens, and teratogens.</p> <p><b>Biological hazards</b> such as viruses, bacteria, parasites, fungi, and mold.</p>	<p>4.1. Identify sources and characteristics of workplace exposure hazards, including physical, chemical, and biological agents.</p> <p>4.2. Explain exposure pathways, sampling techniques, and monitoring methods used to assess occupational exposure to hazardous agents.</p> <p>4.3. Analyze the health effects, symptoms, and target organs associated with exposure to physical, chemical, and biological hazards.</p> <p>4.4. Evaluate workplace exposure data to determine the level of risk and potential impact on worker health.</p> <p>4.5. Apply appropriate control strategies to reduce or eliminate workplace exposure hazards in accordance with occupational health and safety best practices.</p>
<p><b>5. Understand and differentiate between various occupational exposure limits (OELs), including Short-Term Exposure Limits (STEL), Time-Weighted Average (TWA), Ceiling Limits, and Immediately Dangerous to Life or Health (IDLH) levels.</b></p>	<p>5.1. Explain the concept and purpose of occupational exposure limits (OELs) in protecting worker health and safety.</p> <p>5.2. Identify the characteristics and applications of different exposure limits, including STEL, TWA, Ceiling Limits, and IDLH values.</p> <p>5.3. Differentiate between various types of exposure limits and their significance in occupational health risk assessment.</p> <p>5.4. Interpret workplace exposure data in relation to established OEL standards.</p> <p>5.5. Apply occupational exposure limits to support effective monitoring and control of hazardous workplace exposures.</p>
<p><b>6. Identify the routes of entry for hazardous</b></p>	<p>6.1. Explain the primary routes of entry through which</p>

<p><b>substances into the human body, including inhalation, ingestion, skin absorption, and injection.</b></p>	<p>hazardous substances can enter the human body.</p> <p>6.2. Identify workplace situations and exposure scenarios associated with inhalation, ingestion, skin absorption, and injection.</p> <p>6.3. Analyze the potential health effects associated with different routes of exposure to hazardous substances.</p> <p>6.4. Evaluate workplace practices and conditions that may increase the likelihood of hazardous substance exposure.</p> <p>6.5. Recommend appropriate control measures and preventive strategies to minimize exposure through different routes of entry.</p>
<p><b>7. Distinguish between acute and chronic occupational exposures and their potential health effects on workers.</b></p>	<p>7.1. Explain the concepts of acute and chronic occupational exposures and their characteristics in workplace environments.</p> <p>7.2. Identify examples of workplace hazards that may result in acute or chronic exposure.</p> <p>7.3. Analyze the potential short-term and long-term health effects associated with different types of occupational exposures.</p> <p>7.4. Evaluate workplace conditions and exposure patterns that may contribute to acute or chronic health risks.</p> <p>7.5. Recommend preventive and control measures to reduce the risk of both acute and chronic occupational exposures.</p>
<p><b>8. Apply universal precautions and infection control measures to manage biological hazards such as bloodborne pathogens and other infectious agents.</b></p>	<p>8.1. Explain the principles of universal precautions and infection control in managing biological hazards in the workplace.</p> <p>8.2. Identify common biological hazards, including bloodborne pathogens and infectious agents, that may pose risks to workers.</p> <p>8.3. Analyze workplace activities and exposure scenarios that require the implementation of infection control measures.</p> <p>8.4. Apply appropriate infection prevention and control practices, including the use of personal protective equipment (PPE) and safe handling procedures.</p> <p>8.5. Evaluate workplace infection control measures to ensure effective protection against biological hazards and compliance with health and safety guidelines.</p>

<p><b>9. Understand the principles of ionizing radiation, including radioactive decay, half-life, radiation sources, exposure concentration, and the inverse square law.</b></p>	<p>9.1. Explain the fundamental principles of ionizing radiation, including radioactive decay and types of radiation sources.</p> <p>9.2. Identify key concepts such as half-life, radiation intensity, and exposure concentration in relation to occupational radiation safety.</p> <p>9.3. Interpret the inverse square law and its significance in controlling radiation exposure in workplace environments.</p> <p>9.4. Analyze potential health risks associated with exposure to ionizing radiation.</p> <p>9.5. Apply radiation safety principles to support effective monitoring, control, and protection against radiation hazards.</p>
<p><b>10. Understand workplace requirements related to fitness for duty, occupational health assessments, and safe return-to-work programs.</b></p>	<p>10.1. Explain the principles and objectives of fitness for duty programs in maintaining workplace health and safety.</p> <p>10.2. Identify the requirements and procedures for conducting occupational health assessments and medical evaluations.</p> <p>10.3. Analyze workplace factors that influence employee fitness for duty and work capability.</p> <p>10.4. Evaluate the role of return-to-work programs in supporting worker recovery and reducing workplace injury risks.</p> <p>10.5. Recommend appropriate procedures to ensure effective implementation of fitness for duty and return-to-work management systems.</p>
<p><b>11. Define and apply the principles of Total Worker Health (TWH) to integrate occupational safety, health protection, and worker well-being initiatives.</b></p>	<p>11.1. Explain the concept and principles of Total Worker Health (TWH) and its role in promoting worker safety, health protection, and well-being.</p> <p>11.2. Identify key components of integrated workplace programs that combine occupational safety, health promotion, and employee well-being.</p> <p>11.3. Analyze workplace strategies that support the implementation of Total Worker Health initiatives.</p> <p>11.4. Evaluate the effectiveness of integrated health and safety programs in improving overall worker well-being and organizational performance.</p> <p>11.5. Apply Total Worker Health principles to develop initiatives that enhance workplace safety, health protection, and employee wellness.</p>

**ACAI0005 - 5: Ergonomics Program**

This unit provides an understanding of ergonomic principles and the development of effective ergonomics programs to improve worker safety, comfort, and productivity. It focuses on identifying ergonomic risk factors, assessing workplace tasks and environments, and implementing control measures to prevent work-related musculoskeletal disorders. The unit also examines ergonomic design, manual handling practices, and workplace interventions that support healthy work environments and reduce physical strain on workers.

Learning Outcome:	Assessment Criteria:
<p><b>1. Understand the principles, objectives, and key components of an effective ergonomics program aimed at improving worker comfort, safety, and productivity.</b></p>	<p>1.1. Explain the principles and objectives of ergonomics in promoting worker health, safety, and productivity.</p> <p>1.2. Identify common ergonomic risk factors associated with workplace tasks, equipment, and work environments.</p> <p>1.3. Analyze workplace activities to determine potential ergonomic hazards and their impact on worker comfort and performance.</p> <p>1.4. Evaluate the key components of an effective ergonomics program, including assessment, intervention, and monitoring.</p> <p>1.5. Recommend appropriate ergonomic improvements to reduce musculoskeletal risks and enhance workplace efficiency and safety.</p>
<p><b>2. Identify and evaluate major ergonomic risk factors, including repetitive motions, excessive force, awkward or static postures, and other workplace stressors such as vibration, contact pressure, poor lighting, and extreme temperature conditions.</b></p>	<p>2.1. Identify major ergonomic risk factors present in workplace tasks, including repetitive motions, excessive force, and awkward or static postures.</p> <p>2.2. Explain how environmental and workplace stressors such as vibration, contact pressure, poor lighting, and extreme temperatures contribute to ergonomic risks.</p> <p>2.3. Analyze work activities and processes to determine the potential impact of ergonomic hazards on worker health and productivity.</p> <p>2.4. Evaluate workplace conditions to assess the severity and likelihood of ergonomic-related injuries or disorders.</p> <p>2.5. Recommend appropriate ergonomic control measures to reduce risk factors and improve worker safety and comfort.</p>
<p><b>3. Define and recognize work-related musculoskeletal disorders (WMSDs) and other ergonomic injuries commonly associated with poor workplace design and repetitive tasks.</b></p>	<p>3.1. Explain the concept and characteristics of work-related musculoskeletal disorders (WMSDs) and their relevance to occupational health and safety.</p> <p>3.2. Identify common types of ergonomic injuries</p>

	<p>associated with repetitive tasks, poor workplace design, and improper work practices.</p> <p>3.3. Analyze workplace activities and conditions that contribute to the development of WMSDs.</p> <p>3.4. Evaluate the impact of ergonomic hazards on worker health, productivity, and organizational performance.</p> <p>3.5. Recommend preventive strategies and ergonomic interventions to reduce the risk of WMSDs and related workplace injuries.</p>
<p><b>4. Apply ergonomic design principles to optimize workplace layouts and equipment for various work environments, including office workstations, remote work settings, industrial assembly stations, laboratory benches, and field operations.</b></p>	<p>4.1. Explain fundamental ergonomic design principles used to improve workplace safety, comfort, and efficiency.</p> <p>4.2. Identify ergonomic requirements for different work environments, including office workstations, remote work settings, industrial stations, laboratories, and field operations.</p> <p>4.3. Analyze workplace layouts and equipment configurations to determine potential ergonomic risks and inefficiencies.</p> <p>4.4. Apply ergonomic design principles to improve workstation layout, equipment placement, and worker posture.</p> <p>4.5. Evaluate ergonomic interventions to ensure improved worker comfort, reduced injury risk, and enhanced productivity.</p>
<p><b>5. Apply ergonomic techniques and best practices for safe manual material handling, including proper lifting, carrying, pushing, and pulling methods to prevent workplace injuries.</b></p>	<p>5.1. Explain the principles of safe manual material handling and their importance in preventing workplace injuries.</p> <p>5.2. Identify common risk factors associated with manual handling tasks such as lifting, carrying, pushing, and pulling.</p> <p>5.3. Analyze workplace tasks to determine ergonomic risks related to manual material handling activities.</p> <p>5.4. Apply appropriate ergonomic techniques and safe handling practices to reduce physical strain and injury risks.</p> <p>5.5. Evaluate manual handling procedures and recommend improvements to enhance worker safety and efficiency.</p>
<p><b>6. Identify and implement ergonomic control measures and work practice improvements, such</b></p>	<p>6.1. Explain the purpose and importance of ergonomic control measures in preventing work-related</p>

<p>as job rotation, early symptom reporting, engineering controls, and assistive technologies including exoskeleton systems.</p>	<p>injuries and improving workplace safety.</p> <p>6.2. Identify appropriate ergonomic interventions, including job rotation, early symptom reporting systems, and engineering controls.</p> <p>6.3. Analyze workplace tasks and processes to determine suitable ergonomic improvements and assistive technologies.</p> <p>6.4. Apply ergonomic control measures and work practice improvements to reduce physical strain and musculoskeletal risks.</p> <p>6.5. Evaluate the effectiveness of ergonomic interventions, including assistive technologies such as exoskeleton systems, in enhancing worker safety and productivity.</p>
<p>7. Utilize qualitative and quantitative ergonomic assessment methods such as the NIOSH Lifting Equation, anthropometric analysis, Rapid Entire Body Assessment (REBA), and Rapid Upper Limb Assessment (RULA) to evaluate workplace ergonomics and recommend improvements.</p>	<p>7.1. Explain the principles and applications of qualitative and quantitative ergonomic assessment methods used in workplace analysis.</p> <p>7.2. Identify appropriate ergonomic assessment tools such as the NIOSH Lifting Equation, anthropometric analysis, REBA, and RULA for evaluating work tasks.</p> <p>7.3. Apply ergonomic assessment techniques to analyze workplace postures, manual handling activities, and task design.</p> <p>7.4. Interpret assessment results to determine the level of ergonomic risk and potential health impacts.</p> <p>7.5. Recommend ergonomic improvements based on assessment findings to enhance worker safety, comfort, and productivity.</p>

**ACAI0005 - 6: Fire Safety Management**

This unit provides a comprehensive understanding of fire safety principles and the management of fire risks in workplace environments. It covers fire science, fire hazard identification, prevention strategies, and the selection and use of fire detection and suppression systems. The unit also examines safe handling of flammable materials, fire emergency procedures, and fire protection measures to support effective fire risk management and ensure workplace safety and regulatory compliance.

Learning Outcome:	Assessment Criteria:
<p><b>1. Understand the fundamental principles of fire science, including fire classification, combustion processes, and the fire triangle, tetrahedron, and pentagon, as well as upper and lower flammable/explosive limits.</b></p>	<p>1.1. Explain the fundamental principles of fire science, including combustion processes and the conditions required for fire ignition and propagation.</p> <p>1.2. Identify different classes of fire and their associated fuel sources and hazards.</p> <p>1.3. Describe the components of the fire triangle, fire tetrahedron, and fire pentagon and their roles in sustaining combustion.</p> <p>1.4. Interpret the concepts of upper and lower flammable or explosive limits in relation to fire and explosion hazards.</p> <p>1.5. Apply fire science principles to support effective fire prevention and hazard control strategies in workplace environments.</p>
<p><b>2. Identify the properties and hazards of flammable and combustible substances, including their chemical and physical characteristics, safe handling procedures, and compatibility considerations.</b></p>	<p>2.1. Explain the chemical and physical properties of flammable and combustible substances relevant to fire and explosion hazards.</p> <p>2.2. Identify potential risks associated with the storage, handling, and use of flammable and combustible materials.</p> <p>2.3. Analyze compatibility considerations and interactions between different hazardous substances.</p> <p>2.4. Evaluate workplace procedures for the safe handling, storage, and transportation of flammable and combustible materials.</p> <p>2.5. Recommend appropriate control measures to reduce fire and explosion risks associated with flammable and combustible substances.</p>
<p><b>3. Recognize electrical fire hazards and apply appropriate control measures, including electrostatic discharge protection, overcurrent protection, arc flash prevention, grounding and bonding, ground fault circuit interrupters (GFCIs), and hazardous area classifications such</b></p>	<p>3.1. Explain the causes and characteristics of electrical fire hazards in workplace environments.</p> <p>3.2. Identify potential electrical risks associated with electrostatic discharge, overcurrent, arc flash, and improper grounding or bonding.</p> <p>3.3. Analyze the role of electrical protection systems</p>

<p>as those defined by NFPA standards.</p>	<p>such as overcurrent protection devices and ground fault circuit interrupters (GFCIs) in preventing electrical fires.</p> <p>3.4. Evaluate workplace conditions and equipment to determine compliance with electrical safety and hazardous area classification requirements.</p> <p>3.5. Apply appropriate electrical safety control measures to minimize fire and explosion risks in accordance with recognized safety standards.</p>
<p><b>4. Evaluate fire risks associated with hot work activities such as welding, cutting, and grinding, and implement appropriate fire prevention and control measures.</b></p>	<p>4.1. Explain the hazards and fire risks associated with hot work activities, including welding, cutting, and grinding operations.</p> <p>4.2. Identify workplace conditions and materials that may increase the risk of fire during hot work processes.</p> <p>4.3. Analyze hot work procedures to determine potential ignition sources and associated fire hazards.</p> <p>4.4. Apply appropriate fire prevention measures, including hot work permits, fire watches, and hazard controls.</p> <p>4.5. Evaluate the effectiveness of fire safety procedures to ensure safe execution of hot work activities and compliance with safety standards.</p>
<p><b>5. Identify hazards associated with combustible dust, including potential ignition sources and explosion risks in industrial environments.</b></p>	<p>5.1. Explain the characteristics and formation of combustible dust and its potential hazards in industrial environments.</p> <p>5.2. Identify common materials and processes that may generate combustible dust in workplace settings.</p> <p>5.3. Analyze potential ignition sources and conditions that may lead to combustible dust fires or explosions.</p> <p>5.4. Evaluate workplace environments to determine the presence and level of combustible dust hazards.</p> <p>5.5. Recommend appropriate prevention and control measures to reduce combustible dust risks and ensure safe industrial operations.</p>
<p><b>6. Understand the principles, operation, and application of fire detection systems, including smoke detectors, heat detectors, and alarm systems.</b></p>	<p>6.1. Explain the principles and functions of fire detection systems used in workplace fire safety management.</p> <p>6.2. Identify different types of fire detection devices,</p>

	<p>including smoke detectors, heat detectors, and fire alarm systems.</p> <p>6.3. Analyze the operating mechanisms and applications of fire detection systems in various workplace environments.</p> <p>6.4. Evaluate the effectiveness of fire detection and alarm systems in early fire detection and emergency response.</p> <p>6.5. Recommend appropriate fire detection solutions to enhance fire safety and protection within organizational facilities.</p>
<p><b>7. Understand various fire suppression systems, such as sprinkler systems, foam systems, gas suppression systems, and other fire control technologies.</b></p>	<p>7.1. Explain the principles and functions of different fire suppression systems used in fire protection.</p> <p>7.2. Identify common types of fire suppression systems, including sprinkler systems, foam systems, gas suppression systems, and other fire control technologies.</p> <p>7.3. Analyze the operating mechanisms and appropriate applications of various fire suppression systems in different environments.</p> <p>7.4. Evaluate the effectiveness and limitations of different fire suppression technologies in controlling fire hazards.</p> <p>7.5. Recommend suitable fire suppression systems based on the nature of fire risks and workplace conditions.</p>
<p><b>8. Identify different types of fire extinguishers, their appropriate applications, and operational requirements for effective emergency response.</b></p>	<p>8.1. Explain the purpose and operating principles of portable fire extinguishers in fire emergency response.</p> <p>8.2. Identify different types of fire extinguishers and the classes of fires for which they are suitable.</p> <p>8.3. Analyze workplace fire scenarios to determine the appropriate type of fire extinguisher required.</p> <p>8.4. Apply proper operational procedures for the safe and effective use of fire extinguishers during emergencies.</p> <p>8.5. Evaluate workplace fire safety arrangements to ensure the correct selection, placement, and maintenance of fire extinguishers.</p>
<p><b>9. Understand proper segregation and storage requirements for flammable and hazardous materials, including safe storage practices and ventilation controls.</b></p>	<p>9.1. Explain the principles and importance of proper segregation and storage of flammable and hazardous materials.</p> <p>9.2. Identify compatibility considerations and</p>

	<p>segregation requirements for different classes of hazardous substances.</p> <p>9.3. Analyze workplace storage conditions to determine potential risks associated with improper storage or inadequate ventilation.</p> <p>9.4. Evaluate storage facilities and ventilation systems to ensure compliance with recognized safety standards and best practices.</p> <p>9.5. Recommend appropriate storage and handling procedures to minimize fire, explosion, and health hazards associated with flammable and hazardous materials.</p>
<p><b>10. Apply effective housekeeping practices to minimize fire risks, including proper dust management, waste disposal, and removal of combustible materials.</b></p>	<p>10.1. Explain the role of workplace housekeeping in preventing fire hazards and maintaining safe working environments.</p> <p>10.2. Identify common housekeeping deficiencies that may contribute to increased fire risks, including dust accumulation and improper waste management.</p> <p>10.3. Analyze workplace conditions to determine areas where combustible materials or poor housekeeping practices may pose fire hazards.</p> <p>10.4. Apply appropriate housekeeping practices, including proper dust control, waste disposal, and removal of combustible materials.</p> <p>10.5. Evaluate housekeeping procedures to ensure they effectively reduce fire risks and support overall workplace safety.</p>
<p><b>11. Select and implement appropriate fire safety signs, labels, and warning systems to support fire prevention and emergency preparedness in the workplace.</b></p>	<p>11.1. Explain the purpose and importance of fire safety signs, labels, and warning systems in workplace fire prevention and emergency response.</p> <p>11.2. Identify different types of fire safety signage and labeling used to communicate fire hazards, equipment locations, and emergency procedures.</p> <p>11.3. Analyze workplace environments to determine appropriate locations and requirements for fire safety signs and warning systems.</p> <p>11.4. Apply relevant standards and guidelines when selecting and implementing fire safety signage and labeling.</p> <p>11.5. Evaluate the effectiveness of fire safety communication systems in supporting fire prevention and emergency preparedness.</p>

**ACAI0005 - 7: Workplace Emergency Management**

This unit provides an understanding of the principles and practices of workplace emergency management, focusing on emergency preparedness, response, and recovery strategies. It examines risk assessment for potential emergencies, development of emergency response plans, evacuation procedures, crisis communication, and coordination during incidents. The unit also addresses disaster management frameworks, business continuity planning, and measures to enhance organizational resilience and effective emergency response.

<b>Learning Outcome:</b>	<b>Assessment Criteria:</b>
<p><b>1. Develop an understanding of the structure and essential components of an effective workplace emergency response plan, including preparedness, response, communication, and recovery strategies.</b></p>	<p>1.1. Explain the purpose and key principles of workplace emergency response planning.</p> <p>1.2. Identify the essential components of an effective emergency response plan, including preparedness, response procedures, communication systems, and recovery strategies.</p> <p>1.3. Analyze potential workplace emergencies to determine appropriate response and preparedness measures.</p> <p>1.4. Evaluate the effectiveness of emergency communication and coordination systems during incident response.</p> <p>1.5. Recommend improvements to strengthen emergency preparedness, response capabilities, and post-incident recovery processes.</p>
<p><b>2. Identify and assess risks associated with different sources of emergencies and disasters, including natural hazards (earthquakes, floods, storms), human-caused incidents (fires, industrial accidents, terrorism), and biological threats such as pandemics and bioterrorism.</b></p>	<p>2.1. Explain the different types of emergencies and disasters, including natural, human-caused, and biological threats.</p> <p>2.2. Identify potential hazards and risk factors associated with various emergency and disaster scenarios.</p> <p>2.3. Analyze the potential impacts of emergencies and disasters on workplace safety, operations, and public health.</p> <p>2.4. Evaluate workplace vulnerability and preparedness in relation to different emergency situations.</p> <p>2.5. Recommend appropriate risk mitigation and preparedness strategies to manage emergency and disaster-related risks.</p>
<p><b>3. Understand the key elements of emergency preparedness, including evacuation procedures, emergency drills and exercises, workplace security measures, life safety systems, and provision of first aid and medical response.</b></p>	<p>3.1. Explain the principles and objectives of emergency preparedness in ensuring workplace safety and effective incident response.</p> <p>3.2. Identify essential components of emergency preparedness programs, including evacuation</p>

	<p>procedures, drills, security measures, and life safety systems.</p> <p>3.3. Analyze workplace emergency plans to determine the adequacy of preparedness measures and response capabilities.</p> <p>3.4. Evaluate the effectiveness of emergency drills, training programs, and first aid provisions in supporting emergency response.</p> <p>3.5. Recommend improvements to strengthen emergency preparedness, response coordination, and medical support systems in the workplace.</p>
<p><b>4. Identify and implement the core principles of disaster response and recovery, including the Incident Command System (ICS), emergency coordination, crisis communication, and business continuity planning.</b></p>	<p>4.1. Explain the principles and structure of disaster response and recovery frameworks, including the Incident Command System (ICS).</p> <p>4.2. Identify key roles and responsibilities involved in emergency coordination and disaster management.</p> <p>4.3. Analyze the importance of effective crisis communication and coordination during emergency situations.</p> <p>4.4. Apply disaster response procedures and business continuity strategies to maintain essential organizational functions.</p> <p>4.5. Evaluate disaster response and recovery plans to ensure effective coordination, resilience, and operational continuity.</p>
<p><b>5. Recognize and apply the key components of a workplace violence prevention program, including risk assessment, reporting mechanisms, employee awareness, and response procedures.</b></p>	<p>5.1. Explain the concept and types of workplace violence and their potential impact on employee safety and organizational operations.</p> <p>5.2. Identify risk factors and warning signs associated with workplace violence incidents.</p> <p>5.3. Analyze workplace environments to determine vulnerabilities and risks related to violence or security threats.</p> <p>5.4. Apply workplace violence prevention measures, including reporting procedures, employee awareness programs, and response protocols.</p> <p>5.5. Evaluate the effectiveness of workplace violence prevention programs in improving organizational safety and security.</p>
<p><b>6. Understand safety risks and protection strategies for lone workers, including monitoring</b></p>	<p>6.1. Explain the concept of lone working and the associated health and safety risks in isolated work</p>

<p><b>systems, communication protocols, and emergency support measures to ensure worker safety in isolated work environments.</b></p>	<p>environments.</p> <p>6.2. Identify workplace situations and tasks that may require employees to work alone.</p> <p>6.3. Analyze potential hazards and risks faced by lone workers in different occupational settings.</p> <p>6.4. Apply appropriate protection strategies, including monitoring systems, communication protocols, and emergency response measures.</p> <p>6.5. Evaluate workplace policies and procedures to ensure effective protection and support for lone workers.</p>
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**ACAI0005 - 8: Professional Development and Communication at Workplace**

This unit focuses on the development of professional competencies and effective communication skills required for successful workplace performance. It examines professional ethics, leadership, teamwork, and interpersonal communication within organizational environments. The unit also emphasizes professional responsibility, decision-making, stakeholder engagement, and continuous professional development to support effective collaboration, organizational effectiveness, and professional growth.

<b>Learning Outcome:</b>	<b>Assessment Criteria:</b>
<p><b>1. Apply appropriate learning theories and instructional techniques to design and deliver effective workplace training and professional development programs.</b></p>	<p>1.1 Explain key learning theories and instructional principles relevant to workplace training and adult learning</p> <p>1.2 Identify appropriate instructional methods and training strategies for different workplace learning environments.</p> <p>1.3 Design structured training programs that address organizational learning needs and professional development objectives.</p> <p>1.4 Apply effective training delivery techniques to enhance learner engagement and knowledge transfer.</p> <p>1.5 Evaluate the effectiveness of training programs using appropriate assessment and feedback methods.</p>
<p><b>2. Utilize a variety of training methods and tools, including instructor-led training, computer-based learning, group workshops, and virtual or online training platforms.</b></p>	<p>2.1 Explain the characteristics and advantages of different workplace training methods, including instructor-led, computer-based, and virtual learning approaches.</p> <p>2.2 Identify appropriate training tools and platforms to support effective knowledge delivery and learner engagement.</p> <p>2.3 Apply suitable training methods to address diverse learning needs and workplace training objectives.</p> <p>2.4 Evaluate the effectiveness of various training approaches in improving learning outcomes and workplace performance.</p> <p>2.5 Integrate multiple training methods and digital tools to deliver comprehensive and accessible training programs.</p>
<p><b>3. Promote and support a positive safety culture through open communication, constructive feedback, psychological safety, emotional intelligence, and strong leadership engagement.</b></p>	<p>3.1 Explain the concept and importance of safety culture in promoting effective occupational health and safety management.</p> <p>3.2 Identify key factors that contribute to a positive safety culture, including communication,</p>

	<p>leadership commitment, and employee engagement.</p> <p>3.3 Analyze the role of psychological safety, emotional intelligence, and constructive feedback in encouraging safe workplace behaviors.</p> <p>3.4 Evaluate organizational practices and leadership approaches that influence workplace safety culture.</p> <p>3.5 Develop strategies to strengthen safety culture through effective communication, leadership involvement, and employee participation.</p>
<p><b>4. Conduct effective data collection, training needs assessments, gap analysis, and feedback evaluation to identify organizational learning requirements.</b></p>	<p>4.1 Explain the principles and methods used in data collection and training needs assessment within organizational learning environments.</p> <p>4.2 Identify organizational performance gaps through systematic analysis of workplace data and feedback.</p> <p>4.3 Apply appropriate techniques to conduct training needs assessments and gap analysis.</p> <p>4.4 Analyze collected data and feedback to determine organizational learning and development requirements.</p> <p>4.5 Recommend targeted training and development initiatives to address identified learning needs and performance gaps.</p>
<p><b>5. Establish baseline competency standards to determine employee training needs and ensure compliance with workplace safety and professional development requirements.</b></p>	<p>5.1 Explain the concept and importance of competency standards in workplace training and professional development.</p> <p>5.2 Identify key competencies required for employees to perform tasks safely and effectively in accordance with organizational and regulatory requirements.</p> <p>5.3 Analyze existing workforce skills and performance levels to determine competency gaps.</p> <p>5.4 Develop baseline competency frameworks to support training needs assessment and workforce development.</p> <p>5.5 Evaluate competency assessment outcomes to ensure compliance with workplace safety standards and professional development objectives.</p>
<p><b>6. Evaluate training effectiveness and knowledge</b></p>	<p>6.1 Explain the principles and importance of evaluating</p>

<p>retention using appropriate assessment methods, performance monitoring, and continuous improvement strategies.</p>	<p>training effectiveness in workplace learning and development.</p> <p>6.2 Identify appropriate assessment methods to measure knowledge acquisition and learner performance.</p> <p>6.3 Analyze training outcomes using performance monitoring and feedback mechanisms.</p> <p>6.4 Evaluate the level of knowledge retention and skill application following training programs.</p> <p>6.5 Recommend continuous improvement strategies to enhance training effectiveness and organizational learning outcomes.</p>
<p><b>7. Understand and identify human factors that influence workplace performance, including behavior, decision-making processes, situational awareness, workload management, risk perception, and stress management.</b></p>	<p>7.1 Explain the concept of human factors and their importance in occupational health and safety management.</p> <p>7.2 Identify key human factors that influence workplace performance, including behavior, decision-making, situational awareness, workload, and risk perception.</p> <p>7.3 Analyze how stress, fatigue, and workload management can affect employee performance and safety outcomes.</p> <p>7.4 Evaluate workplace conditions and organizational practices that contribute to human factor-related risks.</p> <p>7.5 Recommend strategies to manage human factors and improve safe decision-making and workplace performance.</p>
<p><b>8. Understand the differences between competent and qualified persons, including their roles, responsibilities, and regulatory requirements within workplace safety and operational environments.</b></p>	<p>8.1 Explain the concepts of competent and qualified persons within occupational health and safety management.</p> <p>8.2 Identify the roles and responsibilities associated with competent and qualified persons in workplace safety and operational activities.</p> <p>8.3 Differentiate between competency and qualification requirements based on regulatory and professional standards.</p> <p>8.4 Analyze workplace scenarios to determine when a competent or qualified person is required to perform specific safety-related tasks.</p> <p>8.5 Evaluate organizational practices to ensure appropriate designation of competent and qualified persons in accordance with regulatory requirements.</p>

**ACAI0005 - 9: Applied Mathematics for Safety Professionals**

This unit provides foundational mathematical knowledge and analytical skills required for occupational health, safety, and environmental professionals. It focuses on the application of mathematical concepts such as basic algebra, statistics, probability, and quantitative analysis to safety management, risk assessment, exposure calculations, and performance measurement. The unit equips learners with the ability to interpret safety data, perform calculations related to workplace hazards, and support evidence-based decision-making in health and safety management.

Learning Outcome:	Assessment Criteria:
<p><b>1. Apply mathematical principles to calculate storage capacity, load limits, and safe material storage requirements in industrial environments.</b></p>	<p>1.1. Explain the mathematical principles relevant to calculating storage capacity, load distribution, and safe material handling in industrial environments.</p> <p>1.2. Identify key variables and measurements required to determine safe load limits and storage capacities.</p> <p>1.3. Apply appropriate mathematical calculations to determine storage capacity and material load limits in workplace settings.</p> <p>1.4. Analyze calculated results to ensure compliance with safety standards and operational requirements.</p> <p>1.5. Evaluate storage arrangements and load calculations to ensure safe and efficient material storage practices.</p>
<p><b>2. Perform rigging calculations and load analysis to ensure safe lifting operations and prevent structural or equipment failures.</b></p>	<p>2.1. Explain the fundamental principles of rigging, load distribution, and lifting safety in industrial operations.</p> <p>2.2. Identify key factors influencing rigging calculations, including load weight, center of gravity, sling angles, and equipment capacity.</p> <p>2.3. Apply appropriate mathematical methods to calculate load forces, sling tensions, and lifting capacities.</p> <p>2.4. Analyze lifting plans and rigging configurations to ensure safe load handling and stability during lifting operations.</p> <p>2.5. Evaluate rigging calculations and lifting procedures to prevent structural failures and ensure compliance with safety standards.</p>
<p><b>3. Calculate flow rates and system capacities for ventilation, hydraulic, and pneumatic systems to maintain safe operational conditions.</b></p>	<p>3.1. Explain the principles of fluid flow, pressure, and system capacity relevant to ventilation, hydraulic, and pneumatic systems.</p>

	<p>3.2. Identify key parameters required for calculating flow rates and system capacities, including pressure, velocity, volume, and pipe or duct dimensions.</p> <p>3.3. Apply appropriate mathematical formulas to calculate flow rates and capacity requirements for ventilation and fluid power systems.</p> <p>3.4. Analyze system performance data to ensure adequate airflow, pressure control, and operational safety.</p> <p>3.5. Evaluate calculated system capacities to ensure compliance with safety standards and effective operational performance.</p>
<p><b>4. Determine safe slope angles and depth ratios for trenching and excavation activities to prevent collapse and ensure structural stability.</b></p>	<p>4.1. Explain the principles of soil mechanics and excavation safety relevant to trenching and slope stability.</p> <p>4.2. Identify factors influencing trench stability, including soil type, depth, moisture content, and external loads.</p> <p>4.3. Apply appropriate calculations and regulatory guidelines to determine safe slope angles and depth ratios for excavation work.</p> <p>4.4. Analyze excavation plans and site conditions to assess the risk of trench collapse or ground failure.</p> <p>4.5. Evaluate trenching and excavation practices to ensure compliance with safety standards and effective collapse prevention measures.</p>
<p><b>5. Evaluate occupational noise exposure levels, including Time-Weighted Average (TWA), combined machinery noise effects, and noise reduction ratings (NRR).</b></p>	<p>5.1. Explain the principles of occupational noise exposure assessment, including Time-Weighted Average (TWA), combined noise exposure, and Noise Reduction Rating (NRR).</p> <p>5.2. Identify workplace sources of noise and factors contributing to cumulative noise exposure.</p> <p>5.3. Apply appropriate calculations to determine TWA noise exposure and the combined effects of multiple noise sources.</p> <p>5.4. Analyze noise monitoring data to assess potential risks to worker hearing and compliance with occupational exposure limits.</p> <p>5.5. Evaluate the effectiveness of hearing protection devices and noise control measures using Noise Reduction Ratings (NRR) and other relevant</p>

	criteria.
<b>6. Calculate environmental and climatic conditions affecting worker safety, such as ambient temperature, heat index, and wind chill factors.</b>	<p>6.1. Explain the principles of environmental and climatic factors that influence occupational health and worker safety.</p> <p>6.2. Identify key variables used in calculating ambient temperature effects, heat index, and wind chill factors.</p> <p>6.3. Apply appropriate formulas and measurement techniques to calculate heat stress and cold stress conditions in workplace environments.</p> <p>6.4. Analyze climatic data to assess potential risks to workers exposed to extreme temperatures.</p> <p>6.5. Evaluate environmental monitoring results to recommend appropriate control measures for protecting workers from heat and cold stress.</p>
<b>7. Analyze fall protection system parameters, including free-fall distance, maximum arresting force, impact forces, total fall distance, and required clearance.</b>	<p>7.1. Explain the principles of fall protection systems and the factors influencing fall distance and arresting forces.</p> <p>7.2. Identify key parameters involved in fall protection analysis, including free-fall distance, deceleration distance, arresting force, and clearance requirements.</p> <p>7.3. Apply appropriate calculations to determine total fall distance and system clearance requirements.</p> <p>7.4. Analyze fall protection system configurations to ensure safe fall arrest performance and compliance with safety standards.</p> <p>7.5. Evaluate fall protection measures to ensure adequate protection against fall-related hazards and prevention of injury.</p>
<b>8. Compute workplace safety performance indicators, including incident rates, lost-time injury rates, and direct costs associated with workplace incidents.</b>	<p>8.1. Explain the purpose and importance of workplace safety performance indicators in monitoring occupational health and safety performance.</p> <p>8.2. Identify key data required to calculate safety performance metrics, including incident frequency, lost-time injuries, and associated costs.</p> <p>8.3. Apply appropriate formulas to compute incident rates, lost-time injury rates, and direct costs related to workplace incidents.</p> <p>8.4. Analyze calculated safety performance indicators to identify trends and areas requiring</p>

	<p>improvement.</p> <p>8.5. Evaluate safety performance data to support decision-making and enhance organizational health and safety management systems.</p>
<p><b>9. Apply the NIOSH Lifting Equation to assess safe manual material handling limits and prevent musculoskeletal injuries.</b></p>	<p>9.1. Explain the principles and purpose of the NIOSH Lifting Equation in evaluating manual material handling tasks.</p> <p>9.2. Identify key variables used in the NIOSH Lifting Equation, including load weight, horizontal and vertical location, lifting distance, frequency, and coupling factors.</p> <p>9.3. Apply the NIOSH Lifting Equation to calculate the Recommended Weight Limit (RWL) for manual lifting tasks.</p> <p>9.4. Analyze lifting task conditions to determine the Lifting Index (LI) and associated risk of musculoskeletal injury.</p> <p>9.5. Recommend ergonomic improvements and control measures to reduce lifting risks and improve worker safety.</p>
<p><b>10. Perform basic physics calculations relevant to safety engineering, including force, velocity, acceleration, momentum, and friction.</b></p>	<p>10.1. Explain the fundamental physics principles relevant to safety engineering, including force, velocity, acceleration, momentum, and friction.</p> <p>10.2. Identify key variables and units used in physics calculations related to workplace safety and engineering systems.</p> <p>10.3. Apply appropriate mathematical formulas to calculate forces, motion parameters, and frictional effects in safety-related scenarios.</p> <p>10.4. Analyze calculation results to assess potential safety risks in mechanical systems and workplace operations.</p> <p>10.5. Evaluate engineering conditions and recommend safety measures based on physics-based analysis of forces and motion.</p>
<p><b>11. Apply statistical analysis methods, including measures of central tendency, variability, probability, and standard deviation for safety data analysis.</b></p>	<p>11.1. Explain the fundamental statistical concepts used in safety data analysis, including measures of central tendency, variability, and probability.</p> <p>11.2. Identify appropriate statistical methods for analyzing occupational health and safety data.</p> <p>11.3. Apply statistical calculations such as mean, median, range, variance, and standard deviation</p>

	<p>to safety-related datasets.</p> <p>11.4. Analyze statistical results to identify trends, patterns, and potential risk indicators in workplace safety performance.</p> <p>11.5. Evaluate statistical findings to support data-driven decision-making and improvements in occupational health and safety management.</p>
<p><b>12. Evaluate the probability of failure modes and risk levels in engineering and safety systems.</b></p>	<p>12.1. Explain the principles of probability and risk assessment in relation to engineering and safety systems.</p> <p>12.2. Identify potential failure modes and associated risk factors within engineering processes and safety-critical systems.</p> <p>12.3. Apply probability analysis methods to estimate the likelihood of system failures and hazardous events.</p> <p>12.4. Analyze the relationship between failure probability, severity of consequences, and overall risk levels.</p> <p>12.5. Evaluate risk assessment outcomes to recommend appropriate control measures and risk mitigation strategies.</p>
<p><b>13. Conduct financial and risk-related calculations, including cost-benefit analysis, cost of risk, lifecycle cost evaluation, and return on investment (ROI) for safety interventions.</b></p>	<p>13.1. Explain the principles of financial evaluation and risk-related cost analysis in occupational health and safety management.</p> <p>13.2. Identify key cost components associated with workplace risks, safety interventions, and incident prevention measures.</p> <p>13.3. Apply financial calculation methods such as cost-benefit analysis, cost of risk assessment, lifecycle cost evaluation, and return on investment (ROI).</p> <p>13.4. Analyze financial data to determine the economic feasibility and effectiveness of safety interventions.</p> <p>13.5. Evaluate financial and risk analysis outcomes to support strategic decision-making and investment in workplace safety improvements.</p>
<p><b>14. Perform occupational exposure assessments for biological and chemical hazards using standards such as Threshold Limit Values (TLV), Short-Term Exposure Limits (STEL), and Time-Weighted</b></p>	<p>14.1. Explain the principles of occupational exposure assessment and the role of exposure limits in protecting worker health.</p> <p>14.2. Identify relevant exposure standards, including</p>

<p><b>Averages (TWA).</b></p>	<p>TLV, STEL, and TWA, used in evaluating workplace chemical and biological hazards.</p> <p>14.3. Apply appropriate monitoring and calculation methods to determine worker exposure levels.</p> <p>14.4. Analyze exposure assessment data to determine compliance with established occupational exposure limits.</p> <p>14.5. Evaluate assessment results to recommend appropriate control measures for reducing hazardous exposures in the workplace.</p>
<p><b>15. Calculate radiation exposure parameters, including shielding effectiveness, half-life, and dosage levels.</b></p>	<p>15.1. Explain the fundamental principles of radiation exposure, including radioactive decay, half-life, and radiation dose measurement.</p> <p>15.2. Identify key variables used in radiation calculations, such as exposure time, source strength, distance, and shielding materials.</p> <p>15.3. Apply appropriate formulas to calculate radiation half-life, exposure levels, and shielding effectiveness.</p> <p>15.4. Analyze radiation exposure data to assess potential health risks and compliance with radiation safety standards.</p> <p>15.5. Evaluate radiation protection measures and recommend appropriate shielding and control strategies to minimize exposure.</p>
<p><b>16. Perform accurate unit conversions between metric and imperial measurement systems for engineering and safety calculations.</b></p>	<p>16.1. Explain the principles and importance of unit conversion in engineering and safety-related calculations.</p> <p>16.2. Identify commonly used metric and imperial units relevant to occupational health, safety, and engineering practices.</p> <p>16.3. Apply appropriate conversion factors to convert measurements between metric and imperial systems.</p> <p>16.4. Analyze converted values to ensure accuracy and consistency in safety calculations and technical documentation.</p> <p>16.5. Evaluate measurement results to support accurate engineering analysis and safe operational decision-making.</p>

**ACAI0005 - 10: Capstone Research in Occupational Health and Safety Management**

This unit provides learners with the opportunity to conduct independent research on advanced topics in occupational health and safety management. It focuses on the application of research methodologies, critical analysis, and evidence-based approaches to investigate complex workplace safety challenges. Learners will develop a research proposal, conduct literature reviews, collect and analyze data, and present findings that contribute to the improvement of occupational health and safety practices and organizational safety performance.

Learning Outcome:	Assessment Criteria:
<p><b>1. Conduct independent and in-depth research on contemporary challenges and emerging trends in Occupational Health and Safety (OHS) management, contributing to professional practice and academic knowledge.</b></p>	<p>1.1. Identify contemporary challenges and emerging trends influencing occupational health and safety management at national and international levels.</p> <p>1.2. Critically analyze scholarly literature, regulatory developments, and industry reports related to modern OHS issues such as technological advancements, changing work patterns, and emerging workplace hazards.</p> <p>1.3. Apply appropriate research methodologies to investigate complex occupational health and safety problems.</p> <p>1.4. Evaluate research findings to determine their implications for professional practice, policy development, and workplace safety management.</p> <p>1.5. Present well-structured research outcomes and evidence-based recommendations that contribute to academic knowledge and the advancement of OHS practices.</p>
<p><b>2. Apply advanced research methodologies, data analysis techniques, and critical evaluation skills to investigate complex workplace safety and environmental management issues.</b></p>	<p>2.1. Explain advanced research methodologies and analytical approaches used in occupational health, safety, and environmental management research.</p> <p>2.2. Select appropriate research designs, data collection methods, and analytical tools to investigate complex workplace safety issues.</p> <p>2.3. Apply quantitative and qualitative data analysis techniques to interpret research findings related to safety and environmental management.</p> <p>2.4. Critically evaluate research data, methodologies, and outcomes to determine the reliability and validity of findings.</p> <p>2.5. Formulate evidence-based conclusions and recommendations to address complex workplace safety and environmental challenges.</p>
<p><b>3. Demonstrate knowledge of human anatomy and physiology and how workplace exposures affect</b></p>	<p>3.1. Explain the basic structure and functions of major human body systems relevant to occupational</p>

<p><b>body systems and overall worker health.</b></p>	<p>health.</p> <p>3.2. Identify common workplace exposures and their potential effects on different body systems.</p> <p>3.3. Analyze how physical, chemical, biological, and ergonomic hazards can impact worker health and physiological functions.</p> <p>3.4. Evaluate the relationship between occupational exposures and the development of work-related illnesses or disorders.</p> <p>3.5. Recommend appropriate preventive measures to reduce workplace exposures and protect worker health.</p>
<p><b>4. Develop a structured research proposal, perform a comprehensive literature review, and carry out systematic data collection, interpretation, and analysis using appropriate research methods.</b></p>	<p>4.1. Develop a structured research proposal that clearly defines research objectives, research questions, scope, and methodology.</p> <p>4.2. Conduct a comprehensive literature review to critically examine existing research and identify knowledge gaps related to the selected topic.</p> <p>4.3. Design appropriate data collection strategies using qualitative, quantitative, or mixed research methods.</p> <p>4.4. Apply systematic techniques for data collection, interpretation, and analysis to ensure research accuracy and validity.</p> <p>4.5. Evaluate research findings to produce evidence-based conclusions and recommendations relevant to occupational health, safety, and environmental management.</p>
<p><b>5. Present and defend research findings, conclusions, and practical recommendations in a clear, professional, and evidence-based manner, demonstrating advanced expertise in occupational health and safety management.</b></p>	<p>5.1. Organize and present research findings in a clear, structured, and professionally formatted report or presentation.</p> <p>5.2. Interpret research results and link findings to relevant occupational health and safety theories, standards, and professional practices.</p> <p>5.3. Develop evidence-based conclusions and practical recommendations to address identified workplace safety and environmental management issues.</p> <p>5.4. Defend research methodology, analysis, and conclusions through critical discussion and professional justification.</p> <p>5.5. Demonstrate advanced knowledge and professional competence in occupational health and safety management through effective communication of research outcomes.</p>

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