

Undergraduate Diploma in Occupational Health and Safety Intake October 2025 March 2026

Assessment Task: One written assignment based on chosen questions	
Module: <i>Managing Occupational Health Risks</i>	Tuition Centre: 21 Academy Licence Number: 2018-017
Level: MQF Level 5	Student Name:
Date:	ID Number:
Assignment Deadline: 29 October 2026	
<p>Task</p> <p>This assignment aims to assess your understanding of <i>Occupational Health Risks</i> and your ability to apply effective risk control measures. Through the questions provided, you will analyse common <i>Managing Occupational Health Risks</i> and demonstrate your knowledge of health and safety regulations.</p> <p><i>You should plan to spend approximately 30 hours researching the assignment question, preparing for, and writing the assignment for assessment. The nominal word count for the assignment is 2,400 words.</i></p> <p><i>Please ensure that you refer to 21 Academy's Assignment Guidelines for comprehensive information regarding the submission of your assignment. Additionally, the assignment submission form must be included with your completed work, clearly indicating which question you have chosen to answer by ticking the box next to the question number.</i></p>	
<p>Answer 1 (one) question from the following:</p> <div style="margin-bottom: 10px;"> ☐ Question 1: The Grand Artisan Bakery & Culinary Facility </div> <p>You are an occupational health advisor for Grand Artisan Foods, a high-volume commercial bakery and gourmet catering facility supplying elite hotels and supermarkets.</p> <p>During a recent public health inspection, authorities confirmed an outbreak of Occupational Asthma and allergic rhinitis among several bakers due to chronic high exposure to airborne flour dust. The investigation revealed that local exhaust ventilation (LEV) in the mixing room had been turned off to cut energy costs, and routine air monitoring was never conducted.</p> <p>The investigation exposed several deeper operational issues:</p> <ul style="list-style-type: none"> Production Line Staff: Workers on the packaging and decorating lines report high rates of wrist, elbow, and shoulder pain from fast-paced, repetitive piping, slicing, and manual box-packing. Sanitation & Cleaning Crew: Night-shift cleaners report severe eye and skin irritation, as well as chemical burns, from using concentrated caustic degreasers without proper dilution systems or consistent protective gear. Workplace Culture & Systems: Across all departments, shift workers report severe fatigue, sleep disruption, and anxiety caused by forced overtime, tight production deadlines, and rotating night shifts. The company lacks any health surveillance or routine health monitoring program, and injuries are treated on a "first-aid only" basis without incident recording or follow-up. <p>1. Hazard Identification and Routes of Exposure</p> <p>Identify three different types of health hazards present in the facility: one biological or chemical, one ergonomic, and one psychosocial. For each hazard:</p> <ul style="list-style-type: none"> Explain in detail how workers are exposed (including the route of entry/exposure). Identify the specific body systems, organs, or physiological functions that are being or could be affected. <p>2. Health Surveillance and Worker Consultation</p> <ul style="list-style-type: none"> Define health surveillance and explain why implementing it is vital for a facility handling airborne sensitizers and hazardous chemicals. 	

- Propose specific types of health checks or screening methods suitable for:
 - The baking/mixing staff (flour exposure).
 - The sanitation crew (chemical exposure).
- Explain why management must actively consult workers when designing health surveillance and risk-control programs.

3. Control Measures and Prevention

- Select one ergonomic hazard affecting the packaging and decorating line workers.
- Apply the Hierarchy of Controls in detail to suggest practical, actionable risk-reduction measures at four distinct levels (e.g., Elimination/Substitution, Engineering Controls, Administrative Controls, PPE).
- Critically evaluate why relying solely on administrative measures (e.g., training) or PPE is insufficient to protect workers from long-term musculoskeletal disorders.



Question 2: Scenario 2: Apex Maritime Heavy Industries

You are the newly appointed Occupational Health and Safety Officer for Apex Maritime Heavy Industries, a large-scale commercial shipbuilding and vessel refit yard. Over the past two years, 42 workers required emergency medical intervention after reporting acute respiratory distress, severe eye irritation, and nausea while working in the dry dock basin. These acute incidents were directly linked to the off gassing of industrial anti-fouling marine coatings during periods of poor natural ventilation and thermal inversion.

A statutory audit of historical records reveals severe deficiencies regarding long-term occupational exposures. Abrasive blasters and painters are routinely exposed to volatile organic compounds (VOCs) and heavy metal particulates (such as lead and chromium) during hull stripping. Structural fitters face regular exposure to respirable crystalline silica and prolonged vibration from heavy pneumatic grinding tools. Welders operating inside the ship's double-bottom tanks are exposed to hexavalent chromium fumes and extreme, continuous noise levels in confined spaces.

At present, a statutory health surveillance program is entirely non-existent. Occupational hygiene exposure monitoring is conducted only on a sporadic, ad-hoc basis. Recent regulatory bulletins and epidemiological research have established strong causal links between these specific shipyard exposures and the onset of occupational asthma, central nervous system disorders, and severe neurological and musculoskeletal degradation.

Questions

1. Acute Exposure Incidents (20%) Detail the circumstances of the chemical vapor exposure incidents within the dry dock. Identify the primary routes of exposure and catalog the acute physiological health effects experienced by the workforce. Provide a legally rigorous justification for why statutory investigation, root-cause analysis, and formal record-keeping of these incidents are mandatory.
2. Long-term Health Risks and Health Surveillance (20%) Identify three distinct long-term occupational health risks affecting different specialized working groups within the shipyard (e.g., abrasive blasters, structural fitters, confined-space welders). For each identified group, define in detail the exact statutory health surveillance and biomonitoring protocols that must be implemented. Explain the critical importance of early clinical detection from both a medical and legal liability standpoint.
3. Applying the Hierarchy of Controls (60%) Select three specific hazards from the scenario (e.g., hexavalent chromium fumes, high-intensity confined space noise, or continuous vibration from pneumatic tools). Apply the Hierarchy of Risk Controls for each hazard by stipulating at least three highly practical, industry-standard measures at each progressive level (Elimination, Substitution, Engineering Controls, Administrative Controls, and Personal Protective Equipment). Conclude with a definitive explanation of why statutory frameworks mandate the prioritization of higher-level controls over the reliance on PPE.



Question 3: Scenario 3: SkyPort Aviation Logistics & Fleet Support

You are an occupational health and safety advisor for SkyPort Aviation Support, an international airline fleet maintenance and ground handling facility operating at a major regional hub.

During peak winter operations, an acute incident occurred in an enclosed baggage-sorting sub-tunnel: 14 ground agents experienced acute carbon monoxide (CO) poisoning—manifesting as severe headaches, dizziness, confusion, and nausea—due to the prolonged idling of aging diesel cargo tractors under poor mechanical ventilation. Two workers collapsed and required immediate emergency hospital stabilization. A subsequent internal OHS evaluation revealed deeper chronic health issues and system failures across multiple operational sections:

- Aircraft Line Maintenance Technicians: Technicians routinely inspect and service aircraft systems. They face daily exposure to skin-corrosive phosphate-ester hydraulic fluids (causing severe contact

dermatitis and eye damage), hexavalent chromium in surface primers, and continuous, high-decibel acoustic noise from Auxiliary Power Units (APUs) and taxiing aircraft engines.

- **Baggage & Cargo Handlers:** Ramp handlers report high rates of lower back disc injuries, shoulder impingement, and knee strain resulting from rapid, repetitive manual lifting of luggage in cramped aircraft hold spaces under strict time-pressure constraints.
- **Cabin Cleaning & Service Crew:** Night-shift sanitation workers report chronic respiratory irritation and skin rashes from concentrated disinfectants used without proper dilution units or mandatory eye and skin protection.
- **Workplace Systems & Culture:** Across all departments, shift workers report severe fatigue, sleep disorders, and high stress driven by tight turnaround deadlines, mandatory overtime, and rotating shift patterns. The facility has no formal health surveillance program, noise exposure mapping is outdated, and worker health complaints are handled informally by section leads without documentation.

Questions

1. Acute Incident Analysis and Hazard Classification

- **Acute Incident:** Explain the mechanism of carbon monoxide (CO) exposure during the sub-tunnel incident. Identify the primary route of entry, how CO interacts with human physiological systems (e.g., blood/oxygen transport), and the acute health consequences workers experienced.
- **Hazard Identification:** Identify three distinct hazards present in the facility: one chemical/toxicological, one ergonomic, and one psychosocial. For each, detail how workers are exposed and which specific body systems or organs are impacted.
- **Investigation Justification:** Explain why formal root-cause investigation and statutory incident record-keeping are essential following the sub-tunnel CO release.

2. Health Surveillance and Worker Consultation

- Define health surveillance and state why it is legally and operationally critical in high-hazard environments like aviation maintenance and ground support.
- Design a targeted health surveillance protocol specifying appropriate medical checks for:
 - Aircraft Maintenance Technicians (noise and chemical exposure).
 - Baggage and Cargo Handlers (musculoskeletal burden).
- Explain why management must actively consult frontline workers when designing health surveillance protocols and evaluating workplace health risks.

3. Hierarchy of Controls

- Select two major hazards from the scenario (e.g., manual baggage handling in aircraft holds, high noise levels from APUs/engines, or hydraulic fluid skin/inhalation exposure).
- Apply the Hierarchy of Controls to develop a detailed mitigation matrix for *both* selected hazards, providing at least two actionable measures at every level (Elimination, Substitution, Engineering Controls, Administrative Controls, and Personal Protective Equipment).
- Critically evaluate why relying primarily on PPE (such as respirators, earplugs, or gloves) and worker training is an inadequate strategy for long-term occupational disease prevention.

Pass Mark of total weighted score 100%

Assignment weighted score 100%

By submitting I confirm that this assessment is my own work

Mark:

Signature: <main assessor>

Date

Signature: <quality assurance>