

**Англійська мова для інженерів з безпеки праці
та виробничих процесів:**

**методичні рекомендації до самостійної роботи
здобувачів освіти першого (бакалаврського) рівня ви-
щої освіти спеціальності 263
(перший курс, перший семестр)**

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А64 Англійська мова для інженерів з безпеки праці та виробничих процесів : методичні рекомендації до самостійної роботи здобувачів освіти першого (бакалаврського) рівня вищої освіти спеціальності 263 (перший курс, перший семестр) / уклад. С. С. Кочергіна. Запоріжжя : ТОВ «ТЕХНІЧНИЙ УНІВЕРСИТЕТ «МЕТІНВЕСТ ПОЛІТЕХНІКА», 2025. 18 с.

Цей навчально-методичне видання призначено для здобувачів освіти з технічних спеціальностей, зокрема інженерів з охорони праці та безпеки виробничих процесів, які вивчають англійську мову з орієнтацією на професійне застосування. Матеріали видання спрямовані на засвоєння галузевої термінології, необхідної для ефективної фахової комунікації, підготовки документації та участі в міжнародних професійних заходах. Посібник сприяє формуванню мовної компетентності, що є важливою складовою професійної підготовки сучасного інженера з безпеки праці, та є корисним ресурсом для підвищення рівня володіння англійською мовою і зміцнення позицій фахівця на ринку праці в умовах глобалізації та технічного розвитку.

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1. Introduction to Workplace Safety

Workplace safety means creating a work environment that protects the health and well-being of all employees. It involves identifying potential hazards, implementing preventive measures, and following safety rules and regulations.

Key elements of workplace safety include:

- **Hazard Identification:** Recognizing risks such as slips, trips, falls, chemical exposure, and equipment hazards.
- **Preventive Measures:** Using safety training, proper personal protective equipment (PPE), and clear safety procedures to reduce risks.
- **Regular Monitoring:** Continuously checking and improving safety practices to ensure a secure workplace.

By maintaining strong workplace safety standards, employers can prevent accidents, reduce injuries, and foster a positive and productive work environment.

Exercise 1. Choose the correct answer

1. What is the main goal of workplace safety?

- A) To increase employee salaries
- B) To improve employee fashion
- C) To protect employee health and well-being
- D) To reduce working hours

2. Which of the following is NOT mentioned as a workplace hazard in the text?

- A) Slips
- B) Chemical exposure
- C) Loud music
- D) Equipment hazards

3. What does PPE stand for?

- A) Private Personal Experience
- B) Protective Personal Equipment
- C) Personal Protective Equipment
- D) Public Protection Essentials

4. What is one way to reduce workplace risks?

- A) Ignoring minor injuries
- B) Safety training
- C) Increasing workload
- D) Reducing staff

5. Why is regular monitoring important in workplace safety?

- A) To punish careless workers
- B) To improve lunch breaks
- C) To keep safety practices effective

D) To install more computers

6. Which of these is a key element of workplace safety?

A) Decorating the office

B) Hiring more managers

C) Hazard identification

D) Giving more holidays

7. What should be done after identifying a workplace hazard?

A) Ignore it

B) Fire someone

C) Implement preventive measures

D) Take a break

8. How can employers create a positive work environment?

A) By preventing accidents

B) By buying expensive furniture

C) By working overtime

D) By keeping rules secret

9. What type of procedures should workplaces have?

A) Complicated and hidden

B) Safety procedures

C) Financial procedures only

D) None

10. Which benefit is mentioned as a result of strong safety standards?

A) Lower taxes

B) Reduced injuries

C) More advertisements

D) More meeting

2. Biological Hazards

Biological hazards are risks from living organisms or their by-products that can cause illness or infections in the workplace. These hazards include:

- **Microorganisms:** Bacteria, viruses, fungi, and parasites that can spread diseases.
- **Allergens:** Substances like pollen, mold spores, or animal dander that can trigger allergic reactions.
- **Toxins:** Poisonous substances produced by certain bacteria or molds.

Exposure to these hazards may occur through contact with contaminated surfaces, airborne particles, blood, body fluids, or waste materials.

To protect workers, it is important to follow proper hygiene practices, use personal protective equipment (PPE), and implement regular cleaning and waste disposal procedures. Training and awareness are also essential to



recognize and manage biological hazards effectively.

Exercise 2. Define if the statement is true or false

1. Biological hazards only come from viruses and bacteria.
2. Allergens such as pollen and mold spores can be considered biological hazards.
3. Toxins produced by some bacteria and molds can be harmful in the workplace.
4. Exposure to biological hazards can happen only through direct skin contact.
5. PPE and hygiene practices help reduce the risk of biological hazards.
6. Only workers in hospitals are at risk of biological hazards.
7. Training and awareness are important for managing biological risks.
8. Cleaning and proper waste disposal have no impact on biological hazard prevention.
9. Microorganisms cannot cause infections in the workplace.
10. Recognizing biological hazards is a part of workplace safety.

3. Natural Hazards

Natural hazards are threats that come from the natural environment and can affect the safety of workplaces and communities. These hazards include:

- **Extreme Weather:** Events such as heavy rain, storms, hurricanes, or heatwaves that can disrupt operations and cause damage.
- **Geological Events:** Earthquakes, landslides, and volcanic eruptions that pose risks to buildings and infrastructure.
- **Floods and Wildfires:** Flooding can damage property and disrupt work, while wildfires can threaten lives and assets.

Understanding natural hazards helps organizations prepare for emergencies through proper planning, risk assessments, and safety protocols. This preparation can minimize damage, protect employees, and ensure a quicker recovery after an event.

Exercise 3. Here are 5 open-ended questions. Try to answer them

1. What are some examples of extreme weather that can impact workplace safety?
2. How can geological events affect buildings and infrastructure?
3. Why is it important for organizations to understand natural hazards?
4. What are two ways floods and wildfires can affect workplaces?
5. How can proper planning help during a natural hazard?



4. Substances Generated by Work

Substances generated by work refer to materials, by-products, or emissions produced during various workplace processes—especially in industries like manufacturing, construction, and chemical processing. These substances may include dust, fumes, vapors, and chemicals released during activities such as cutting, welding, or chemical reactions.

Improper management of these substances can pose health risks, including respiratory issues, skin irritation, and other long-term health problems. To mitigate these risks, workplaces use measures such as:

- **Engineering Controls:** Ventilation systems and dust collection systems to capture and remove harmful particles.
- **Personal Protective Equipment (PPE):** Masks, gloves, and protective clothing to reduce exposure.
- **Safe Handling and Disposal Practices:** Procedures to safely store, manage, and dispose of hazardous materials.
- **Regular Monitoring:** Ongoing risk assessments and monitoring to ensure that exposure levels remain within safe limits.

By effectively managing substances generated by work, organizations protect employee health and contribute to a safer, more efficient workplace.

Exercise 4. Match the words and word-combinations with their definitions

1. by-product	a) dry dirt in the form of powder that covers surfaces inside a building, or very small dry pieces of soil, sand, or other substances
2. emission	b) gas or extremely small drops of liquid that result from the heating of a liquid or solid:
3. dust	c) something that is <u>produced</u> as a <u>result</u> of making something <u>else</u>
4. fumes	d) any basic substance that is used in or produced by a reaction involving changes to atoms or molecules
5. vapour	e) strong, unpleasant, and sometimes dangerous gases or smoke
6. chemical	f) the <u>act</u> of <u>sending</u> out <u>gas</u> , <u>heat</u> , <u>light</u>

5. Chemical Substances

Chemical substances in the workplace are materials that can be in the form of liquids, solids, or gases. They are used in many industrial and commercial processes, but improper handling can pose health risks to workers.

Key Points:

- **Types:** These include solvents, acids, bases, heavy metals, and various industrial chemicals.
- **Exposure Routes:** Workers may be exposed through inhalation, skin contact, or accidental ingestion.
- **Health Risks:** Exposure can lead to short-term effects like irritation and dizziness, or long-term issues such as chronic respiratory problems or chemical poisoning.
- **Control Measures:**
 - **Engineering Controls:** Ventilation systems and containment units to minimize airborne exposure.
 - **Personal Protective Equipment (PPE):** Gloves, masks, and protective clothing.
 - **Safe Handling Practices:** Proper storage, labeling, and training on safe procedures.
- **Monitoring and Compliance:** Regular assessments and adherence to exposure limits, such as TLVs and PELs, ensure workplace safety.

Understanding and managing chemical substances is crucial to protecting health and ensuring a safe work environment.

Exercise 5. Match the word or word-combination with its translation

1. substance	a) розчинник
2. liquid	b) твердий стан
3. solid	c) речовина
4. solvent	d) головокружіння
5. acid	e) проковтування
6. heavy metals	f) оцінювання
7. inhalation	g) вдихання
8. ingestion	h) важкі метали



9. dizziness	i) кислота
10. assessment	j) рідина

6. Cleaning Agents

Cleaning agents are substances used to remove dirt, grease, and germs from surfaces in homes, offices, and industrial settings. They include detergents, disinfectants, solvents, and bleaches.


Key Points:

- **Types:**
 - **Detergents:** Used for general cleaning and removing stains.
 - **Disinfectants:** Designed to kill bacteria and viruses on surfaces.
 - **Solvents:** Help dissolve grease and oily residues.
 - **Bleaches:** Used for whitening and disinfection.
- **Health Hazards:**
 - Exposure may cause skin irritation, respiratory issues, or eye injuries.
 - Inhalation of fumes in poorly ventilated areas can be harmful.
- **Safe Handling Practices:**
 - Always follow the manufacturer's instructions, including proper dilution.
 - Use personal protective equipment (PPE) like gloves and masks.
 - Ensure adequate ventilation during use.
- **Environmental Considerations:**
 - Improper disposal can harm the environment.
 - Eco-friendly alternatives are available and help reduce environmental impact.

Understanding the proper use and handling of cleaning agents is essential to protect both human health and the environment.

Exercise 6. Answer the following questions

1. What are the main types of cleaning agents, and how is each type typically used?
2. What health risks can arise from improper use or exposure to cleaning agents?
3. What safety precautions should be followed when handling cleaning agents?
4. How can the improper disposal of cleaning agents affect the environment?

- 
5. Why is it important to understand how to use and handle cleaning agents safely?

7. Professions That Are at Risk


Certain professions face higher risks due to the nature of their work and exposure to various hazards. These occupations may involve physical, chemical, biological, or ergonomic risks that can affect workers' health and safety. Here are some examples:


- **Construction Workers:**
Exposure to falling objects, heavy machinery, and hazardous materials.
- **Healthcare Professionals:**
Risks include exposure to infectious diseases and biological hazards.
- **Manufacturing and Chemical Industry Workers:**
Potential exposure to harmful chemicals, fumes, and physical injuries from machinery.
- **Agricultural Workers:**
Exposure to pesticides, extreme weather, and heavy physical labor.
- **Miners:**
Face risks from dust, toxic gases, and confined working conditions.
- **Firefighters and Emergency Responders:**
Exposure to fires, hazardous substances, and dangerous rescue environments.
- **Office Workers (Ergonomic Risks):**
Although less physically hazardous, prolonged computer use can lead to ergonomic issues like repetitive strain injuries.

Understanding these risks is essential for implementing effective safety measures, training, and protective equipment to ensure a safer work environment for all employees.

Exercise 7. Choose the correct answer

1. **Which profession is at risk of exposure to infectious diseases and biological hazards?**
 - A. Miners
 - B. Healthcare professionals
 - C. Office workers
 - D. Construction workers
2. **What kind of risks are *firefighters and emergency responders* primarily exposed to?**
 - A. Repetitive strain injuries
 - B. Toxic gases and dust

- 
- C. Fires and hazardous substances
D. Falling objects
3. **Which of the following is a risk for *office workers*?**
A. Heavy machinery accidents
B. Repetitive strain injuries
C. Chemical exposure
D. Extreme weather
4. **What hazards do *agricultural workers* face?**
A. Infectious diseases
B. Loud noise exposure
C. Pesticides and extreme weather
D. Electrical hazards
5. **Which profession is most likely to be affected by *confined working conditions and toxic gases*?**
A. Healthcare professionals
B. Miners
C. Firefighters
D. Construction workers
6. **Which group of workers may be exposed to *fumes and physical injuries from machinery*?**
A. Office workers
B. Agricultural workers
C. Manufacturing and chemical industry workers
D. Miners
7. **Why is it important to understand workplace risks?**
A. To increase working hours
B. To reduce worker salary
C. To implement safety measures and training
D. To avoid paying insurance
8. **Which of these is **NOT** typically a risk for construction workers?**
A. Falling objects
B. Infectious diseases
C. Heavy machinery
D. Hazardous materials
9. **What type of risk is associated with *ergonomic hazards*?**
A. Exposure to fire
B. Repetitive movements and poor posture
C. Loud noise
D. Exposure to chemicals
10. **What is a shared safety need across all the listed professions?**
A. Higher salaries
B. More paperwork

- 
- C. Proper training and protective equipment
 - D. Working outdoors

8. Hazardous Effects at the Workplace


Hazardous effects at the workplace refer to the negative impacts on workers' health and safety caused by exposure to various risks. These effects can be physical, mental, or even long-term health issues, depending on the type and duration of exposure. Here are some common hazardous effects:

- **Chemical Hazards:**
Exposure to toxic substances, solvents, or fumes can lead to respiratory issues, skin irritation, or even long-term diseases like cancer.
- **Physical Hazards:**
Factors such as excessive noise, heat, vibration, or radiation can cause hearing loss, fatigue, burns, or other injuries.
- **Biological Hazards:**
Contact with harmful bacteria, viruses, or other pathogens may result in infections or allergic reactions.
- **Ergonomic Hazards:**
Poor workstation design or repetitive movements can lead to musculoskeletal disorders, such as back pain or carpal tunnel syndrome.
- **Psychosocial Hazards:**
High-stress environments, long working hours, or workplace bullying can affect mental health, leading to anxiety, depression, or burnout.

Effective mitigation measures – like proper training, use of personal protective equipment (PPE), regular risk assessments, and workplace modifications – are essential to reduce these hazardous effects and create a safer working environment.

Exercise 8. Define if the statement is true or false

1. **Exposure to chemical hazards can lead to long-term diseases such as cancer.**
2. **Physical hazards in the workplace only cause short-term injuries like cuts and bruises.**
3. **Biological hazards include viruses and bacteria that can cause infections.**
4. **Ergonomic hazards are related to exposure to radiation and chemicals.**
5. **Workplace stress and bullying are examples of psychosocial hazards.**

- 
6. **Hazardous effects at work affect only physical health, not mental health.**
 7. **Long working hours can be considered a psychosocial hazard.**
 8. **Musculoskeletal disorders can result from ergonomic hazards.**
 9. **Personal protective equipment (PPE) is not useful in reducing hazardous effects.**
 10. **Regular risk assessments help prevent hazardous effects in the workplace.**

9. Skin contact


Skin contact in the workplace refers to the exposure of the skin to hazardous substances such as chemicals, biological agents, or contaminated materials. Direct contact can lead to a range of health issues, including:

- **Irritation and Allergies:**
Exposure to harsh chemicals or allergens may cause skin rashes, itching, or allergic reactions.
- **Chemical Burns and Dermatitis:**
Strong acids, bases, or solvents can cause burns, redness, and inflammation, potentially leading to chronic dermatitis.
- **Absorption of Toxins:**
Some substances can be absorbed through the skin and enter the bloodstream, leading to systemic health effects.

Preventive Measures:

- **Personal Protective Equipment (PPE):**
Use gloves, protective clothing, and barrier creams to minimize direct contact.
- **Training:**
Educate employees on proper handling techniques and first aid measures in case of exposure.
- **Hygiene Practices:**
Encourage regular hand washing and provide facilities for proper decontamination after exposure.
- **Safe Handling and Storage:**
Ensure that hazardous substances are clearly labeled and stored safely to prevent accidental skin contact.

Implementing these measures is essential for reducing the risk of skin-related hazards in the workplace and maintaining a healthy work environment.



Exercise 9. Fill in the gaps with the following words: diseases, carefully, materials, hazardous, reactions, protective, workers, contact, such as, whole.

Skin _____ in the workplace happens when a person's skin is exposed to _____ substances like chemicals, germs, or contaminated _____. This can cause irritation, allergic _____, chemical burns, or skin _____ like dermatitis. In some cases, harmful substances can even pass through the skin and affect the _____ body.

To prevent these risks, workers should use personal _____ equipment (PPE) like gloves and protective clothing. They should also follow safety training, practice good hygiene _____ regular hand washing, and handle and store hazardous materials _____. These steps help keep _____ safe and protect their health.

10. Control Steps

Control steps in occupational hygiene refer to the systematic actions taken to minimize or eliminate exposure to workplace hazards. These steps follow a hierarchy that prioritizes more effective measures first:

- **Elimination:**
Remove the hazard entirely from the workplace, such as discontinuing the use of a harmful chemical.
- **Substitution:**
Replace a hazardous substance or process with a safer alternative to reduce risk.
- **Engineering Controls:**
Isolate people from the hazard by using ventilation systems, machine guards, or process modifications to reduce exposure.
- **Administrative Controls:**
Implement policies, training, and work practices that limit exposure. This can include scheduling changes, rotating shifts, or establishing safety protocols.
- **Personal Protective Equipment (PPE):**
Provide appropriate gear such as gloves, masks, and protective clothing to protect workers when other controls are not sufficient.

Regular risk assessments, maintenance, and training ensure that these control steps remain effective in creating a safer workplace.



Exercise 10. Answer the following questions.

1. What is the main goal of control steps in occupational hygiene?
2. Which control method involves completely removing the hazard from the workplace?
3. Give an example of substitution in occupational hygiene.
4. What are some examples of engineering controls mentioned in the text?
5. Why is PPE considered the last option in the hierarchy of controls?
6. How can administrative controls help reduce workers' exposure to hazards?
7. In what situation might PPE be necessary even if other control measures are in place?
8. Why is it important to conduct regular risk assessments in the workplace?
9. How do engineering controls differ from administrative controls in their approach to hazard reduction?
10. Imagine you're managing a factory using a toxic chemical. Describe how you would apply at least three of the control steps to ensure worker safety.



Keys

Exercise 1

1. C
2. C
3. C
4. B
5. C
6. C
7. C
8. A
9. B
10. B

Exercise 2.

1. False
2. True
3. True
4. False
5. True
6. False
7. True
8. False
9. False
10. True

Exercise 3.

1. *Possible answer:* Heavy rain, storms, hurricanes, and heatwaves can all disrupt operations and pose safety risks.
2. *Possible answer:* Earthquakes, landslides, and volcanic eruptions can damage or destroy buildings, roads, and other structures.
3. *Possible answer:* Understanding natural hazards helps organizations prepare in advance, reducing damage and protecting employees.
4. *Possible answer:* Floods can damage property and disrupt work, while wildfires can threaten lives and valuable assets.
5. *Possible answer:* Proper planning can minimize harm, ensure worker safety, and speed up recovery after the event.

Exercise 4.

- 1 – c
- 2 – f
- 3 – a
- 4 – e
- 5 – b



6 – d

Exercise 5.

- 1 – c
- 2 – j
- 3 – b
- 4 – a
- 5 – i
- 6 – h
- 7 – g
- 8 – e
- 9 – d
- 10 – f

Exercise 6

1. *Sample answer:* The main types include detergents (for general cleaning and removing stains), disinfectants (to kill bacteria and viruses), solvents (to dissolve grease and oily residues), and bleaches (for whitening and disinfection).

2. *Sample answer:* Health risks may include skin irritation, respiratory problems, eye injuries, or harm from inhaling fumes, especially in poorly ventilated areas.

3. *Sample answer:* It's important to follow manufacturer instructions, use protective gear like gloves and masks, dilute chemicals properly, and ensure good ventilation while using them.

4. *Sample answer:* Improper disposal can contaminate water and soil, harm wildlife, and increase pollution. Choosing eco-friendly products can help reduce environmental damage.

5. *Sample answer:* Knowing how to use them properly protects personal health, prevents accidents, and helps reduce negative impacts on the environment.

Exercise 7.

- 11. B
- 12. C
- 13. B
- 14. C
- 15. B
- 16. C
- 17. C
- 18. B
- 19. B
- 20. C



Exercise 8.

1. True
2. False – They can cause issues like hearing loss, burns, and fatigue.
3. True
4. False – They are related to poor workstation design and repetitive movements.
5. True
6. False – They can affect both physical and mental health.
7. True
8. True
9. False – PPE is an important tool for reducing exposure.
10. True

Exercise 9. contact, hazardous, materials, reactions, diseases, whole, protective, such as, carefully, workers.

Exercise 10.

1. To minimize or eliminate exposure to workplace hazards.
2. Elimination.
3. Replacing a toxic solvent with a less harmful, water-based one.
4. Ventilation systems, machine guards, and process modifications.
5. Because it does not remove the hazard but only protects the individual and is less reliable than other measures.
6. By changing work practices, such as rotating shifts to reduce exposure time or implementing safety training and scheduling policies.
7. When hazards cannot be completely eliminated or controlled through substitution, engineering, or administrative methods.
8. To identify new or changing hazards and ensure existing control measures remain effective.
9. Engineering controls aim to physically isolate or remove the hazard, while administrative controls change how people work around the hazard.
10. First, I would try to eliminate the chemical or substitute it with a safer one. If that's not possible, I would install ventilation systems to reduce airborne exposure (engineering control), and finally, provide workers with training and PPE such as gloves and masks.



Навчально-методичне видання

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