МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАНИ
Київський національний університет будівництва і архітектури

# Фахова іноземна мова

# (англійська)

*У двох частинах*

*Частина друга*

Методичні вказівки та завдання
до проведення практичних занять
для здобувачів першого (бакалаврського) рівня вищої освіти
спеціальності G19 «Будівництво та цивільна інженерія»
за освітньою програмою «Промислове і цивільне будівництво»

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В авторській редакції

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Містять матеріали для вивчення фахової англійської мови, тексти з відповідною лексикою та граматичні вправи.

Призначено для здобувачів першого (бакалаврського) рівня вищої освіти спеціальності G19 «Будівництво та цивільна інженерія» за освітньою програмою «Промислове і цивільне будівництво».

## Загальні положення

Знання, вміння та навички з використання фахової мови займає провідну роль у професійній будівельній сфері. Вміння грамотно комунікувати, використовуючи термінологію та розуміти письмовий текст, який містить важливу інформацію, що стосується безпосередньої професійної діяльності - ось основні навички, якими має володіти кожен студент. Методичні вказівки мають за мету - ознайомити студентів з відповідними текстами, лексикою та граматичними структурами англійської мови, що можуть бути корисними для професійного росту кожного.

Завдання - навчитися застосовувати викладений матеріал у професійній діяльності, також виробити навички читання та розуміння літератури англійською мовою, усного та писемного мовлення з урахуванням вимог до опанування програми Фахова іноземна мова.

При укладанні текстів використовувалась оригінальна література з відповідної тематики.

## Module 1. Sustainable Construction

### 1.1. Learn the following vocabulary before reading the text.

Demand
approach
impact
significant
renewable
sustainable
insulate
advanced
efficient
rainwater
power plant
double-skin facade
soil erosion
recycling
consume
natural habitats
harvesting
upfront costs
awareness
harmful

***Словник у формі Quizlet:*** https://quizlet.com/ua/988601022/module-1-sustainable-construction-flash-cards/?i=3q09s9&x=1qqt

### 1.2. Read the text.

### Sustainable Construction: Building for a Greener Future

As the global population continues to grow, so does the demand for new buildings and infrastructure. However, traditional construction methods are often harmful to the environment, consuming vast amounts of resources and generating significant waste. This has led to the rise of sustainable construction, an approach that seeks to minimize the environmental impact of building activities and create more energy-efficient, eco-friendly structures.

Sustainable construction involves using processes that are environmentally responsible and resource-efficient throughout a building's lifecycle, from planning and design to construction, operation, maintenance, renovation, and demolition. The goal is to reduce the consumption of resources, minimize waste and pollution, and create healthier living and working environments.

*Key Principles of Sustainable Construction*

1. Energy Efficiency: Reducing energy consumption through better insulation, energy-efficient windows, and the use of renewable energy sources such as solar and wind power.
2. Resource Management: Utilizing sustainable materials, such as recycled or renewable resources, and employing construction methods that minimize waste.
3. Water Conservation: Implementing systems for rainwater harvesting, water recycling, and reducing water usage through efficient plumbing fixtures.
4. Site and Environment: Minimizing the impact on the surrounding environment by preserving natural habitats, reducing soil erosion, and protecting water quality.
5. Health and Well-being: Ensuring that buildings provide healthy indoor environments with good air quality, natural lighting, and thermal comfort.

*Innovative Techniques and Technologies*

1. Green Roofs and Walls: Green roofs and walls are covered with vegetation, which helps to insulate buildings, reduce heat island effects, and provide natural habitats for wildlife.
2. Passive Solar Design: This design approach takes advantage of natural sunlight for heating and lighting, reducing the need for artificial energy sources.
3. Smart Buildings: Incorporating advanced technologies to monitor and manage energy use, ensuring efficient operation and reducing waste.
4. Prefabrication: Building components are manufactured off-site and then assembled on-site, reducing waste and improving construction efficiency.

*Case Studies*

1. One Angel Square, Manchester, UK: This building is one of the most sustainable office buildings in the world, featuring a double-skin façade, rainwater harvesting, and a combined heat and power plant.
2. Bullitt Center, Seattle, USA: Known as the greenest commercial building in the world, it includes features such as composting toilets, rainwater harvesting, and net-positive energy production.
3. The Edge, Amsterdam, Netherlands: This office building uses smart technology to optimize energy use and features a large number of solar panels and rainwater collection systems.

While sustainable construction offers many benefits, it also faces challenges, including higher upfront costs, the need for specialized knowledge and skills, and resistance to change from traditional building practices. However, with increasing awareness of environmental issues and advancements in technology, sustainable construction is likely to become the norm in the future.

Sustainable construction is not just a trend but a necessity in our quest to protect the environment and ensure a better future for generations to come. By embracing sustainable practices, we can create buildings that are not only functional and beautiful but also kind to our planet.

- **Green building certifications (LEED, BREEAM)**

***LEED (Leadership in Energy and Environmental Design)***

LEED is a globally recognized certification system developed by the U.S. Green Building Council (USGBC). It provides a framework for healthy, highly efficient, and cost-saving green buildings. Buildings earn points across several categories, including:
Sustainable Sites: Minimizing the impact on ecosystems and water resources.
Water Efficiency: Reducing water consumption.
Energy and Atmosphere: Improving energy performance and reducing greenhouse gas emissions.

***BREEAM (Building Research Establishment Environmental Assessment Method)***

BREEAM is one of the world's longest-established methods for assessing, rating, and certifying the sustainability of buildings. Developed by the Building Research Establishment (BRE) in the UK, BREEAM assesses buildings across multiple categories, such as:

- Management: Efficient construction and operation practices.
- Health and Wellbeing: Promoting comfortable, healthy, and productive environments.
- Energy: Reducing operational energy use and carbon emissions.
- Transport: Encouraging the use of sustainable transport options.
- Water: Efficient use and management of water resources.
- Materials: Using sustainable materials and reducing environmental impact.
- Waste: Minimizing waste and encouraging recycling.
- Land Use and Ecology: Protecting and enhancing biodiversity.
- Pollution: Reducing pollution and improving local air and water quality.

BREEAM ratings range from Pass, Good, Very Good, Excellent, to Outstanding.

Both LEED and BREEAM aim to promote sustainable building practices, though they have different criteria and regional focuses.

Materials and Resources: Using sustainable building materials and reducing waste.

Indoor Environmental Quality: Enhancing air quality and increasing access to natural daylight.

LEED certification comes in four levels: Certified, Silver, Gold, and Platinum, based on the number of points earned.

**1.3. Match the following terms with their definitions:**

1. Energy Efficiency
2. Resource Management

3. Water Conservation
4. Green Roofs
5. Passive Solar Design
6. Smart Buildings
7. Prefabrication

a. Buildings covered with vegetation to improve insulation and provide natural habitats.
b. Efficient use of energy through better insulation and renewable sources.
c. Construction components manufactured off-site and assembled on-site to reduce waste.
d. Utilizing sustainable materials and minimizing waste during construction.
e. Design that uses natural sunlight for heating and lighting.
f. Advanced technologies to monitor and manage energy use.
g. Systems to reduce water usage and implement recycling.

**1.4. Determine whether the following statements are true or false:**

1. Sustainable construction only focuses on the design phase of a building.
2. Green roofs help reduce heat island effects and provide habitats for wildlife.
3. Prefabrication increases waste and is less efficient than traditional construction methods.
4. The Bullitt Center in Seattle is known for its composting toilets and net-positive energy production.
5. Passive solar design reduces the need for artificial energy sources

**1.5. Answer the following questions based on the text:**

1. What are the key principles of sustainable construction?
2. Name three innovative techniques and technologies used in sustainable construction.
3. What are some challenges faced by sustainable construction?
4. Describe one case study mentioned in the text and its sustainable features.

## GRAMMAR Unit 1

### Active voice tenses review

1. **Complete the sentences using the present simple tense:**

1. Sustainable construction (reduce) _____ the consumption of resources.
2. Builders (use) _____ recycled materials in eco-friendly projects.
3. Green roofs (provide) _____ insulation and natural habitats for wildlife.
4. Construction companies (implement) _____ water conservation systems in new buildings.
5. Smart buildings (monitor) _____ energy use with advanced technologies.
6. Engineers (design) _____ buildings that minimize environmental impact.
7. Contractors (prefer) _____ sustainable materials over traditional ones.
8. Architects (include) _____ passive solar design in their blueprints.
9. Developers (focus) _____ on energy efficiency in new projects.
10. Planners (consider) _____ the surrounding environment when developing sites.

**2**. **Rewrite the sentences in the past simple tense:**

- The Edge, Amsterdam uses smart technology to optimize energy use.
- Bullitt Center includes features such as composting toilets and net-positive energy production.
- One Angel Square features a double-skin façade and rainwater harvesting.
- Engineers employ prefabrication to improve construction efficiency.
- The project minimizes the impact on the surrounding environment.
- The building achieves LEED certification for its green practices.
- Workers install solar panels to reduce energy consumption.

- The company adopts innovative waste management techniques.
- The architect designs an eco-friendly office building.
- The team implements water-saving systems in the construction process.

**3**. **Rewrite the sentences in the future simple tense:**

1. Sustainable construction improves living and working environments.
2. Architects design buildings with energy-efficient windows.
3. Construction workers install renewable energy sources like solar panels.
4. The company adopts innovative techniques to reduce waste.
5. Urban planners preserve natural habitats in development projects.
6. Engineers create new methods for water conservation.
7. Builders use sustainable materials for future projects.
8. The project achieve a high BREEAM rating.
9. Developers incorporate green roofs and walls into new designs.
10. The city promote sustainable construction practices.

**4**. **Complete the sentences using the present continuous tense:**

1. Builders (work) _____ on creating more sustainable buildings.
2. Engineers (develop) _____ new methods for water recycling.
3. Architects (design) _____ smart buildings with advanced technologies.
4. The construction team (install) _____ energy-efficient windows.
5. Companies (adopt) _____ green building practices to reduce environmental impact.
6. Urban planners (consider) _____ eco-friendly alternatives for city development.
7. The company (implement) _____ rainwater harvesting systems.
8. Researchers (study) _____ the benefits of sustainable materials.
9. Builders (create) _____ innovative green roofs and walls.

10. The project team (focus) _____ on reducing waste and pollution.

**5. Rewrite the sentences in the past continuous tense:**

1. The team is designing a new eco-friendly office building.
2. Workers are installing solar panels on the roof.
3. The company is implementing rainwater harvesting systems.
4. Engineers are developing prefabricated components.
5. The architects are working on a passive solar design for the project.
6. Planners are considering sustainable options for urban development.
7. The builders are creating an environmentally friendly construction site.
8. The team is researching new materials for green construction.
9. Developers are incorporating advanced technologies in smart buildings.
10. The project manager is overseeing the installation of energy-efficient systems.

**Grammar Practice:** https://test-english.com/grammar-points/b1/review-verb-tenses-b1/

## Module 2: Construction Site Management

**2.1. Learn the following vocabulary before reading the text.**

oversee
schedules
storage
compliance
staff
inductions
self-employed
employer
submit
reports
demanding
ensuring
under pressure

significant
participate
liaison
current
premises
require
perceptual skills
possess

Словник у формі Quizlet: https://quizlet.com/ua/992330744/module-2-construction-site-management-flash-cards/?i=3q09s9&x=1qqt

**2.2. Read the following text:**

**What is site management?**

Site Managers oversee and organize day-to-day site operations such as labor schedules, staff inductions, sub-contractor management, risk management, health and safety compliance and safe storage and co-ordination of materials.

Site Managers have a significant focus on ensuring that a building project is completed safely, within an agreed time frame and budget.

Site Managers may have responsibility for a small project or be part of a construction management team on larger or more complex builds. Due to the nature of the role, it is project based. Some Site Managers are self-employed, moving from one contract to another, however, many people work for one employer.

Site Managers need to keep accurate records and submit documents such as progress reports.

Construction management is a busy, demanding role so you will need the ability to work under pressure.

You may need some flexibility on working hours as projects near completion.

Your time will be mainly spent on site and offices maybe in temporary premises on the site. The role may require liaison with other professionals, sub-contractors and clients. You may also need to participate in site meetings.

- You may need a current and Valid driving licence

- Relevant H&S courses (health and safety)
- Site Management Safety Training Scheme certification
- First Aid training

You might like if you enjoy people management and leadership as well as possess practical and technical skills and knowledge

Other useful skills to have:

- Project management
- Using verbal and written communication skills
- Working with different people, such as clients, contractors, colleagues and public
- Using perceptual skills to interpret maps, charts and diagrams
- Creativity and problem-solving

**2.3. Match the following terms with their definitions:**

1. Sub-contractor
2. Induction
3. Liaison
4. Flexibility
5. Perceptual Skills

Definitions:
A. The ability to change or adapt to new circumstances.
B. The action of introducing someone to a new job or activity.
C. Communication and cooperation between two or more parties.
D. A person or firm that undertakes work for a company as part of a larger project.
E. The capacity to understand and interpret visual information such as maps and diagrams.

**2.4. Determine whether the following statements are true or false based on the text:**

1. Site Managers only work for one employer and never move from contract to contract.

2. Site Managers need to keep accurate records and submit documents like progress reports.
3. Working hours for Site Managers are always fixed and do not require flexibility.
4. Site Managers may need to liaise with other professionals, sub-contractors, and clients.
5. Creativity and problem-solving are not useful skills for Site Managers.

**2.5 Answer the following questions based on the text:**

1. What are the day-to-day responsibilities of a Site Manager?
2. Why might a Site Manager need a valid driving licence?
3. List three types of training or certifications that are beneficial for a Site Manager.
4. Describe the working conditions of a Site Manager.
5. What type of skills and knowledge might be enjoyed by someone who likes people management and leadership?

## GRAMMAR Unit 2

## Passive voice tenses review

### 1. Fill in the Gaps (Present Simple, Past Simple)

1. Health and safety compliance _____ (ensure) by Site Managers.
2. Accurate records _____ (keep) by Site Managers.
3. A building project _____ (complete) safely by Site Managers last year.
4. Labor schedules _____ (oversee) by Site Managers.
5. Safety equipment _____ (check) by Site Managers last week.
6. Daily reports _____ (submit) by Site Managers.
7. Progress reports _____ (submit) by Site Managers every week.

8. Final inspections _____ (carry out) by Site Managers soon.
9. Quality standards _____ (maintain) by Site Managers.
10. Communication with clients _____ (do) by Site Managers last year.

**2. Choose the correct form to complete the sentence (Present Continuous, Past Continuous).**

1. Health and safety regulations _____ by Site Managers.
   a) are followed
   b) are being followed
2. Site inspections _____ by Site Managers at the moment.
   a) are conducted
   b) are being conducted
3. Flexibility on working hours _____ by Site Managers last month.
   a) was required
   b) was being required
4. Sub-contractor management _____ by Site Managers right now.
   a) is handled
   b) is being handle
5. Progress reports _____ by Site Managers every week.
   a) are submitted
   b) are being submitted
6. Safety procedures _____ by Site Managers right now.
   a) are implemented
   b) are being implemented
7. Accident reports _____ by Site Managers recently.
   a) were filled out
   b) were being filled out

8. Site meetings _____ by Site Managers this morning.

   a) are attended

   b) are being attended

9. Liaison with other professionals _____ by Site Managers at the moment.

   a) is carried out

   b) is being carried out

10. Final inspections _____ by Site Managers yesterday.

a) were carried out

b) were being carried out

**3. Fill in the gaps using Present or Past Perfect Passive voice**

1. Accurate records _____ (keep) by Site Managers for years.
2. Flexibility on working hours _____ (require) by Site Managers last month.
3. Relevant health and safety courses _____ (attend) by Site Managers.
4. Project milestones _____ (achieve) by Site Managers.
5. Quality standards _____ (maintain) by Site Managers throughout the project.
6. Site Management Safety Training Scheme certification _____ (obtain) by Site Managers.
7. First Aid training _____ (complete) by Site Managers recently.
8. Safety audits _____ (perform) by Site Managers.
9. Emergency drills _____ (conduct) by Site Managers yesterday.
10. Creativity _____ (apply) by Site Managers in the recent project.

**4. Choose the correct form to complete the sentence. (Future Simple, Future Perfect)**

1. Health and safety compliance _____ by Site Managers.

a) will ensure

b) will be ensured

2. Labor schedules _____ by Site Managers tomorrow.

a) will oversee

b) will be overseen

3. Progress reports _____ by Site Managers soon.

a) will submit

b) will be submitted

4. Final inspections _____ by Site Managers.

a) will carry out

b) will be carried out

5. Project milestones _____ by Site Managers.

a) will achieve

b) will be achieved

6. Accurate records _____ by Site Managers.

a) will have kept

b) will have been kept

7. Safety audits _____ by Site Managers next month.

a) will perform

b) will be performed

8. Health and safety regulations _____ by Site Managers.

a) will have followed

b) will have been followed

9. First Aid training _____ by Site Managers.

a) will have completed

b) will have been completed

10. Safety procedures _____ by Site Managers.

a) will have implemented

b) will have been implemented.

**5. Fill in the gaps using Passive voice forms of the verbs in the brackets.**

1. Labor schedules _____ (oversee) by Site Managers every day.
2. The project _____ (finish) within an agreed time frame by Site Managers.
3. Maps, charts, and diagrams _____ (interpret) by Site Managers regularly.
4. Communication with clients _____ (do) by Site Managers last year.
5. The project milestones _____ (achieve) by Site Managers yesterday.
6. Safety signage _____ (post) by Site Managers around the site.
7. Emergency drills _____ (conduct) by Site Managers tomorrow.
8. Flexibility on working hours _____ (require) by Site Managers last month
9. Site inspections _____ (conduct) by Site Managers at the moment.
10. Quality standards _____ (maintain) by Site Managers throughout the project.

Grammar Practice: https://test-english.com/grammar-points/b1-b2/passive-voice-all-tenses/

## Module 3. Energy Efficiency in Buildings

### 3.1. Learn the following vocabulary before reading the text.

Solar
capacity
highlights
implement
measures
fossil fuels
reductions
emissions
stakeholders
demand
renewable
viable
existing
deploy
large-scale
shares
advanced
extended
widespread
photovoltaics

Словник у формі Quizlet:: - https://quizlet.com/ua/992868331/module-3-energy-efficiency-in-buildings-flash-cards/?i=3q09s9&x=1qqt

### 3.2. Read the following text

**Integration of renewable energy sources (solar, wind)**

Solar power (solar PV - photovoltaics) and wind power have been growing very quickly. From 2018 to 2023, their capacity has more than doubled, and they now provide nearly twice as much of the world's electricity. This report highlights the urgent need to integrate solar PV and wind power into our energy systems to reach global climate goals. By 2030, these technologies are expected to significantly help meet the increasing demand for electricity. However, if countries do not implement the right integration measures, up to 15% of solar PV

and wind energy could be wasted by 2030. This gap might lead to more reliance on fossil fuels, which means fewer reductions in CO2 emissions.

This report presents a first-ever global review of measures for integrating solar and wind energy across 50 power systems, which make up almost 90% of global solar and wind power. It identifies effective strategies for integrating these renewable energies, especially for systems just starting to adopt them. The report also updates the IEA's framework to address new challenges at higher levels of renewable energy use and provides solutions already being implemented in several countries. It emphasizes that while systems at the early stages can deploy renewables with little impact, those with high levels face more complex challenges related to stability and flexibility. This calls for a transformation in how power systems are operated, planned, and financed. The report urges governments to take strategic action, enhance infrastructure, and reform regulations to ensure the successful large-scale integration of solar PV and wind. Good data, collaboration among stakeholders, and prioritizing integration measures are essential to overcoming these challenges and achieving a sustainable energy future.

Some leading power systems today manage high levels of renewable energy well. Systems in Denmark, Ireland, South Australia, and Spain have reached advanced stages, integrating 35% to 75% of their annual generation from renewables. At these levels, challenges with stability and flexibility are more pronounced. These systems often rely on renewables for most of their generation for extended periods, requiring innovative solutions in their operation, planning, and financing. Their experiences offer valuable insights for other systems aiming to accelerate renewable energy integration.

Existing technologies are effectively addressing the challenges of high renewable energy shares. Most solutions for these emerging challenges, such as a focus on stability and flexibility, are already mature or commercially available. The successful deployment of these technologies often depends on appropriate policies and regulatory actions rather than new technological breakthroughs. For many systems, reaching advanced stages depends mainly on effectively using existing technologies. While for the most advanced stage, viable technologies exist but need more testing or economic incentives for widespread use.

**3.3. Match the vocabulary words with their definitions.**

1. Capacity
2. Integration
3. Renewable energy
4. Framework
5. Flexibility
6. Stability
7. Infrastructure
8. Stakeholder
9. Adopt
10. Implementation

Definitions:
A. The ability to change or adapt to new circumstances.
B. The total amount of something that can be produced or held.
C. The process of combining or adding new elements.
D. The basic physical and organizational structures needed for the operation of a society or enterprise.
E. Energy from a source that is not depleted when used, such as wind or solar power.
F. The state of being steady and not changing.
G. An essential supporting structure of a system, concept, or text.
H. A person or group with an interest or concern in something.
I. To start to use or take up something.
J. The act of putting something into effect or action.

**3.4. Fill in the gaps with the correct vocabulary word from the list.**

1. Solar power and wind power are types of _____.
2. From 2018 to 2023, the _____ of solar power has more than doubled.
3. This report highlights the urgent need for the _____ of solar PV and wind power into our energy systems.

4. By 2030, these technologies are expected to help meet the growing _____ for electricity.
5. Effective _____ of these technologies is essential to prevent energy waste.
6. The report presents a global review of measures for _____ solar and wind energy.
7. Systems at high levels face more complex challenges related to _____ and _____.
8. The report calls for strategic government action to enhance _____.
9. Leading power systems in Denmark and Spain have _____ high levels of renewable energy.
10. Effective _____ of existing technologies often depends on appropriate policies and regulatory actions.

**3.5. Choose the correct answer for each question.**

1. What has more than doubled from 2018 to 2023?

a) Energy prices

b) Capacity of solar and wind power

c) Number of power plants

2. What does the report highlight as urgent?

a) Building more power plants

b) Integrating solar PV and wind power

c) Increasing fossil fuel usage

3. By 2030, what are solar PV and wind power expected to help meet?

a) Decreased demand for electricity

b) Increased demand for electricity

c) Higher fossil fuel consumption

4. What might happen if countries fail to implement the right measures?

a) Reduction in CO2 emissions

b) 15% of solar PV and wind energy wasted

c) Increase in electricity prices

5. What is essential for overcoming challenges and achieving a sustainable energy future?

a) More fossil fuels

b) Good data, collaboration, and prioritizing integration measures

c) Increasing energy consumption

6. What do leading power systems need to manage well?

a) High levels of renewable energy

b) Low levels of renewable energy

c) High levels of fossil fuel consumption

7. What do most solutions for emerging challenges focus on?

a) Developing new fossil fuels

b) Stability and flexibility

c) Reducing electricity consumption

8. What depends on appropriate policies and regulatory actions?

a) Successful deployment of new fossil fuels

b) Successful deployment of existing technologies

c) Increase in energy prices

9. What provides valuable insights for other systems?

a) Experiences of systems with high renewable energy levels

b) Experiences of systems with low renewable energy levels

c) Experiences of systems with high fossil fuel levels

10. What is required for implementing technologies at a large scale?

a) No additional action

b) More testing or economic incentives

c) Increased fossil fuel consumption

## GRAMMAR Unit 3
## Active vs Passive

**1. Decide whether each sentence is in the active or passive voice and write "Active" or "Passive" next to it**

1. The project was completed by the team.
2. She writes the reports every week.
3. The documents were signed by the manager.
4. The students are reading the book.
5. The dinner was prepared by the chef.
6. He will finish the assignment tomorrow.
7. The meeting was postponed by the director.
8. They are planting trees in the park.
9. The results will be announced by the teacher.
10. The car was repaired by the mechanic.

**2. Rewrite the passive sentences in the active voice.**

1. The cake was baked by Sarah.
2. The email was sent by John.
3. The house is being cleaned by them.
4. The report will be written by the intern.
5. The songs were sung by the choir.
6. The book is being read by the children.
7. The game was won by the team.
8. The letter was received by her.
9. The painting was created by the artist
10. The flowers were watered by the gardener.

**3. Rewrite the active sentences in the passive voice.**

1. The scientist conducts experiments.
2. The chef cooked a delicious meal.
3. The author wrote a new novel.
4. The company launched a new product.
5. The teacher explained the lesson
6. The students solved the math problem.
7. The police caught the thief.
8. The children painted the walls.
9. The gardener planted the seeds.
10. The engineer designed the bridge.

**4. Fill in the gaps with the correct form of the verb in either active or passive voice.**

1. The documents _____ (sign) by the manager yesterday.
2. She _____ (teach) the class every Monday.
3. The cake _____ (bake) by my mother last night.
4. They _____ (build) the new library currently.
5. The movie _____ (direct) by a famous filmmaker.
6. He _____ (repair) the computer right now.
7. The results _____ (announce) by the principal tomorrow.
8. The students _____ (perform) the play next week.
9. The car _____ (wash) by the workers now.
10. She _____ (write) the article for the magazine.

**5. Choose the correct form (active or passive) to complete each sentence.**

1. The cake _____ by the baker.

a) is baking

b) is being baked

2. The letter _____ by her.

a) was received

b) received

3. The children _____ the book.

a) are reading

b) is being read

4. The project _____ by the team.

a) is completed

b) was completed

5. The gardener _____ the plants.

a) waters

b) is being watered

6. The song _____ by the singer.

a) sings

b) is sung

7. The teacher _____ the lesson.

a) teaches

b) is taught

8. The book _____ by the author.

a) was written

b) wrote

9. The engineer _____ the bridge.

a) designs

b) is being designed

10. The thief _____ by the police.

a) caught

b) was caught

Grammar Practice: https://test-english.com/grammar-points/b1/active-passive-voice/

## Module 4. Construction Technology and Innovation

### 4.1. Learn the following vocabulary before reading the text.

Emerge
solutions
promote
tailor-made
unparalleled
in full swing
intricate
adoption
ensure
quality
accelerating
significant
reduction
approach
custom
avoid
prefabricated
assemble
relevant
responsible
performance

Словник у формі Quizlet: https://quizlet.com/ua/993327568/module-4-construction-technology-and-innovation-flash-cards/?i=3q09s9&x=1jqt

**4.2. Read the text.**

**Innovations in construction technology (3D printing, modular construction)**

At the heart of the building sector evolution, 3D printing and modular technologies emerge as revolutionary solutions. These innovations not only redefine the way structures are designed, but they also promise to lower costs and improve efficiency construction sites. There personalization offered by 3D printing opens the way to unique designs, while modular construction promotes a sustainable and adaptable approach. Together, these technologies are shaping a future where sustainability and speed construction become priorities. A new landscape where each project can be tailor-made, respectful of the environment and with unparalleled efficiency.

The future of construction is in full swing thanks to the emergence of 3D printing and modular technologies. These innovations are transforming the way buildings are designed and built, providing personalization and intricate architectural designs that were once difficult to achieve. 3D printing is proving to be an economical solution compared to traditional methods, while improving the speed and the efficiency of construction sites.

At the same time, modular construction optimizes the use of materials and allows unprecedented flexibility, meeting durability and performance requirements. The growing adoption of these technologies indicates a desire to move towards greener construction and sustainable, integrating environmentally friendly practices while ensuring the security and the quality infrastructure.

The revolution of construction is accelerating with the emergence of new technologies, notably 3D printing and modular solutions. These innovations bring significant changes to the way we design and deliver our projects. By integrating 3D printing, architects can create shapes and structures that are impossible to achieve using traditional methods. This not only leads to a reduction in costs, but also to an increased building sustainability.

The advantage of 3D printing in construction

3D printing has incredible potential to transform the manufacturing sector. construction. By making it possible to create custom components in various materials, this technology reduces waste and optimizes processes. For example, companies can print architectural elements directly on site, avoiding moving

materials. Thanks to this approach, manufacturing times are also considerably reduced, offering industry players unprecedented flexibility.

The rise of modular solutions

At the same time, modular construction offers a promising alternative. It involves prefabricating sections of buildings in a factory, which are then assembled on site. This quick and efficient process provides significant time and cost savings. The materials used in this practice make it possible to achieve high energy performance, making eco-responsible solutions ever more relevant. This dynamic constitutes a springboard for innovation and promotes more construction methods. sustainable.

**4.3. Fill in the blanks with the appropriate words from the text.**

1. At the heart of the building sector _____, 3D printing and modular technologies emerge as _____ solutions.
2. These _____ not only redefine the way structures are designed, but they also promise to lower costs and improve _____ on construction sites.
3. The personalization offered by 3D printing opens the way to unique designs, while modular construction promotes a _____ and _____ approach.
4. The future of construction is in full swing thanks to the _____ of 3D printing and modular technologies.
5. At the same time, modular construction optimizes the use of materials and allows _____ flexibility.

**4.4. Match the words from the text with their correct definitions.**

1. Emergence
2. Revolutionary
3. Modular
4. Sustainability
5. Flexibility

a) Ability to change or be changed easily according to the situation
b) The process of becoming visible or coming into existence
c) Characterized by being new and innovative, bringing major changes
d) The quality of being able to maintain or continue over the long term
e) Consisting of separate sections that can be connected or combined

**4.5. Find synonyms and antonyms for the following words from the text.**

1. Unique

1. Synonym: _____
2. Antonym: _____

2. Efficiency

1. Synonym: _____
2. Antonym: _____

3. Intricate

1. Synonym: _____
2. Antonym: _____

4. Optimize

1. Synonym: _____
2. Antonym: _____

5. Durable

1. Synonym: _____
2. Antonym: _____

## GRAMMAR Unit 4

**Structures with passive meaning: need(s) Ving/ need(s) to be Past Participle**

**1. Fill in the blanks with the correct form using need(s) + Ving.**

1. The materials _____ (optimize) for better efficiency.
2. The unique designs _____ (customize) for each project.
3. The construction site _____ (clean) for safety.

4. The architectural elements _____ (transport) to the site.
5. The process _____ (modify) for increased sustainability.
6. The parts of buildings _____ (assemble) on-site.
7. The waste _____ (reduce) to improve efficiency.
8. The modular sections _____ (prefabricate) in the factory.
9. The building plans _____ (review) for approval.
10. The components _____ (produce) with minimal waste.

**2. Fill in the blanks with the correct form using need(s) to be + Past Participle.**

1. The materials _____ (optimize) for better efficiency.
2. The unique designs _____ (customize) for each project.
3. The construction site _____ (clean) for safety.
4. The architectural elements _____ (transport) to the site.
5. The process _____ (modify) for increased sustainability.
6. The parts of buildings _____ (assemble) on-site.
7. The waste _____ (reduce) to improve efficiency.
8. The modular sections _____ (prefabricate) in the factory.
9. The building plans _____ (review) for approval.
10. The components _____ (produce) with minimal waste.

**3. Choose the correct structure (need(s) + Ving or need(s) to be + Past Participle) to complete the sentences.**

1. The materials (need/optimize) _____ for better efficiency.
2. The unique designs (need/customize) _____ for each project.
3. The construction site (need/clean) _____ for safety.
4. The architectural elements (need/transport) _____ to the site.
5. The process (need/modify) _____ for increased sustainability.

6. The parts of buildings (need/assemble) _____ on-site.
7. The waste (need/reduce) _____ to improve efficiency.
8. The modular sections (need/prefabricate) _____ in the factory.
9. The building plans (need/review) _____ for approval.
10. The components (need/produce) _____ with minimal waste.

**4. Find and correct the errors in the following sentences using need(s) + Ving/need(s) to be + Past Participle.**

1. The materials need optimizing for better efficiency.
2. The unique designs need to be customize for each project.
3. The construction site needs cleaning for safety.
4. The architectural elements need to transport to the site.
5. The process needs modification for increased sustainability.
6. The parts of buildings need to be assembling on-site.
7. The waste need reducing to improve efficiency.
8. The modular sections need prefabrication in the factory.
9. The building plans needs reviewing for approval.
10. The components needs producing with minimal waste.

**5. Rewrite the following sentences using need(s) + Ving/need(s) to be + Past Participle.**

1. The materials must be optimized for better efficiency.
2. The unique designs have to be customized for each project.
3. The construction site should be cleaned for safety.
4. The architectural elements must be transported to the site.
5. The process should be modified for increased sustainability.
6. The parts of buildings have to be assembled on-site.
7. The waste must be reduced to improve efficiency.

8. The modular sections should be prefabricated in the factory.
9. The building plans must be reviewed for approval.
10. The components have to be produced with minimal waste.

Grammar Practice: https://test-english.com/grammar-points/b1-b2/have-something-done/

## MODULAR CONTROL

### Variant 1: Mixed Sentence Forms and Vocabulary

Task 1-5: Fill in the Blanks (Active or Passive Voice) (1=5 points)

1. The new building _____ (design) by the famous architect.
2. The workers _____ (install) the electrical wiring yesterday.
3. Safety measures _____ (implement) on the construction site every day.
4. The contractor _____ (supervise) the project efficiently.
5. The blueprints _____ (review) by the engineers next week.

Task 6-10: Match the Terms with Definitions (1=5 points)

1. Scaffolding
2. Excavation
3. Blueprint
4. Contractor
5. Crane

Definitions:

A. A detailed plan or drawing of a building.
B. A machine for lifting heavy objects on a construction site.
C. Temporary structures used to support workers and materials.
D. Digging and removing earth to create foundations.
E. A person or company hired to perform work on a construction project.

Task 11-15: Sentence Transformation (Active to Passive) (1=10 points)

1. The crew laid the foundation for the new building.
2. The project manager checks the progress reports daily.
3. They will complete the construction by the end of the month.
4. The supervisor is conducting the safety inspection.
5. The workers have cleaned the construction site.

## MODULAR CONTROL

### Variant 2: True or False and Fill in the Blanks

***Task 1-5: True or False (Based on Active/Passive Voice)(1=5 points)***

1. The blueprint was drawn by the designer. (_)
2. The crane lifted the heavy materials. (_)
3. The safety measures are implemented by the architects. (_)
4. The progress report is written by the project manager. (_)
5. The building site will be inspected by the workers. (_)

***Task 6-10: Vocabulary Multiple Choice(1=5 points)***

1. What is the purpose of scaffolding?
   A. To store materials
   B. To support workers and materials
   C. To transport equipment
   D. To draw plans
2. Excavation involves:
   A. Painting walls
   B. Digging and removing earth
   C. Laying tiles
   D. Installing windows
3. A blueprint is:
   A. A safety manual
   B. A tool for measuring
   C. A detailed plan of a building
   D. A type of construction vehicle

4. The contractor's role is:
   A. Designing the building
   B. Managing the project
   C. Lifting heavy objects
   D. Supervising workers

5. A crane is used to:
   A. Lift heavy objects
   B. Dig foundations
   C. Lay bricks
   D. Measure distances

***Task 11-15: Fill in the Blanks (Active or Passive Voice)(1=10 points)***

1. The safety equipment _____ (inspect) by the supervisor regularly.
2. The workers _____ (construct) the new bridge.
3. The project _____ (complete) on time by the team.
4. The engineers _____ (design) the new structure.
5. The building materials _____ (transport) to the site yesterday.

## MODULAR CONTROL

### Variant 3: Sentence Transformation and Vocabulary Matching

***Task 1-5: Sentence Transformation (Active to Passive and Passive to Active)(1=5 points)***

1. The architect designed the new office complex.
2. The safety guidelines are followed by all workers.
3. The construction team will complete the project next month.
4. The site inspection was conducted by the supervisor.
5. The workers have installed the new machinery.

***Task 6-10: Vocabulary Matching(1=5 points)***

1. Foundation
2. Scaffoldin
3. Blueprint

4. Contractor
5. Excavation

Definitions:

A. The base of a building.
B. A person or company hired for a project.
C. A detailed plan or drawing of a building.
D. Digging and removing earth.
E. Temporary structures for workers and materials.

***Task 11-15: Fill in the Blanks with Appropriate Vocabulary(1=10 points)***

1. The workers used _____ to reach the higher levels of the building.
2. The _____ of the new building was completed last week.
3. The _____ is responsible for hiring subcontractors and managing the project.
4. The _____ showed the layout of the new office space.
5. The _____ work began before the foundation was laid.

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Навчально-методичне видання

# Фахова іноземна мова

# (англійська)

*У двох частинах*

*Частина друга*

Методичні вказівки та завдання
до проведення практичних занять
для здобувачів першого (бакалаврського) рівня вищої освіти
спеціальності G19 «Будівництво та цивільна інженерія»
за освітньою програмою «Промислове і цивільне будівництво»

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