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з дисципліни «**Іноземна мова**»
до практичних занять з англійської мови

для студентів другого (магістерського) освітнього рівня
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Вченою ІГБЦІ

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Методичні вказівки розглянуті та рекомендовані до друку на засіданні науково–методичної комісії Інституту гідротехнічного будівництва та цивільної інженерії, протокол №9 від 10.06.2021 р.

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Укладачі: к.ф.н., доц. Сивокінь Г. В.

Рецензенти: к.ф.н., доцент кафедри іноземних мов ОДАБА Зайцева О. Ю.

к.ф.н., доцент кафедри іноземних мов ОНПУ Шапа Л.

Дані методичні вказівки розроблені відповідно до навчальної та робочої програм з іноземної мови для підготовки магістра за спеціальністю «Будівництво та цивільна інженерія», освітньо-професійної програми «Архітектурно-будівельний інжиніринг» - денної форми навчання. Відбір текстового матеріалу обумовлений як тематичною спрямованістю, так й інформаційною цінністю текстів. Програма включає граматичний та лексичний матеріал, необхідний для опанування уміння та навичок читання літератури за відповідним напрямом. За основу навчального матеріалу відібрані тексти з різноманітних джерел, виданих на англійській мові.

Відповідальний за випуск:

завідуюча каф. іноземних мов ОДОБА, к.ф.н., доцент Марьянко Я. С.

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Передмова

Пропоновані методичні вказівки і учбовий матеріал призначені для аудиторної та самостійної роботи магістрів спеціальності 192 «Будівництво та цивільна інженерія», освітньо-професійної програми «Архітектурно-будівельний інжиніринг».

Метою методичних вказівок являється вдосконалення уміння та навичок перекладу, безперекладного розуміння тексту, витягнення головної інформації, а також анотування та реферування тексту.

Матеріалом методичних вказівок послужили оригінальні тексти англомовних джерел відповідного напрямку.

Лінгвистичний аналіз показує, що лексичний склад методичних, як за своїм змістом, так і за структурою, відповідає сучасному змісту англійської мови.Повторюваність найбільш вживаних слів і термінів сприяє їх активному засвоюванню. Вибір текстового матеріалу обумовлений як тематичною спрямованістю, так і інформаційною цінністю текстів.

Посібник включає 14 тем згідно структури: (а) текст; (б) лексіко-граматичні вправи до тексту, завдання яких — забезпечити матеріал для формування передбачених програмою вмінь та навичок. Особлива увага приділяється зняттю інтерференції омографічних форм та конструкцій. В цей розділ ввійшли також вправи репродуктивного та творчого характеру.

LESSON 1

TEXT

YOUR JOB. TYPES OF WORK. SKILLS AND QUALIFICATIONS.

Residential construction industry activity fell across the nation during the recession, but particularly in key states and metropolitan areas. Smaller builders and remodelers that tend to know local markets best were hit especially hard. All past market downtums have reduced competition by weeding out firms, but this downtum's size and duration may give the larger players a wider competitive advantage. The production builders' longevity may lead to the institutionalization of efficiency and product quality gains, but could potentially hurt local, smaller businesses — the traditional mainstray of homebuilding industry that has historically been able to move nimbly between construction and remodeling sectors.

Future housing demand will require a diversity of housing types and qualities as determined by local markets. Current trends, such as the growth in multifamily housing demand, the push for energy-efficient design, and aging-in-place construction, as well as population and demographic projections (for smaller household in more densely populated areas, for example) will invariably help shape local housing markets. Yet, affordability will continue to be the most important national concern.

Housing policies should acknowledge that the building industry supply chain is increasingly global. Yet, many of the key physical inputs used for housing construction and remodeling during the housing boom — materials and products — increasingly came from foreign sources and suppliers. In addition, large numbers of immigrants make up the industry's workforce. For materials and products, international trade regulations and support for competitive, domestic residential construction materials and manufacturing through export promotion and manufacturing R&D may play a critical, though overlooked, role in strengthening the domestic supply chain and stabilizing the costs of producing homes.

Studying the distribution and retail networks for these inputs may uncover other

policy challenges with global implications, too.

For labour, re-skilling and workforce re-training are necessary for firms that are adopting more complex operations, and essential when moving into new sectors. National efforts to promote new workforce training can promote both a steady supply of domestic labour as well as upgrade the skills of the recent immigrant workforce. Reduced opportunities for formal and on-the-job training of future workers (especially for those moving from one constructon sector to another) will limit any possible industry transformation.

VOCABULARY NOTES

- recession - спад
- duration - тривалість
- local markets — місцеві ринки
- household - господарство
- to acknowledge - визнати
- workforce — робоча сила
- policy challenges — політичні виклики
- residential construction — житлове будівництво
- national concern — національне питання
- downtum — спад

EXERCISES

I. Read and translate the text.

II. Answer the following questions.

1. Where did residential construction industry fall?
2. What have all past market downtums reduced?
3. What may the production builders' longevity lead to?
4. What will future housing demand require?
5. Where did many of the key physical inputs used for housing construction and remodeling come from?

6. How may we uncover other policy challenges with global implications?

III. Translate into English modal verbs and phrases given in brackets.

Should be supplied - (можливо; слід; можливо було) постачати;
can be constructed - (можна було; треба було; можна) будувати;
could be reduced - (треба; слід; можна було) скоротити;
has to be replaced - (повинен бути; може бути; міг бути) заміненим;
had to determine - (повинен; повинен був; може) визначити;
may be accepted - (може; могло; повинно було) бути прийнято.

IV. Open the brackets using the proper form of the modal verb:

1. This construction (слід завершити) by the end of the week.
2. This construction (треба було завершити) by the end of the week.
3. This construction (можливо завершити) by the end of the week.
4. This construction (неможливо завершити) by the end of the week.
5. This construction (можна було завершити) by the end of the week.
6. This construction (треба буде завершити) by the end of the week.

V. Translate into English.

1. Малі будівельники і переробники, які намагаються краще пізнати місцеві ринки, постраждали особливо сильно.
2. Майбутні вимоги до житла будуть вимагати різні житлові типи, визначені місцевими ринками.
3. Доступність буде і далі найбільш важливим національним питанням.
4. Національні спроби сприяти підготовці новоі робочоі сили можуть сприяти як постійному постачанню внутрішньої праці, так і підвищенню навичок робочої сили нещодавніх емігрантів.
5. Знижені можливості для офіційної підготовки та підготовки на робочому

місці майбутніх працівників обмежать можливі промислові зміни.

VI. Choose the appropriate form of the Infinitive.

1. He was glad (to appoint; to be appointed; to be appointing) to this post.
2. She is sorry (to have failed; to be failing; to be failed) the project.
3. Building materials are expected (to deliver; to be delivered; to have been delivered) on Tuesday.
4. He seems (to be working out; to have been working out; to be worked out) a new scheme since yesterday.
5. I'm happy (to be helping; to be helped; to help) you now.

VII. Make up a dialogue. Speak about the trends in residential construction industry.

VIII. Retell the text in detail.

LESSON 2

TEXT

TYPES OF MEETINGS. MEETING ETIQUETTE. MAKING A PRESENTATION AT A MEETING

Remote work is here to stay. Given the current global situation, companies have rolled out remote work policies for their employees. Even with the effective rollout of vaccines, remote culture, thanks to its numerous benefits for employers and employees alike, is set to become the norm.

It is being reported that business owners save a lot on overheads as they don't have to pay the rent for office space anymore. Employees too save on transit and rent, and if trends are to be believed, remote work culture is about to replace the corporate work culture as we know it.

With employees scattered all across the globe now, meetings are being conducted via video conferencing. This includes job interviews and client meetings as well.

Since such a bulk of our interaction takes place online, it is crucial to have some meeting etiquette guidelines set in place.

Keeping in mind 30% of the employee's time spent in meetings is considered unproductive, it is essential to follow certain tips for leading effective meetings.

As the home and workplace are beginning to merge into one, the boundaries between our personal and professional lives have also started to mix up. Needless to say, during an online meeting, multiple awkward situations are bound to occur.

With an increase in remote work, we are being introduced to a lot of new ways of working, and there are a lot of things that we are yet to learn. Many guides to remote work can help us with this, but it begins with connecting with the teammates in the correct way.

It is possible that a family member could walk in on you while you are in an office meeting. This compromises the professionalism and might even stretch the meeting time a bit.

But these things can be improved and optimized better by knowing about a few and basic online meeting etiquette. This will also ensure that your presence and appearance on screen remain consistent throughout the meetings.

By following basic meeting etiquettes, you help your colleagues and company in-

- Saving more time
- Become productive
- Complete the meeting agenda on time
- Being more focused when meetings happen

So here, we present you with some ground rules for virtual meetings to ensure high productivity and professional remote work culture.

Online Meeting Etiquette for Attendees To Follow

1. Test your setup

The whole point of online meetings is being able to listen and see each other virtually. If there is an issue with either of the options it defeats the purpose of conducting online meetings. Also, make sure your internet connection is working as intended.

2. Mute By Default

Either it is a large group meeting or a meeting limited to 2-3 individuals, make sure to enable options like mute by default while joining for audio and video. This will give you time to look at your surroundings and analyze for unwanted sounds and visuals.

3. Choose the Right Technology or Software

4. Keep Your Hands Off The Keyboard

5. Stop Multitasking

6. Be Appropriately Dressed

7. Clear Background

8. Arrive Early

9. Minimize body movements

10. Set Boundaries

11. Set an Agenda

When you are operating professionally from your private space, it is easy and natural to drift off. So make sure to have a clear agenda before meeting so all the participants have something to say and are more engaged in the meeting.

12. Pay Attention

13. Introduce Everyone

14. Turn Off Notifications

15. Give Everyone a Job

16. Summarize the Meeting Before Ending

17. Don't Interrupt Others

18. Avoid Speaking Right Away

19. Know Your Audience

20. Breaks For Lengthy Meetings

21. End on Time

22. Allow People to Leave

Final Takeaway

It is reported that almost 70% of people work remotely at least once every week. The chances of your meeting with someone working remotely today are way higher than they have ever been. *Learning basic online meeting etiquette is very important now.*

As the businesses have started moving towards remote working culture to provide employees more flexibility, they have also started to save a huge amount of expenses on real estate and other employee-related expenses.

The trend of online meetings will keep growing and is bound to become a daily part of our jobs. By following online meeting etiquette tips you can easily stay more productive and engaged during meetings.

VOCABULARY NOTES

- scattered — розкидані
- etiquette — етикет
- merge - злиття
- appearance - недоліки
- growing conditions- умови росту
- to process - обробляти

EXERCISES

I. Read and translate the text .

II. Answer the following questions.

1. How is cement used?
2. When did rock structures exist?
3. What are the drawbacks of rocks?
4. Why were different forms of mortar used in dry-stone walls?
5. What provided ample resources for early settlers?
6. What were circular huts constructed from?
7. How long has wood been used as a building material in its natural state?
8. What is wood and how is it used?
9. What is timber and when does raw wood become timber?
10. What kinds of wood do you know?

III. Open the brackets using the proper forms and constructions of comparison:

1. New technology will make the construction process much (easy) and (cheap).
2. The resources of energy should be used (much) effectively.
3. This branch of industry is the (much) highly developed one in our region.
4. In training civil engineers theory is (important) practice.
5. This new building will be some floors (high) all the other houses in this street.
6. The problem is so complicated that it will take me much (more) two days to solve

it.

7. Wooden houses are (strong) than concrete houses.
8. The quality of a material is (important) than its price.
9. This was (good) film I have ever seen.

IV. Choose the appropriate modal verb or its equivalent:

1. Your computer doesn't work. You (can, may, will have to) repair it.
2. You (may, would, have to) not see these photos. They are only for relatives.
3. (Could, must, should) you phone me tonight?
4. You (shouldn't, aren't able to, don't have to) play with fire. It's dangerous.
5. My brother is ill. I (must, am able to, am allowed to) stay with him.
6. (Can, must, should) you do me a favour, please?

V. Translate the sentences into English.

1. Каміння є найтривалішим будівельним матеріалом, що зазвичай є доступним.
2. Різні форми розчину застосовувалися, щоб утримувати каміння, але зараз цемент є найбільш поширеним.
3. Каміння є твердим для утримання тепла з використанням великої кількості теплових ресурсів.
4. Граніт продовжували використовувати, починаючи з Середньовіччя і до теперішнього часу.
5. Сланець — це інший тип каміння, який використовується в усьому світі як кровельний матеріал.
6. Сьогодні будівельне дерево стає досить популярним у цивілізованих країнах.
7. Дерево може бути гнучким при навантаженні, утримуючи силу під час вигинання, і є неймовірно міцним при вертикальному стисканні.
8. Головні проблеми з дерев'яними спорудами — це риск вогню і проблеми відносної вологи.

VI. Make up a dialogue. Speak about the use of sand, stone and wood in the

house construction.

VII. Give a summary of the text «Sand, stone and wood» in written form.

LESSON 3

TEXT

DOORS AND WINDOWS. TIME MANAGEMENT. NEGOTIATIONS

Bricks are made in a similar way to mud-bricks except without the fibrous binder such as straw and are fired («burned» in a brick clamp or kiln) after they have air-dried to permanently harden them. Kiln fired clay bricks are a ceramic material. Fired bricks can be solid or have hollow cavities to aid in drying and make them lighter and easier to transport. The individual bricks are placed upon each other in courses using mortar. Successive courses being used to build up walls, arches, and other architectural elements. Fired brick walls are usually substantially thinner than cob/adobe while keeping the same vertical strength. They require more energy to create but are easier to transport and store, and are lighter than stone blocks. Romans extensively used fired brick of a shape and type now called Roman bricks. Building with bricks gained much popularity in the mid-18th century and 19th century. This was due to lower costs within crises in brick manufacturing and fire-safety in the ever crowding cities.

The cinder block supplemented or replaced fired bricks in the late 20th century often being used for the inner parts of masonry walls and by themselves.

Structural clay tiles (clay blocks) are clay or terracotta and typically are perforated with holes.

Cement composites. Cement bonded composites are made of hydrated cement paste that binds wood, particles, or fibers to make pre-cast building components. Various fibrous materials, including paper, fiberglass, and carbon-fiber have been used as binders.

Wood and natural fibers are composed of various soluble organic compounds like carbohydrates, glycosides and phenolics. These compounds are known to retard cement setting. Therefore, before using a wood in making cement bonded composites, its

compatibility with cement is assessed.

Wood-cement compatibility is the ratio of a parameter related to the property of a wood-cement composite to that of a neat cement paste. The compatibility is often expressed as a percentage value. To determine wood-cement compatibility, methods based on different properties are used, such as, hydration characteristics, strength, interfacial bond and morphology. Various methods are used by researchers such as the measurement of hydration characteristics of a cement-aggregate mix; the comparison of the mechanical properties of cement-aggregate mixes and the visual assessment of microstructural properties of the wood-cement mixes. It has been found that the hydration test by measuring the change in hydration temperature with time is the most convenient method. Recently, Karade et al. have reviewed these methods of compatibility assessment and suggested a method based on the 'maturity concept' i.e. taking into consideration both time and temperature of cement hydration reaction.

Bricks were laid in lime mortar from the time of the Romans until supplanted by Portland cement mortar in the early 20th century. Cement blocks also sometimes are filled with grout or covered with a parge coat.

VOCABULARY NOTES

-fibrous binder — волокниста в'яжуча речовина

- straw - солома

- kiln fired clay bricks — цегла, опалена у печі

- hollow cavities — порожні щілини

- substantially — по суті

- to gain popularity — отримати популярність

- supplement - поповнення

- pre-cast - збірний

- compounds - складові

- assessment - оцінка

- a convenient method — зручний метод

- lime mortar — вапняний розчин

- a parge coat — покриття навантаження
- perforated — просвердлений

EXERCISES

I. Read and translate the text.

II. Answer the following questions.

1. How are bricks made?
2. What properties must fired bricks have?
3. Where are the individual bricks placed?
4. What do fired brick walls require?
5. When did building with brick gain much popularity?
6. What were the cinder blocks supplemented or replaced fired bricks used for?
7. What is perforated with holes?
8. How are cement bonded composites made?
9. What materials have been used as binders?
10. What methods are used to determine wood-cement compatibility?
11. What methods are used by researchers?
12. When were bricks laid in lime mortar?

III. Change the sentences from Passive into Active.

1. A general plan of a construction site is being built by a civil engineer now.
2. Machines, engines and other devices are used by builders in everyday life.
3. Bricks were known many thousand years ago.
4. This project was made by me yesterday.
5. When I returned from my business trip, the bill for electricity had been paid by my sister.
6. This new article will be published by us tomorrow.
7. In our country many buildings are constructed and reconstructed.
8. When I entered the flat, the furniture was being replaced by my relatives.

IV. Put questions to the underlined words.

1. The individual bricks are placed upon each other in courses using mortar.
2. Romans extensively used fired brick of a shape and type now called Roman bricks.
3. Building with brick gained much popularity in the mid-18th century.
4. Bricks are made in a similar way to mud-bricks except without the fibrous binder.
5. Various fibrous materials, including paper, fiberglass and carbon-fiber have been used as binders.
6. To determine wood-cement compatibility, methods based on different properties were being used.
7. Bricks were laid in lime mortar from the time of the Romans.

V. Translate the following sentences into English.

1. Цегла, опалена глиною в печі, є керамічним матеріалом.
2. Опалена цегла може бути твердою чи мати порожні щілини для висушування, щоб зробити її легшою для транспортування.
3. Окремі циглини розташовують один на одному шарами з використанням розчину.
4. Римляни широко застосовували сформовану опалену цеглу і вона зараз називається Римською цеглою.
5. Різні волокнисті матеріали, що включають папір, фіброскло та карбонове волокно, застосовувалися для якості в'яжучих речовин.
6. Перед використанням дерева при виготовленні цементу оцінюються в'яжучі складові та їх сумісність з цементом.
7. Щоб виявити сумісність дерева-цемента, використовуються методи, засновані на різних властивостях.
8. Було виявлено, що тест на гідротацію шляхом вимірювання змін в температурі гідратації з часом є найбільш зручним методом.

VI. Translate the sentences into English using modal verbs and their equivalents.

1. Він мав повернутися з відрядження вчора.

2. Мій колега хворий, тому мені доведеться розробляти проект самостійно.

3. Завтра мені доведеться летіти до Німеччини, як було вирішено на нараді.

4. Чи можна скористатися вашими інструментами?

5. Вона не досить добре підготовлена, тому їй не слід братися за цю роботу.

LESSON 4
TEXT
STAGES IN THE JOB APPLICATION PROCESS. JOB ADVERTISEMENTS

Introduction. — Reinforced concrete is an excellent building material, adaptable to many uses. It is strong, fire-resistant, and durable when well made. On the other hand, it is a heavy material, and its use generally results in rather bulky members so that its greatest field of usefulness is in relatively low buildings and in structures where its mass, rigidity, and strength are advantageous. Tall buildings may be made of reinforced concrete but, when they are more than six or eight stories high, it is desirable to question the economy and advisability of such construction for industrial purposes.

Structures built of concrete should be planned upon the basis of the characteristics of the material itself, and upon the essential nature of the construction processes. Concrete is not a substitute for structural steel in terms of member for member. Architects and engineers, figuratively, should throw away many of their ideas derived from experience with steel-framed structures, then tackle the project at hand on the basis of utilizing the concrete to the best advantage. Many have done this and are now producing plans for concrete structures that are both attractive and practical.

Here, as elsewhere, the designer should make sure that concrete is the most desirable material for a structure and should give careful consideration to the general proportions of the structure and to the uses for which it is intended. Because of the nature of concrete construction, careful planning is needed in the first place because extensive alterations and radical changes of future use are likely to be both difficult and expensive.

Some General Principles. — The planning and the detail designing of concrete structures are so influenced that the engineer should attack such problems entirely upon the basis of the best use of this particular material. He should remember constantly that

he is creating a structure to be made of “artificial stone”, of material placed in position in a plastic state so that it must be supported temporarily by something other than itself, and of a material that will and should conform to every detail of the surfaces with which it is in contact when the plastic concrete is deposited.

Not only does concrete improve with the use of good materials, but its quality depends largely upon the excellence of the workmanship used in its manufacture, the adequacy and thoroughness of its placement, and the care with which it is cured. Not only does its strength ' depend upon highly skilled labour, but the quality of its surface and the beauty of its appearance do likewise. It is foolish to forget these obvious truths. Expert workmen produce surprisingly fine results.

II. The words and expressions to be remembered.

1. bulky – важкий
2. to tackle – енергійно братися за справу
3. temporarily – тимчасово
4. reinforced concrete – залізобетон
5. heavy material - важкий матеріал
6. for industrial purposes - для промислових цілей
7. adaptable – що легко пристосовується
8. steel-frame – сталева конструкція
9. to throw away – викидати
10. advisability – доцільність

III. Translate the following verbal phrases.

a) Was used some years ago; has been already used; will be used in concrete structures; is being used now.

b) Are widely applied in concrete structures; is being applied now; were applying; had been already applied in town planning.

c) Will be constructed; has been already constructed; will have been constructed by the next month.

d) Is determined; will be determined in concrete structures; has been already determined; are being determined now.

IV. Compare the following pairs of predicates and translate them into your native language.

will select – will be selected;
is increasing – is being increased;
has changed – has been changed;
will divide – will be divided;
was designing – was being designed;
possesses – is possessed;
will refer – will be referred;
makes – is made;
had replaced – had been replaced;
is obtaining – is being obtained.

V. Translated the following sentences paying attention to passive constructions.

1. Because of the nature of concrete construction careful planning is needed in the first place.
2. The students will be shown a new film on the development of construction industry.
3. The young workers are trained at the factory how to use the new equipment.
4. New multistory buildings are being built in Kiev in different parts of the city.
5. The experiment had been completed by the end of the last month.
6. All necessary information is being stored in the computer.
7. Pile foundations are widely used there.
8. Ferro-concrete was discovered about 200 years ago.
9. A totally new safety system is being installed.
10. The experiment had been completed by the end of the last month.

VI. Translate into English.

1) Залізобетон є чудовим матеріалом, що застосовується у багатьох випадках.

2) Залізобетон є міцним, вогнестійким та довготривалим, якщо він правильно приготований.

3) Багатоповерхові будівлі можуть бути виготовлені з залізобетону.

4) Проектувальник повинен бути впевненим, що бетон є найбільш підходящим будівельним матеріалом.

5) Інженер повинен постійно пам'ятати, що він створює будівлю з штучного каменю.

6) Якість бетону в цілому залежить від кваліфікації під час його виробництва.

7) Якість бетону також залежить від того, як його заливають (або способу заливання).

8) Через природу бетонних споруд необхідно перш за все дбайливе планування.

9) Споруди, виготовленні з бетону, необхідно планувати в залежності від характеру матеріалу.

10) Залізобетон є важким матеріалом та його краще застосовувати в низьких будівлях.

VII. Answer the following questions.

1. Is reinforced concrete an excellent building material?
2. What may tall building be made of?
3. What is desirable for tall buildings of six or eight stories high?
4. What should architects and engineers throw away?
5. What are now both attractive and practical?
6. What should the designer make sure in?
7. Is careful planning needed in concrete construction in the first place?
8. What does the quality of concrete depend on?
9. Do expert workmen produce fine results?
10. Does the strength of concrete depend upon skilled labour?

LESSON 5

TEXT
INSULATION. MAKING TRAVEL ARRANGEMENTS. TRAVEL NECESSITIES

When planning concrete work, an engineer should consider the following matters, along with many others:

1. Poured-concrete structures ordinarily try to act largely as continuous frames. This is inherent in their nature. In fact, if continuity is to be avoided without detrimental or objectionable cracking, special measures generally must be employed. Hence, the advantages of continuity can and should be utilized.

2. Since concrete is especially advantageous in resisting compression, its use is more desirable for columns and walls than for long- span beams. The arch, the dome, the cylindrical barrel, the rigid frame, the flat slab, and beam-and-girder construction are among the types most suitable for the use of concrete.

3. So-called "framed" connection is difficult to make in reinforced concrete. Junctions of beams to beams should be made by pouring the adjoining members monolithically if possible because, otherwise, it is difficult to provide for transversal shearing forces. When beams rest upon walls or columns, the construction joints should be located so that each beam has adequate bearing upon the supporting member.

4. Not only is simplicity of shape desirable in order to minimize the cost of formwork, but the duplication of parts permits the revise of forms. It is obvious that heavy forms high in the air are costly.

5. Architectural details should be planned with consideration not only for the fabrication of the forms but also for the removal or stripping of them without damage to the concrete, or undue harm to the forms themselves. The details should also be such that the concrete will conform completely and easily to all the contours, projections, and recesses of the forms without spalling, honeycombing, slumping, air-trapping, and surface imperfections.

6. As the desired surface texture of concrete structures is something to determine carefully in advance, the structure should be planned so that the desired effects will be attained. Good effects will not just happen of their own accord; the bad ones do that.

7. The sequence of pours and the location of construction joints should be determined during the general planning of a structure in order to ascertain that what is desired can be built practicably. The volume of concrete that can be placed in one continuous pour depends upon the capacity of the equipment and upon the nature and details of the structure. It is very important to avoid the incomplete placing of a pour by depositing a portion of the concrete at one time, then pouring additional concrete alongside or on top of the first part after the latter has only partly set. After the first part has hardened, there is likely to be an unexpected plane of weakness at the junction with that deposited later. Of course, a tall pier shaft may be poured almost continuously and over a period of many hours if the work is performed properly. However, this is seldom easy of accomplishment in the case of extensive foundations, walls, and floors.

II. The words and expressions to be remembered.

1. inherent – притаманний
2. detrimental – шкідливий
3. transversal – нахилений
4. duplication – копія, копіювання
5. poured concrete structures – налив бетонних конструкцій
6. to consider – лічити
7. measures – міри
8. continuity – послідовність, безперервність
9. beam and girder construction – конструкція з перекриттям на балках
10. junction – з’єднання

III. Translate the following verbal phrases.

a) Is made; was made some years ago; has been already made; will be made from concrete elements; is being made now.

b) Had been added by the end of the year; will be added soon; is added; was added some years ago.

c) Is being provided; will be provided soon; has been already provided; provide every

year.

d) Was employed; will be employed soon; had been employed by the end of the last month; employ every year.

IV. Compare the following pairs of predicates and translate them into your native language.

achieved – were achieved

will depend – will be depended

constructed – was constructed

is developing – is being developed

had answered – had been answered

will create – will be created

are reconstructing – are being reconstructed

will produce – will be produced

were destroying – were being destroyed

makes – are made

V. Translate the following sentences paying attention to passive constructions.

1. Civil engineering was not distinguished from other branches of engineering until 200 years ago.
2. Roads, canals, railways, ports and bridges were built by engineers.
3. The problem is being solved now.
4. These plots of land are being measured by the land use planners.
5. This absolutely new approach has been developed by our design institute.
6. Pile foundations will be widely used everywhere.
7. Piles were also used in ancient times.
8. The construction of a building had been completed by the end of the last month.
9. The temperature in the underground is maintained at 70^0F.
10. The report of the chief engineer will be followed by a discussion.

VI. Translate into English.

1. Плануючи бетонні роботи, інженеру необхідно враховувати багато показників.
2. Використовування бетону набагато краще при опорі стисненню.
3. Використовування бетону краще для колон та стін, ніж для багатопролітної балки.
4. Арки та купола находяться серед типів споруд, придатних для використання бетону.
5. Архітектурні деталі треба планувати з урахуванням не тільки виготовлених форм.
6. Залізобетон – це поєднання двох найбільш міцних будівельних матеріалів : бетону та сталі.
7. Залізобетон почав використовуватись у кінці 19 століття.
8. Перші результати тестів по залізобетонним балкам були опубліковані у 1887 році.
9. Назва «залізобетон» застосовується до конструкцій, в яких впроваджуються стальні стержні або міцні стальні решітки.
10. Найбільш важливою якістю бетону є його властивість формуватися у великі та міцні моноліти.

VII. Answer the following questions.

1. How do poured-concrete structures ordinarily try to act?
2. Where is concrete especially advantageous?
3. Is concrete more desirable for columns and walls than for long span beams?
4. How should architectural details be planned?
5. Is so called “framed” connection difficult to make in reinforced concrete?
6. What does the volume of concrete depend on?
7. Should the sequence of pours and the location of the construction joints be determined during the general planning of a structure?
8. Where is so-called “framed” connection difficult to make?
9. May a tall pier shaft be poured almost continuously?

10. What should an engineer consider when planning concrete work?

LESSON 6

TEXT

MODEL CVS: CHRONOLOGICAL AND SKILLS-BASED JOB ADVERTISEMENT. COMPANY CULTURE. BUSINESS IN DIFFERENT CULTURES

Modern science has demonstrated that it can open the way to a golden age if it is developed in freedom for the benefit of mankind.

Professional engineers have a primary responsibility of making plain to their governments, their citizens, indeed to all mankind. In meeting this obligation it is their duty to give overriding consideration to the public safety and to the national welfare. This is a moral responsibility — a moral responsibility for the direction taken by our civilization and for the sort of lives our children's children shall inherit.

Definitions of «Scientist» and «Engineer».

There is as much difference between the roles of the scientist and of the engineer as there is between night and day. Specifically, the scientist makes things known and the engineer makes things work.

The engineer is trained and disciplined not to make mistakes. He commits himself to the severe discipline and moral obligation of applying scientific principles within established rules of public safety and with due regard to economy and the national welfare. Within these severe demands engineer undertakes to synthesize a wide range of technical, legal, financial and social requirements and to function as a planner, designer, builder or administrator.

The Role of the Professional Engineer.

The purpose of engineering is to serve mankind; this service is achieved through the individual and personal responsibility of the professional engineer. His professional services demand every bit as much personal attention and responsibility as that of a surgeon performing a highly critical operation.

This sense of personal responsibility on the part of each engineer is particularly

important in areas of general public service, such as electric power supply or municipal water supply.

Since engineering is a profession which affects the material basis of everyone's life, there is almost always a third party involved in any contract between the engineer and those who employ him, and that is the country, the people as a whole. These, too, are the engineer's clients, albeit involuntarily. Engineering ethics ought, therefore, to safeguard those interests most carefully. Knowing more than the public about the effects his work will have, the engineer ought to consider himself a person that has always to keep in mind general interest.

Service ceases to be professional if it has in any way been dictated by the client or employer. Professional independence is not a special privilege but rather an inner necessity for the true professional man and a safeguard for his employers and the general public. Without it he negates everything that makes him a professional person and he becomes at best a routine technician or a hired hand, at worst a hack.

In recent years decisions have been made in areas of science - areas in which even the well-educated man is often the stranger — which affect the lives and welfare of many people and of entire nations. However, if a free society is to remain free, it must demand the application of scientific discoveries under the dedicated responsibility of professional engineers working in freedom

Responsibilities and Limitations in Engineering Design.

The predominant influences of science and of engineering have appeared on the world's scene within the past century, which, in terms of history, is a relatively short time. The turn of the century marks the beginning of the revolutionary period of modern science, and it is still within the span of our lifetimes that engineers have become a vital factor in the American industrial scene.Not long ago industrial development depended largely upon mechanical inventiveness. With the advent of modern science have come discoveries and explanations which are more fundamental. Yet, such fundamentals do not explain what is engineeringly sound.

With the advent of a new science the engineer cannot minimize or ignore a potential hazard on the grounds that all of the scientific data necessary for a complete

understanding of the hazard are not available. In fact, it is precisely in such areas where the professional skills and judgment of the engineer take on added importance as a moderating influence.

Recognizing that error is an inherent factor in all human activity, the professional engineer applies his technical knowledge and professional disciplines preponderantly on the side of safety. One of his most important tools is the «factor of safety». For example, the stability of a dam may have a factor of safety of 2; this means that before such a structure would fail, the supported load would have to be twice the assumed or predictable load for which the structure was designed. Thus the factor of safety compensates for unexpected or unpredictable greater loads in the coming decades, as well as for possible deterioration with time.

But in spite of all the applied skill and precautions, failures continue to occur for many reasons.

Modern history records numerous disasters in engineering and technology, with tragic loss of life, such as the sinking of the «unsinkable» Titanic.

So, the sense of personal responsibility on the part of each engineer is very important.

VOCABULARY NOTES

- responsibility - відповідальність
- plain — поле, нива
- to override (overrode,overriden) - заперечувати
- to commit - пов'язувати
- to undertake — брати зобов'язання
- asset - внесок
- bulwark - оплот
- service - служба
- advent - поява
- preponderantely — у головному
- precaution - обережність

EXERCISES

I. Read and translate the text «Profession Engineering Responsibility»

II. Answer the following questions.

1. What has modern science demonstrated?
2. What responsibility have professional engineers?
3. What is the duty of professional engineers?
4. What is a difference between the roles of a scientist and of an engineer?
5. The engineer commits himself to the severe discipline, doesn't he?
6. How is the engineer trained?
7. What demands does the engineer undertake to synthesize a wide range of technical, legal, financial and social requirements?
8. What is the purpose of engineering?
9. What do you know about engineering ethics?
10. What did industrial development depend on not long ago?
11. Does modern history record any disasters in engineering and technology?

III. Choose the proper forms of participle expressing the action a) simultaneous with the predicate; b) previous to the predicate and c) in the Passive Voice.

Being made; having demonstrated; having been developed; having given; having been studied; studying; having studied; being studied; having known; knowing; having committed; having built; having been built; building; being built; being asked; having asked; asking; asked (by); having been asked.

IV. Choose the proper form of the participle from those given in brackets.

1. New technology (developing; being developed; having been developed) in our laboratory will be introduced into practice this year.
2. (Having discovered; being discovered; discovering) rich deposits of iron in this region people began to construct a metal-working plant.
3. The work (done; having done; doing) is equal to the energy lost.
4. The (having moved; moving; being moved) conveyor brings details to the working

place.

5. (Finishing; having been finished; having finished) the test the designer showed the results to his chief.

6. Concrete mixers (producing; having been produced; produced) by our plant are of good quality.

V. Translate the sentences with passive and impersonal constructions.

1. It is necessary to emphasize that you will be given only brief recomendations.
2. Such difficulties are often met with in practice.
3. The facts described above were not given due attention at first.
4. One could not obtain all the necessary information without repeating the test.
5. It has been established that materials possessed sufficient durability and hardness.
6. One should keep in mind the safety rules.
7. It is quite clear that the device will not work under this conditions.
8. One must always be careful when operating with lifting mechanisms.

VI. Translate the following sentences into English.

1. Професійні інженери несуть моральну відповідальність за напрямок, обраний нашою цивілізацією.
2. Між роллю вченого та інженера така ж сама різниця, як між днем і ніччю.
3. Вчені створюють речі, а інженери примушують їх робити.
4. Інженерів готують не для того, щоб вони робили помилки.
5. Мета техніки — служити людству. Ця служба досягається завдяки персональній відповідальності інженера.
6. Суть відповідальності інженера-професіонала включає в себе багату спадщину, яка є оплотом у захисті людей при використанні науки і техніки.
7. В останньому столітті проявився вплив науки і техніки.

VII. Put questions to the underlined words.

1. The turn of the century marks th<u>e beginning of the revolutionary period</u> of modern science.

2. In recent years decisions have been made in areas of science.

3. The factor of safety has also been called the «factor of ignorance».

4. Modern history records numerous disasters in engineering and technology.

5. Engineering ethics ought to safeguard those interests most carefully.

VIII. Rearrange the elements to get finite forms of the verbs:

Developed, have, been;	compressed, be, should;
Being, cracking, is;	being, are, manufactured;
Called, will, be;	deformed, been, has;
Identified, been, has;	welded, to be, has;
Mix, had to;	changed, being, are;
Added, be, may;	produced, be, will.

IX. Use the above finite forms in short sentences.

X. **Summarize the contents of each paragraph.**

XI. Make up a dialogue. Speak about professional ethics.

XII. Express the main idea of the text.

LESSON 7

TEXT

THE EDUCATION SECTION OF YOUR CV. MANAGEMENT STYLES. TEAM BUILDING

Some important factors that influence the selection of the materials and construction of walls for buildings are the following:

Although the shape of an industrial building may affect its aesthetic value considerably, the exterior walls are generally the features that determine whether or not

its appearance is pleasing. Of course, along with the texture, colour, and pattern of the exterior surface of the wall material must be included the pilasters, paneling, and any other elements that contribute to the total effect of the ensemble. For example, a high, long, blank wall almost certainly will be unattractive regardless of the nature of the surface of the material of which it is made. Shadow lines, vertical and horizontal offsets, changes in colour and texture, arrangement of windows, and the details of the trim are some means whereby an architect may skillfully enhance the appearance of a structure. Architectural elevations and perspective drawings are extremely useful in helping one to determine and to judge what are the best answers to these problems.

The cost of the material used for the solid portions of the exterior walls is usually a relatively small part of the total cost of a building; the difference in cost of one desirable material over that of a less desirable one is still less important. Nevertheless, the aesthetic effect produced by the structure is permanent and will continue long after any reduction of initial expenditure is forgotten. On the other hand, 120in. Brick walls naturally cost more than corrugated metal or transit coverings. The engineer should consider all important features, then make his choice upon the basis of value received both real and intangible.

Associated with these matters of appearance and cost should be that of the general suitability of the wall material for the structure in which it is to be used, and that of its harmony with neighbouring structures. It is difficult to define the former quality because of the varying uses to which structures may be put, the climate of the region, the availability of materials, insulating properties, and the different kinds of construction that may be desirable and practicable. For instance, a 60- by 200-ft. Building with walls of neat yellow face brick may appear out of place among buildings with corrugated metal siding, not because the new building of itself is unsightly but because it emphasizes the difference between the new and te old. It is even more self-evident that a building with corrugated, galvanized metal siding may appear incongruous when set among others having attractive walls of red bricks, concrete, or stucco.

Of itself, a wall covering need not last longer than the rest of the structure, or

the purpose for which the structure is built. The former situation seldom arises except in the case of buildings with combustible frames and roofs but with fireproof walls; in general, the durability and weather-resisting qualities of the walls and roof determine the useful life of the building. The latter — the purpose for which a structure is built — has a way of changing as time goes by. A «temporary» structure erected many years ago is still functioning, or its owner wishes that it would continue to do so.

Aside from wall-bearing structures and those erected in regions that are subjected to earthquakes, the strength of wall materials is seldom critical unless the structural supports are improperly designed, or the walls are too thin and tall. Resistance to wind should be provided for, and buckling of thin walls under their own weight should be prevented. It is the structural frame rather than the wall itself that should generally be relied upon to hold a thin, flimsy wall in place.

The weight of a wall may be especially worthy of consideration when continuous windows are used, because the lintels and any spandrel beams must carry to the columns all the wall loads supported by these members. Heavy brick or masonry walls may therefore add considerably to the cost of the framing. Even in other cases, lightness is often advantageous.

Combustible materials, such as wood, may be well adapted to use as walls except for the hazard of fire; incombustible materials like steel may be fire-resistant although not truly fireproof. The inherent dangers and the risks involved should be studied in each case before anyone makes his selection of the material to be used.

It is difficult for one to illustrate and compare all — or even nearly all — possible types of wall construction.

The sequence of the types of wall discussed is based largely upon their light weight rather than upon their relative desirability.

A large amount of development and experimental work is being carried on with the object of securing lighter, cheaper, and better walls than those that hitherto been in common use. These will be especially important in tall, multistory buildings; lightness alone is not so important in factory buildings. Even in the case of industrial structures, the use of prefabricated panels may bring about considerable changes in one's ideas of

suitable construction.

VOCABULARY NOTES

- partition — перегородка; розчленування
- offset — відвід (труби)
- to enhance - збільшувати
- elevation — висота, ескалатор, ліфт
- expenditure — витрата,
- corrugated - хвилястий
- to insulate - ізолювати
- to galvanize — покривати цинком, гальванізувати
- incongrous - невідповідний
- stucco - штукатурка
- flimsy - слабкий
- advantageous — вигідний, сприятливий
- combustible — займистий, горючий
- hazard — небезпека

EXERCISES

I. Read and translate the text «Walls and Partitions»

II. Answer the following questions:

1. What factors influence the selection of the materials and construction of walls for buildings?
2. What elements contribute to the total effect of the ensemble?
3. What can you tell of the cost of the material used for the solid portions of the exterior walls?
4. Why should the general suitability of the wall material be associated with the matters of appearance and cost?
5. What determines the useful life of the building?
6. What should be generally relied upon to hold a thin, flimsy wall in place?
7. May the weight of a wall be especially worthy of consideration?

8. When are combustible materials not well adapted to use as walls?
9. What is the sequence of the types of wall based upon?

III. Choose the correct form of the verb for each sentence from the brackets:
(have been designed; are governed; are influenced; are made use of; are provided; are carried out; can be said to have demonstrated; should be carefully thought of)
1. Building materials … by the type and the function of a building.
2. The techniques of construction … not only by the availability of materials but also by the total technological development of society.
3. A number of factories … to manufacture standardized factory-made elements.
4. The built-in space of an apartment … as well.
5. Windows … for the best possible lighting and ventilation.
6. Research and development in housing … on a national scale.
7. Modern industrial buildings … the advantages of prefabricated reinforced parts.
8. Reinforced-concrete elements … in residential house construction.

IV. Find the English equivalents to the following word combinations:
Будівництво стін, естетична цінність, поверхня матеріалу, ціна матеріалу, менш важливий, деякі скорочення, початкові витрати, сусідні будівлі, горючий каркас, підпадати під землетрус, балка, зовнішні стіни, перегородка, арматура.

V. Translate the following sentences paying attention to the Participial Constructions:
1. Cement being one of the most important components of concrete, the quality of the latter greatly depends on the quality of concrete.
2. Being very strong, durable and far-resistant concrete is widely used in housing construction.
3. While preparing concrete mixes one usually uses special-purpose machines.
4. If properly treated the water can be used to prepare concrete.
5. All the necessary ingredients having been mixed in a concrete-mixing machine,

concrete is ready for use.

6. Cement starts hardening one hour after water has been added, this process being called concrete curing.

VI. Translate the following sentences into English:

1. Зовнішні стіни звичайно мають особливості, які визначають наскільки приємний зовнішний вид будинку.
2. Вертикальні і горизонтальні відвідки труб, зміна кольору та текстури, розтошування вікон являються ознаками, за допомогою яких архитектор оцінює будинок.
3. Естетичний ефект, зроблений будівлею, постійний і він буде продовжуватися довго після зменшення витрат.
4. Інженер повинен розглянути всі важливі особливості, потім зробити вибір на основі одержаної оцінки.
5. Тяжко визначити попередню якість через змінювання застосування будинку, клімату в районі і наявності потрібних матеріалів.
6. За винятком несучих конструкцій і тих, які підпадають під землетрус, міцність стін рідко є критичною, якщо стіни не дуже тонкі.
7. Тяжкі цегляні або кам'яні стіни можуть значно збільшити вартість каркасу.

VII. Put questions to the underlined words:

1. Some <u>important</u> factors influence <u>the selection of the materials.</u>
2. Architechtural <u>elevations</u> and perspective drawings are <u>extremely</u> useful.
3. The aesthetic effect <u>produced by the structure</u> is permanent.
4. It is difficult <u>to define</u> the former quality <u>because of the varying uses</u>.
5. The <u>former</u> situation seldom arises except <u>in the case of buildings with combustible frames.</u>
6. <u>Resistance</u> to wind should be provided for, and buckling of thin walls under their own weight should be prevented.

VIII. Summarize the contents of each paragraph.

IX. Make up a dialogue. Speak about the factors influencing the selection of the materials and construction of walls.

X. Give a summary of the text in English.

LESSON 8

TEXT

STAIRS. PRODUCTION. MARKETING. FINANCE

In many cases, bricks — and concrete blocks, too — are very satisfactory for use in the construction of walls. They are strong, durable, prefabricated units that can be erected easily. Bricks generally present a pleasing appearance and can be obtained with various qualities, colours and textures. On the other hand, they are heavy.

The quality of the mortar and the excellence of the workmanship used in its construction are likely to control the strength, water-proofness, and durability of a brick wall. The bricks themselves are generally manufactured under well supervised and controlled conditions; this should, but may not, be equally applicable in the case of the field work.

Brick work should be constructed with completely filled joints, and the bricks themselves should be placed in accordance with some predetermined pattern that gives adequate bond; e.g., crossing of joints by adjacent bricks so as to knit the work together. These conditions apply to curtain walls that are supported by spandrel beams from floor to floor as well as to those which are used to carry superimposed loads.

Bearing walls made of bricks, and those built of concrete blocks and similar materials, may be suitable for small buildings and for multistory structures that approximate the office-building and apartment-house type of construction. When the floors are supported upon steel beams, bar joists, and wooden beams, these members may be erected easily as the walls are built.The masonry work may then be carried on

from floor to floor, using the previously erected floor framing as a working platform. This is likely to result in considerable saving of money because of the avoidance of costly scaffolding outside the walls. Furthermore, the floor slabs may be poured after the floor framing above them is in place, thus ensuring a minimum of damage to the completed floor, as well as eliminating the cost of temporary coverings over the floors.

Curtain-wall construction is often used for brick walls of important industrial plants. Here the brick work is a filler and is supported both vertically and laterally by the framework of the structure. When the spandrel beams are faced with bricks on the outside, it is best to make the wall thick enough so that its centre of gravity will be somewhat back from the edge of the vertical support. This generally requires 12-in. walls. It is also important to see that the brickwork is steadied by, and is tied to, the spandrel beams and columns sufficiently to transmit to them all probable lateral forces. Scaffolds for the use of the masons may be hung from the top of the completed framework. In reinforced-concrete constructin there is a real question as to whether or not the spandrel beams should be covered with a veneer of bricks. This should be decided upon the basis of architectural appearance as well as of economy.

Brickwork may be reinforced with steel so as to act somewhat like reinforced concrete although, of course, it is limited in strength and usefulness. High parapet walls, and others that are not braced at their tops, may have pilasters or buttresses reinforced as vertical cantilevers, and the walls between them may be reinforced as horizontal beams.

When planning reinforced brickwork, one should consider the joints and the way the bricks will be laid up. In horizontal joints, the sizes of rods should not exceed ¼ in. It is desirable also to have these small rods galvanized because bond stresses are generally small, whereas corrosion and staining might be harmful.

Solid brick walls alone are not good insulators. Sweating at the inside surface during cold weather is also to be avoided. Furthermore, the heat capacity of heavy walls may retard the rate of warming up a room on a winter morning, and it may similarly cause a room to remain hot for some time after the walls have once become heated by the summer sun.

One way to remedy these disadvantages is to build the walls so that they are of the hollow-cavity type. The brickwork should be carefully bonded together; corrodible metal ties should not be trusted for this. The air spaces should also have drains (small tile or other pipes, or split tiles) at their bottoms in order to remove any leakage and condensation. Special bricks with holes through them may, if laid properly, serve partly in remedying insulation and condensation troubles.

VOCABULARY NOTES

- prefabricated — збірний (будинок і т.ін.)
- texture — будова, структура
- workmanship — майстерність, кваліфікація
- scaffold - риштовання
- slab - плита
- to steady — робити міцним
- mason - каменяр
- beam — бапка, брус
- lateral — бічний, боковий
- veneer - фанера
- parapet — поруччя, парапет
- buttress — підпора, опора
- tremor - коливання
- insulator - ізолятор
- corrodible - корозійний
- leakage - витік

EXERCISES

I. Read and translate the text «Walls of Bricks and Concrete-Masonry Units»

II. Answer the following questions.

1. Why are bricks and concrete blocks very satisfactory in the construction of walls?
2. What is likely to control the strength, water-proofness, and durability of a brick

wall?

3. What conditions apply to curtain walls that are supported by spandrel beams?

4. What bearing walls may be suitable for small buildings?

5. What members may be erected easily as the walls are built?

6. Which walls are required when the spandrel beams are faced with bricks on the outside?

7. How may brickwork be reinforced?

8. What should one consider when planning reinforced brickwork?

9. Why are solid brick walls alone not good insulators?

10. Should the air spaces have drains?

11. What serves partly in remedying insulation and condensation troubles?

III. Read and translate the text again. Write out sentences with Participle I and Participle II used as an attribute.

IV. Translate into native language.

1. Curtain-wall construction is often used for brick walls of important industrial plants.

2. Solid brick walls alone are not good insulators.

3. Another use of reinforcement in brick construction is for the purpose of knitting the bricKwork together to resist earthquake tremor.

4. Brickwork may be reinforced with steel so as to act somewhat like reinforced concrete.

5. Scaffolds for the use of the masons may hang from the top of the completed framework.

6. A large amount of development and experimental work is being carried on with the object of securing lighter, cheaper, and better walls.

V. Put questions to the underlined words.

1. <u>The brickwork</u> should be <u>carefully</u> bonded together.

2. The air spaces should also have drains at their bottoms.

3. Special bricks with holes through them may serve partly in remedying insulation.

4. The materials should be resistant to moisture.

5. There should be means for draining away any accumulated moisture.

6. The heat capacity of heavy walls may retard the rate of warming up a room on a winter morning.

VI. Translate the following sentences into English.

1. Несучі стіни, зроблені з цегли, можуть підходити до невеликих будинків та багатоповерхових будівель.

2. Якість розчину та кваліфікація робітників, застосовані в будівництві, контролюють міцність, водонепроникність та долговічність цеглових систем.

3. Цеглини треба розтошовувати відповідно до раніше зазначеного зразка.

4. Самі циглини виробляються в дуже добре керованих умовах.

5. Кам'яні роботи можна переносити з поверха на поверх, вживаючи раніше споруджену монтажну площадку як робочу платформу.

6. Це мабуть приводе до значної економії коштів, уникаючи дорого коштованого риштування.

7. В будівлях з залізобетону міжповерхові перемички дуже часто покриваються цегловим облицюванням.

8. Плануючи роботи з армірованою цеглою, треба ураховувати стикі і метод укладання цегли.

VII. Make up a diologue. Speak about the role of bricks and concrete blocks in the construction of walls.

VIII. Enumerate the problems spotlighted in the text.

LESSON 9

TEXT

QUESTIONS TO ASK IN AN INTERVIEW. SALES. QUALITY STANDARDS

An operating system is a master control program which controls the functions of the computer system as a whole and the running of application programs. All computers do not use the same operating systems. It is therefore important to assess the operating system used on a particular model before initial commitment because some software is only designed to run under the control of specific operating systems. Some operating systems are adopted as "industry standards" and these are the ones which should be evaluated because they normally have a good software base. The reason for this is that software houses are willing to expand resources on the development of application packages for machines functioning under the control of an operating system which is widely used. The cost of software is likely to be lower in such circumstances as the development costs are spread over a greater number of users, both actual and potential.

Mainframe computers usually process several application programs concurrently, switching from one to the other, for the purpose of increasing processing productivity. This is known as multiprogramming (multi-tasking in the context of microcomputers), which requires a powerful operating system incorporating work scheduling facilities to control the switching between programs. This entails reading in data for one program while the processor is performing computations on another and printing out results on yet another.

In multi-user environments an operating system is required to control terminal operations on a shared access basis as only one user can access the system at any moment of time. The operating system allocates control to each terminal in turn. Such systems also require a system for record locking and unlocking, to prevent one user attempting to read a record whilst another user is updating it, for instance. The first user is allocated control to write to a record (or file in some instances) and other users are denied access until the record is updated and unlocked.

Some environments operate in concurrent batch and real-time mode. This means that a "background" job deals with routine batch processing whilst the "foreground" job deals with real-time operations such as airline seat reservations, on-line booking of hotel accommodation, or control of warehouse stocks, etc. The real-time operation has priority, and the operating system interrupts batch processing operations to deal with realtime enquiries or file updates. The stage of batch processing attained at the time of the interrupt is temporarily transferred to backing storage. After the real-time operation has been dealt with, the interrupted program is transferred back to internal memory from backing storage, and processing recommences from a "restart" point operating

system also copies to disk backing storage the state of the real-time system every few minutes (periodic check points) to provide means of "recovering" the system in the event of a malfunction.

An operating system is stored on disk and has to be booted into the Internal memory (RAM) where it must reside throughout processing so that commands are instantly available. The operating system commands may exceed the internal memory capacity of the computer in which case only that portion of the OS which is frequently used is retained internally, other modules being read in from disk as required. Many microcomputers function under the control of a disk operating system known as DOS.

EXERCISES

I. Read and translate the text «General features of operating systems»

II. Answer these questions to the text

1. Why is it important to assess the operating system on a computer before buying it?
2. What is multiprogramming?
3. The text gives some examples of real-time processing. Can you think of some examples of batch-processing?

Task4. Choose the correct tense.

1. How would you explain a computer to someone who _____(has never seen / didn't see one before)?
2. I_____ (graduate / have graduated) from the universetywhen I was 23.
3. We already _____ (visited / have already visited) a new computer laboratory.
4. Nick_____(hasn't finished / didn't finish) a websiteyet.
5. My friend _____ (bought / has bought) a tablet lastyear.
6. Where did _____ (you spend / have you spend) your lastholiday?

III. Before reading the text, try to answer the following questions.

1. What is an operating system and what is its purpose?
2. Where is an operating system stored and how is it transferred to internal memory?
3. List some of the tasks typically performed by an operating system.

IV. Match these common DOS commands with the appropriate explanations.

1. BACKUP 2. CHDIR or CD 3. CHKDSK 4. CLS 5. DEL 6. DJK:SORT 7. REN 8. TYPE 9. FIND 10. DISKCOPY	a) searches for a specific string of text in a file. b) allows a text file from the current directory to bedisplayed on screen. c) allows the user to change the name of a file. d) saves the contents of the hard disk to floppy disk for security purposes e) is used when it is necessary to change the current directory. f) clears data from the screen. g) alphabetically sorts and lists a disk directory. h) makes back-up copies of the contents of one disk to another. i) deletes a specibed file from the current directory, specified drive, or specified path. j) produces a status report of the currently logged-on disk, indicating the amount of disk space used, the available capacity (in bytes), and the number of files on disk.

V. Choose the correctalternative in the following sentences.

1. Dr.Dron_____ (regularly gives / is regularly giving) talks about software engineering.
2. The director_____ (interviews / is interiewing) a candidate for the post of a systems analyst at the moment.
3. The number of companies using data muning _____ (grows / is growing).
4. I do lots of different research but today _____(I curry out / I'm carrying out) research on mark-up languages.
5. This new design methodology _____ (allows / allowing) the hardware design community to take advantage of the paradigm.
6. The spread of embedded systems comprasing hardware and software components (rises / is rising).
7. Currently it _____ (takes / is taking) a long time to develop applications.
8. Once the task is completed, the services _____ (disappear / are disappearing).

VI. Match the words with theirmeaning.

a) nanotechnology	b) nanoscale	c) nanometre	d) nanomachine
e) dimension	f) nanosecond	g) innovation	

1. the dimensionalrange of approximately 1 to 100 nanometres.
2. measurement of length, height, width, depth or diameter.
3. a sciencewhichinvolvesdeveloping and makingextremelysmallbutpowerful machines.
4. a new invention.
5. one billion of a meter.
6. itsparts are made of singlemolecules.
7. a unit for measuring time.

VII. Complete the extracts with the words from Exercise VI. Sometimes you have to changetheform of the word.

As (1)_____ science and technologycome to haveimpact on many aspects of our dailylives, the opportuntics for careers are epandingrapidly. In areasasdiverseasdesigningmediealdiagroriedevnees in buildingbetterbatteries, from creatingcosmetics to enhancingenergyefficient windows, from auto and planemanufacturing to researching the nature of matteritself, knowledge of (2) _____ will be increasinglyimponantduringupcomingyears and decades. Nanotechnology is also the science of small (3)_____ , in panicular things that are less than 100 (4) _____ in size. Scientistshavediscovered that materials at materials at small (5)_____can havesignificantly different propeniesthan the samematerials at largerscale. Many are predicting that nanotechnology is the nexttechnicalrevolution and products resulting from it willaffect all areas of our economy and lifestyle.

VIII. Complete the text with the words bellow.

a) technologies	b) animation	c) multimedia	d) data	e) high-end
f) information	g) video	h) files	i) images	j) users

The concept of multimedia took on a new meaning, as the capabilities of satellites, computers, audio and (1)_____ converged to create new media with enormous potential. Combined with the advances in hardware and software, these (2)_____ were able toprovide enhanced learning facility and with attention to the specific needs of individual (3) _____. Our eyesand ears, in conjunction with our brain, form a formidable system for transforming meaningless sense data into (4)_____ . The old saying that's a picture is worth a thousand words often understates the case especially with regard to moving (5)_____ ,as oureyes arehighly adapted by evolution to detecting and interpreting movements. Multimedia requires (6) _____ computer systems. Sound, images, (7) _____ , and especiallyvideo, constitute large

amount of (8)_____, which slow down, or may not even fit in a low-end computer. Unlike simple texts (9) _____ created in word processing, multimedia packages require good quality computers. Development costs in multimedia are very high and the process of developing effective (10) _____ takes time. Time spent on developing the multimedia package requires money so that the true cost of an interactive programme mounts with each delay.

IX. Read the dialogues in pairs. Learn them by heart and then perform the conversations in pairs.

I

A: You look like you need some help.
B. Yes, I'd like to update my equipment and have some more professional.
A: What have you been using?
B: The SuperShot 350.
A: Well, may I recommend the SnapPro series? This one has 30 times optical zoom and 5 times digital.
B: How many megapixels does it have?
A: 15, which gives you incredible detail.
B: OK, I'd also like to start printing my own pictures.
A: We have some great deals on injects and laser printers.
B: Well, I'm learning towards a laser printer as they print better.
A: So, the PrintBeamEX is a good choice. It's a two-inch-one laser printer and scanner. It prints at 2400 DPI.
B: Great. Thanks for help.

II

A: Good morning Mrs.Ivanchenko. What can I do for you?
B. Hello, I'd like to improve my business website as my customers don't believe it is secure.
A: Do you know if you're in PCI compliance?
B: Yes, we mask customer's information when they enter it.
A: And you have ingress and egress filters?
B: We do. I remember the first designer mentioning that.
A: Well, that's pretty secure then.
B: That's what I thought, but for some reason, customers don't feel that way.
A: I have two suggestions. First, get a trust logo.
B: I've thought about that, but I never knew exactly what to do.
A: It's an easy process, really. You pay an annual fee to a company that verifies your PCI compliance. They allow you to use their seal on your site.
B: Oh, that sounds good. What's the other idea?
A: We redesign the entire site.

III

A: Good morning. Can you help me? We have a problem at the college with our subscription to the online library. The staff here can't access anything although the students can.

B: Are they using their own computers?

A: Yes, they have laptops and use remote access.

B: Have you installed anything new on the computers?

A: Actually, yes. We've just got new pop-up blockers.

B: I see. Well, those are preventing the VPN from making a connection in a new window.

A: How do I fix the problem?

B: Just turn off the pop-up blocker and everything should be fine.

A: OK. Thanks for your help.

LESSON 10

TEXT

MASONRY. ACHIEVING PERFECTION. BUSINESS STRATEGY.

Software technology is getting more complicated. Developers have to cut through a jungle of computer languages, operating environments, and shifting standards to choose how they'll create their software. It's not an easy job. Software purchasers will have to live with the results for years to come. Which advantages in software technology will prevail? Which ones will be just a flash in the pan?

Catherine Bull chose four well-known software developers and asked each to talk about current and future trends in software technology. Their comments reveal some common and diverse themes. She began by asking them if they thought that software purchasers are getting what they need? What should developers be doing differently to give purchasers a better product?

Mary Evans. " In general, I think people are getting what they want - there are a lot of creative things being done with paint software, word processing, DTP (desktop systems, and the like. Do users want more? Of course? Users will always want more. The computer is an incredibly powerful tool, and any software that makes it easier, faster, more creative, or more cost-effective will inevitably be in demand. But I'm generally optimistic about the way things are going at the moment. I think most of the major software manufacturers are able to read the market quite well".

Gerry Harper. "I'm afraid I completely disagree with Mary. I just don't think that software purchasers are getting the technical support they need. While the products are getting more and more complex, and more and more expensive, it seems that

support is starting to be thought of as an additional business opportunity. More generally, I've thought for some time that applications are getting too big, and that they're trying to do too much. Yes, they're versatile and powerful, but they're also often overwhelming. I think what we need are simple little programs that are easy to understand and use, and that work together to accomplish more complex tasks".

Matt Andrews. "I really can't agree with that. To imagine we can just go back to "simple little programs" just ignores the complex needs of many of today's software users. No, I'm sure that you can't stop progress. Suppliers know what their customers want - they just can't supply it quickly enough. I've studied the market very closely, and I've found the purchasers' needs seem always to exceed the capability of the available software by a constant time-frame of about six to twelve months".

Bob Bolton. "I think users are getting what they want, provided that their needs fit the off-the-shelf application. Specialized software is usually so specific that it should be written in-house for businesses. Developers should add features that the customer need, not what they think customers want. Some effort should be made to get feedback from the users before making an upgrade so that the proper features are added".

Notes:

a flash in the paint - a success that lasts only a short time and is not repeated

off-the-shelf- mass-produced: not made according to the individual needs of the customer

EXERCISES

I. Read and translate the text «General features of operating systems»

II. Discuss the following questions:

1. If you were a developer of software, what kind of software package you develop? Why?
2. Do you think software developers should develop educational software more like the software developed for games? Why?

III. Start-up.

Make a list of software products that you use. Are there some features of the products you never use? Are there any features missing?

IV. Each of the following comments from the text is followed by two paraphrases. Find out which paraphrase (a or b) is closer in meaning to the original comment. Remember to look at the comments in their original context.

1. "Developers have to cut through a jungle of computer languages, operating

environments, and shifting standards..."

a) The huge number of languages, environments, and standards makes life difficult for software developers.

b) Software developers have to act to reduce the number of languages environments, and standards which currently exist.

2. "Software developers reveal some common and diverse themes"

a) They talk about ordinary and wide-ranging topics.

b) They agree about some issues, but disagree about others.

3. "I think most of the major software manufacturers are able to read the market quite well"

a) Most software manufacturers understand what consumers want

b) Most software manufacturers know how to influence users to buy more of their products.

4. "...it seems that support is starting to be thought of as an additional business opportunity"

a) Increased technical support is a means of making software more attractive to businesses.

b) Software manufacturers are using the fact their products are complex to start selling technical support to their customers.

5. "... purchasers' needs seem always to exceed the capability of the available software by a constant time-frame of about six to twelve months"

a) It takes about six to twelve months for purchasers to understand fully the software they buy.

b) The software customers want now what will only become available in about six to twelve months.

V. The features below are common in commercially available word-processing and desktop publishing packages. Match each feature with the correct definition.

1. auto kerning 2. mail merge 3. style sheets 4. input tagging 5. maths functions 6. table of contents 7. auto numbering 8. outliner 9. index generation 10. multiple rulers	a) can automatically generate a table of contents for documents b) can carry out simple calculation within a documentsuch as totaling columns, etc. c) a single text file can contain several 'rulers' with different margins and tab settings. d) automatic numbering of figures, paragraphs, etc. e) can adjust the space between successive characters to produce a 'best lit' 0 program can read in names and addresses from a data-base and create personalized letters for mail-shots g) can automatically generate a sorted alphabetical index for a document h) text from word processor and database can be pre-coded with tags to allow the correct format to be applied automatically i) these help to ensure uniform style throughout adocument j) a writing aid enabling the structure of the document to be worked out beforehand and used as a guide when doing the detailed writing

VI. Fill in the correctform of the adjective.

1. 1 have to buy _____ (GOOD) media player on my computer.
2. Change the languagesetting. Then it is_____ (EASY) for you touse.
3. The _____ (LATE) informationtechnology news and IT jobs are available on computerweckly.com.
4. _____ This is (INTERESTING) game I haveever played on a computer.
5. _____ This is (IMPORTANT) than the process.
6. The film is awful. In fact, its _____(BAD) film I haveeverseen.
7. My Computer teacher is _____ (STRICT) and (UNFRIENDLY) than the Science teacher. She neverlaughs and makes us do a lot of more work.
8. This screen is as _____ (LARGE) as theone at my work.
9. The girl is very _____ (INTELLIGENT). She is knowledgeable in computers an can compile programs.
10. Opticalcomponentsarcexpected to lead to _____ (LOW) cost or (PRECISE) ____ processes in thefield ofmanufacturingtechnology.

VII. Complete the sentences with the verbs in the correct form in passive.

1. Some of the prototype multimedia lessons_____ (GIVE) at the end of the book as examples.
2. Multimedia _____ (CAN/ DEFINE) as an integration of multiple media elements into one synergetic and symbiotic whole.
3. The applications of multimedia technology in various industries (EXPLAIN) in chapter two.
4. The article_____(DIVIDE) into three main types of multimedia tools.
5. The project _____(MANAGE) successfully.
6. All the lights in the building_____(CONTROL) by computers, (BUILD in England during World War.
7. The first electronic computer _____ (BUILD) in England during World War II.
8. The computer _____(DESIGN) by AbertMechelson, who was famous for the Michelson-Morley experiment.
9. Most publications now issue online versions which _____(CAN / FIND) by typing the name plus org.or.com.
10. We_____ (SEND) false data two weeks ago.

VIII. Read the dialogues in pairs. Learn them by heart and then perform the conversations in pairs.

I

A: Excuse me, Mr.Pavlenko? I have a question about the restricting of the IT

department.

B: Please, come in. What's your question?

A: Well, now I'm in the Data Processing section.

B: Yes. You are exceptionally skilled in coding.

A: Thanks, but I have more experience with Quality Assurance.

B: I see. You want a transfer, then?

A: Exactly. I feel that I'm more valuable there.

B: Let we think about it.

II

A: Here's your new office. That's your desk and Helen sits over there.

B: So, everyone has their own desktop computers. Do we have laptops?

A: Yes, that's your computer there and laptops are in the IT department.

B: Ok, but I also need a workstation.

A: Right. You need something faster than those powerful programs. Those are in the next building.

B: How do I get access to one? I have to sign up?

A: No, just log on to the server. All computers connect to it. The, click "reserve workstation".

B: Thanks.

LESSON 11

TEXT

ROOFS 1. ROOFS 2. COMPETITION. INNOVATION.

Computer networks link computers by communication lines and software protocols, allowing data to be exchanges rapidly and reliably. Traditionally, networks have been split between wide area networks (WANs) and local area networks (LANs). A WAB is a network connected over long-distance telephone lines, and a LAN is a localized network usually in one building or a group of buildings close together. The distinction, however, is becoming blurred. It is now possible to connect LANs remotely over telephone links so that they look as though they are a single LAN.

Originally, networks were used to provide terminal access to another computer and to transfer files between computers. Today, networks carry e-mail, provide access to public databases and bulletin boards, and are beginning to be used for distributed systems. Networks also allows users in one locality to share expensive resources, such as printers and disk-systems.

Distributed computer systems are built using networked computers that cooperate to perform tasks. In this environment, each part of the networked system does what it is best at. The high-quality bit-mapped graphics screen of a personal computer

or workstation provides a good user interface. The mainframe, on the other hand, can handle large numbers of queries and return the results to the users. In a distributed environment, a user might use his PC to make a query against a [20]central database. The PC passes the query, written in a special language (e.g. Structured Query Language - SQL), to the mainframe, which then parses the query, returning to the users only the data requested. The user might then use his PC to draw graphs based on the data. By passing back to the user's PC only the specified information requested, network traffic is reduced. If the whole file were transmitted, the PC would then have to perform the query itself, reducing the efficiency of both network and PC.

In the **1980s,** at least **100.000 LAN** were set up in laboratories and offices around the world. During the early part of this decade, synchronous orbit satellites lowered the price of long-distance telephone calls, enabling computer data andtelevision signals to be distributed more cheaply around the world. Since then, fiber-optic cable has been installed on a large scale, enabling vast amounts of data to be transmitted at a very high speed using light signals.

The impact of fiber optics will be considerably to reduce the price of network access. Global communication and computer network access drops. At the same time, distributes computer networks should improve our work environments and technical abilities.

EXERCISES

I. Read and translate the text «Computer Networks»

II. Before reading the text, match these words and phrases with their definitions.

1. Protocol 2. bulletin board 3. user interface 4. make a query 5. parse 6. synchronous	a) analyse the syntax of a string of input symbols b) a teleconferencing system allowing users to read messages left by other users c) agreement governing the procedures used to exchange information between co-operating computers d) means of communication between a human user and a computer system e) taking place at exactly the same time as something else f) request a search

III. Read quickly through the text below, and then match each paragraph with the appropriate summary.

a) Network uses, past and present
b) How distributed systems work
c) Networks and the future
d) What networks are and how they operate
e) The growth of networks, past and present

IV. Read the summary of the text and fill in gaps using the list of words below.

Computer networks link computers locally by external communication lines and software (1) _____ , allowing data to be exchanged rapidly and reliably. The (2) _____ between local area and wide area network is, however, becoming unclear. Networks are being used to perform increasingly diverse tasks, such as carrying e-mail, providing access to public databases and for (3). Networks also allow users in one locality to share resources. Distributed systems use networked computers. PCs or (4) _____ provide the user (5) . Mainframes process (6) and return the results to the users. A user at his PC might make a query against a central database. The PC passes the query, written in a special language, to the mainframe, which then (7) the query, returning to the user only the data requested. This allows both the network and the individual PC to operate efficiently. In the 1950s at least 100.000 (8) were set up world-wide. As (9) _____ orbit satellites have lowered the price of long-distance telephone calls, data can be transmitted more cheaply. In addition (10) cable has been installed on a large, enabling vast amounts of data to be transmitted at a very high speed using light signals. This will considerably reduce the price of network access, making global networks more and more a part of our professional and personal lives. Networks should also improve our work (11) and technical abilities.

Distinction fiber-optic protocols synchronous

distributed systems LANs queries workstations

environments parses screen handling

V. Read again the text and find words that have a similar meaning to:

1. unclear
2. Place
3. carryout
4. cost
5. world-wide

VI. Now look back in the text and find words that have the opposite meaning:

1. disparate

2. conflict (v)
3. Preventing
4. Tiny
5. Increase

VII. These are answers to questions to the text. Write the questions.

1. To connect different devices on the network directly.
2. No, it goes in only one direction round the loop.
3. No, only one device may send data at any given moment.
4. From the content of the message.
5. It cancels its own transmission.

VIII. Complete the sentence with the verb in the correct form in Passive Voice.

1. Multimedia _____ (CAN / DISTINGUISH) from traditional motion pictures or movies by the scale of production and by the possibility of audience interactivity or involvement.
2. Social media tools _____ (REPORTEDLY / USE) for a variety of educational purposes and in wide-ranging contexts, bridging formal and informal, as well as individual and collaborative learning.
3. The printer _____(REPAIR) at the movement.
4. A program to integrate novel media technologies into evidence-based intervention help children with autism_____ (START) by researchers at the University of Kent.
5. The term "multimedia" _____ (INTRODUCE) in 1960s.
6. A Web site_____ (CAN /VIEW) as a multimedia presentation.
7. Text on those early PCs_____(DISPLAY) using the ASCII character set which series of two numbers that _____ (COULD / SEND) to the monitor.
8. 3D animation_____(DIGITALLY / MODEL AND MANIPULATE) by an animator.

IX. Fill in the gaps with Past Simple or Present Perfect.

Bill: Hi, Mark. _____ (FINISH YOU) your research?

Mark: Not yet. I am still working on it. It is about data mining. I (READ) many books and anicles on it, but I am not ready to start writing. What _ (FIND YOU) sofar? Anything interesting?

Bill: Well, the term "datamining" ____ (APPEAR) around 1990 in the data base community. In the academic communny, the major forums for research __ (START) in 1995 when the First International Conference on Data Mining and Knowledge Discovery international washeld in Montreal. A year later, in 1996, Usama Fayyad_____

Mark:

(LAUNCH) the journal called "Data Mining and Knowledge Discovery"

Bill: Oh, so many interesting things.

Mark: Yes, but it is really exhausting. I _ (GO) to Unirversity Library yesterday.

Bill: You look so pale. _ (SLEEP YOU) last night?

Mark: No, I _(SPEND) the whole night to work on any research. I (STAY) awake many night srecerly.

Bill: Oh, poor you! Let's go and drink some coffee then.

Mark: Good idea.

X. Read the dialogues in pairs. Learn them by heart and then perform the conversations in pairs.

I

A: Technology support. Ivan speaking. How can I help you?

B: I have an old hard drive and I need help taking it out.

A: Okay. Unplug the connection to the power supply first. The, disconnect the motherboard cable.

B: Which one is the power supply?

A: It's the smaller black box in the comer.

B: I'm unplugging both. What's next?

A: Next, take out those two small screws. They fasten the hard drive to the case.

B: I see, and then it slides out. Thanks!

II

A: Good morning. I noticed that my bill increased after switching from Mindeye to Websurf.

B: What service do you have?

A: Just broadband Internet.

B: Well, that's why there has been an increase. We're installing new T-3 lines.

A: How does that affect my billing?

B: 3 lines are expensive, so we've had to increase the rates. However, it allows for greater bandwidth.

A: I'm not sure that justifies the price hike.

B: Well, it does have other benefits too. There's Live tech support and you get free antivirus software. Also, tou can log into any of our hotspots at no extra cost.

A: I see. Then it might be worth the higher bill.

LESSON 12

TEXT

GLOBAL ECONOMY. GLOBAL TRADE. FINISHING

A computer virus - an unwanted program that has entered your system without you knowing about it - has two parts, which are called call the infector and the detonator. They have two very different jobs. One of the features of a computer virus that separates it from other kinds of computer program is that it replicates itself, so that it can spread (via floppies transported from computer to computer, or networks to other computers) to other computers.

After the infector has copied the vims elsewhere, the detonator performs the vims's main work. Generally, that work is either damaging data on your disks, altering what you see on your computer display, or doing something else that interferes with the normal use of your computer.

Here's an example of a simple vims, the Lehigh vims. The infector portion of Lehigh replicates by attaching a copy of itself to COMMAND.Com (an important part of DOS), enlarging it by about 1000 bytes. So let's say you put a floppy containing COMMAND.Com into an infected PC at your office - that is, a PC that is running the Lehigh program. The infector portion of Lehigh looks over DOS's shoulder, monitoring all floppy accesses. The first time you tell the infected PC to access your USB sticker, the Lehigh infector notices the copy of COMMAND.COM on the USB sticker and adds a copy of itself to that file. Then you take the USB sticker home to your PC and boot from the USB sticker.(In this case, you've got to boot from the USB sticker in order for the vims to take effect, since you may have many copies of COMMAND.COM on your hard and USB sticker, but DOS only uses the COMMAND.COM on the boot drive).

Now the vims has silently and instantly been installed in your PC's memory. Every time you access a hard disk subdirectory or a USB sticker containing COMMAND.COM the vims sees that file and infects it, in the hope that this particular COMMAND.COM will be used on a boot disk on some computer someday. Meanwhile, Lehigh keeps a count of infections. Once it has infected four copies of COMMAND.COM, the detonator is triggered. The detonator in Lehigh is a simple one. It erases a vital part of your hard disk, making the files on that part of the disk no longer accessible. You grumble and set about rebuilding your work, unaware that Lehigh is waiting to infect other unsuspecting computers if your boot from one of those four infected USB stickers.

Don't worry too much about viruses. You may never see one. There are just a few ways to become infected that you should be aware of. The sources seem to be

service people, pirated games, putting USB stickers in public available PCs without write-protect tabs, commercial software (rarely), and software distributed over computer bulletin board systems (also quite rarely, despite media misinformation). Many viruses have spread through pirated-illegally copied or broken - games. This is easy to avoid. Pay for your games, fair and square. If you use a shared PCor a PC that has public access, such as one in a college PC lab or a library, be very careful about putting USB stickers into that PC'sdrives. Without a write-protect tab. Carry a virus-checking program and scan the PC before letting it write data onto USB stickers.

Despite the low incidence of actual viruses, it can't hurt to run a virus checking program now and then. There are actually two kinds of antivirus programs: virus shields, which detect viruses as they are infecting your PC, and virus scanners, which detect viruses once they've infected you.

Viruses are something to worry about, but not a lot. A little common sense and the occasional virus scan will keep you virus free. Remember these four points:Viruses can't infect a data or text file.Before running an antivirus program, be sure to cold-boot from write-protected USB sticker.Don't boot from USB stickers except reliable DOS disks or your original production disks.See away from pirated software.

Vocabulary:

Fair and square - honestly

It can't hurt - it's probably a good idea

EXERCISES

I. Read and translate the text «How computer viruses work»

II. Try to answer these questions:

1. What is a computer virus?
2. How does a virus work?

III. Before reading the text, match the words and definitions listed below.

1. a detonator 2. an infector 3. to boot 4. to trigger 5. to erase	a) a protective device b) to remove all traces of something c) a device used to set off an explosion or other destructive process d) to discover or recognize that something is present e) to set a process in motion

6. pirated	f) something which transmits a disease or vims
7. a shield	g) stolen, obtained without the owner's consent
8. to detect	h) to load the operating system memory

IV. Find out whether the following statements are true(T) or false (F) in relation to the information in the text If you think a statement is false, change it to make it true.

1. Viruses cannot be spread through a computer network, only via USB stickers transported from computer to computer.
2. The virus will spread as soon as you put the infected USB sticker in your PC.
3. The infector works by interfering in some way with the normal use of yourcomputer.
4. The detonator in Lehigh works by altering what you see on you screen.
5. Most viruses spread through pirated games.
6. You should run an antivirus program every time on use your computer.
7. There are not very many viruses in circulation.
8. Virus shields are more effective than virus scanners.

V. These are answers to questions to the text. Write the questions. Two, one that infects and one does the damage.

1. By interfering in some way with normal use the computer.
2. After it has infected four copies of COMMAND.COM.
3. Every time you access a hard disk subdirectory or a USB sticker containingCOMMAND.COM.
4. Yes, by using your common sense and by occasionally scanning for them.

VI. Read again the text and find the reference for the words in italics.

1. They have two very
2. is that replicates itself
3. enlarging it by about
4. of itself to that file
5. and infects it
6. This is easy to
7. which detect viruses
8. once they've infected

VII. Look back in the text and find words or phrases with similar meaning to:

1. reproduces
2. Infect
3. Changing

4. Immediately
5. Complain
6. Reducing
7. removed from
8. records
9. Ignorant
10. Frequently

VIII. Read this news report and discuss the questions that follow.

A court heard today how a Cornell University graduate student, Robert T.Morris Jr. (25), infected a host of government and educational computer centers with a computer virus, known as a 'worm'. Which literally brought all computational activity to a halt in over 6,000 installations. Morris, the son of a prominent National Security Agency computer consultant, was sentenced for his offences yesterday. As punishment, he was required to spend no time in prison but, instead, serve 'three years' probation, contribute 400 hours of community service and to pay a $10,000 fine along with associated court and probation costs.

IX. Complete the sentences with Present Simple or Present Continuous tenses.

1. The security service _____ (OBSERVE) the system'sbehaviour.
2. Theynotice that certainparts of the network _____ (ACT) abnormally.
3. Nowthey _____ (CONCENTRATE) efforts on creatingcommercialmodels that will make the platform a reality.
4. Programminglanguagescommonly _____ (USE)different structures for sequencing program instructions.
5. A systemanalyst _____ (MODIFY) informationsystems to meet users' requirements.
6. Flowcharts _____ (DEPICT) certainaspects of processes and they are usuallycomplemented by othertypes of diagram.

X. Read the dialogues in pairs. Learn them by heart and then perform the conversations in pairs.

I

A: Good morning! Privat Bank, Peter is speaking.

B: Hello. I just looked at my account online and saw a withdrawal I don't make.

A: Can you give me your account number?

B: Yes. It's 14786.

A: OK. Which withdrawal are you talking about?

B: The one on the 1st of February at the ATM in Barcelona. I've never been there.

A: I see. I'll put a temporary hold on your account. Then no one can use your funds.

B: But I need it. I've got a few scheduled payments to make on my bill pay.

A: That's no problem. I'll process those before placing the hold.
B: What about that withdrawal?
A: Our Fraud Prevention Department can investigate and issue a refund. Should I transfer you?
B: I'd appreciate it, thanks.

II

A: Well, without someone trained to use Assembler, I don't think we can work efficiently.
B: Yes, but I don't think we can afford more programmers. What about you training to use it?
A: Sure, but I might get behind with other programs I'm working on.
B: Well, we can have other programmers do some of your workload.
A: Fine. What do you think about our CPU needs?
B: How pressing would you say those needs are?
A: Well, we could finish our projects in the nick of time if we had some updated CPUs.
B: Ok. Letme look at the budget and we'll see.

LESSON 13

TEXT

MY MASTER'S THESIS

Before enrolling in a master's degree program, it's important that you know what a thesis is and whether you'll need to write one. Your thesis is the sum of all of your learned knowledge from your master's program and gives you a chance to prove your capabilities in your chosen field.

A thesis also involves a significant amount of research, and depending on the subject, may require you to conduct interviews, surveys and gather primary and secondary resources. Most graduate programs will expect you to dedicate enough time to developing and writing your thesis, so make sure to learn more about the department's requirements before enrolling in your master's program.

Unlike thesis projects for undergraduates, which are shorter in length and scope, a master's thesis is an extensive scholarly paper that allows you to dig into a topic, expand on it and demonstrate how you've grown as a graduate student throughout the program. Graduate schools often require a thesis for students in research-oriented degrees to apply their practical skills before culmination.

For instance, a psychology major may investigate how colors affect mood, or an education major might write about a new teaching strategy. Depending on your program, the faculty might weigh the bulk of your research differently.

Regardless of the topic or field of study, your thesis statement should allow you to:

- Help prove your idea or statement on paper
- Organize and develop your argument
- Provide a guide for the reader to follow

Once the thesis is completed, students usually must defend their work for a panel of two or more department faculty members.

A thesis is a common requirement in many research-focused fields, but not every master's program will require you to complete one. Additionally, some fields allow you to choose between a thesis and a non-thesis track. In the case of a non-thesis program, you won't have to write a lengthy paper, but you will have to take more classes to meet your graduation requirement.

Whether you choose a thesis or non-thesis program, you'll still be required to complete a final project to prove your critical thinking skills. If you favor a non-thesis program, your project may be a capstone project or field experience.

It's common for graduate students to mistakenly use the words "thesis" and "dissertation" interchangeably, but they are generally two different types of academic papers. As stated above, a thesis is the final project required in the completion of many master's degrees.

The thesis is a research paper, but it only involves using research from others and crafting your own analytical points. On the other hand, the dissertation is a more in-depth scholarly research paper completed mostly by doctoral students. Dissertations require candidates create their own research, predict a hypothesis, and carry out the study. Whereas a master's thesis is usually around 100 pages, the doctoral dissertation is at least double that length.

There are several advantages that you can reap from choosing a master's program that requires the completion of a thesis project, according to Professor John Stackhouse. A thesis gives you the valuable opportunity to delve into interesting research for greater depth of learning in your career area. Employers often prefer students with a thesis paper in their portfolio, because it showcases their gained writing skills, authoritative awareness of the field, and ambition to learn. Defending your thesis will also fine-tune critical communication and public speaking skills, which can be applied in any career. In fact, many graduates eventually publish their thesis work in academic journals to gain a higher level of credibility for leadership positions too.

EXERCISES

I. Read and translate the text «Personal Computing»

II. Before reading the text, match each word with the correct definition.

1) Mainframe 2) Mouse 3) Icon 4) Operating system 5) Software 6) Hardware 7) Microchip	a) the set of software that controls a computer system b) a very small piece of silicon carrying a complex electrical circuit c) a big computer system used for large-scale operations d) the physical portion of a computer system e) a devise moved by hand to indicate position on the screen f) a visual symbol used in a menu instead of natural language g) data, programs, ets., not forming part of a computer, but used when operating it

III. Answer the questions to the text.

1. How many mainframes did IBM think it was possible to sell in 1952?
2. How many PCs have now been sold?
3. Who paid for the initial research into PCs?
4. Which company later used the results of this research to develop their operating system?
5. What are command-based operating systems?
6. DR/DOS is an acronym. What does it stand for?
7. Since the invention of the IBM PC, many of its features have been improved. Which of the following features does the text not mention on this respect?
   a. Memory
   b. Speed
   c. Size
   d. Cost
8. Give three examples from the text of how the availability of computers has "in all probability changed the world for ever".

IV. Read again the text and find words that have a similar meaning to:

1. International
2. Contested
3. Errors
4. Paid for
5. Buy
6. First
7. Recommendation
8. Improved

V. Complete the sentences with the words and phrases from the box.

a) applications	b) face	c) reinforcement learning	d) labe lied	e) algorithm
f) robots	g) programmed	h) supervised learning	i) data	j) constituents
k) trends	1) clustering	m) recognition	n) analyse	o) hierarchically
p) connected	r) take	s) artificial intelligence	t) figure out	q) networks

Machine learning is about creating 1) _____ and systems that can learn from the data they process and analyze. The more data is processed, the better the algorithm will become. It is actually a gettingcomputers to act without explicitly being 2) and is a branch of 3) . AI is a scientific discipline to find patterns, extrapolate answers and make predictions using algorithms and computational techniques. Nowadays, Machine learning can be found in many 4) , _____ ranging from self-driving cars, to effective web search, facial recognition and speech 5).There are four different Machine-learning areas, each with its own applications. There is 6), Where an algorithm is for example taught what a face is and what not and eventually will learn itself whethera new image contains a 7) _____ or not . For this it is required that example used must be labelled . In this case, upfront it must be said explicitly which ones are faces and which not. The algorithm is thus first trained on a large set of labelled data and then is let loose on other, unstructured, unlabeled 8). Unsupervised learning user data that is not 9), _____ meaning the algorithm will have to figure out itself what's being shown. It will do this by 10) data that show the same patterns and thus it tries to find hidden structures in unlabelled data. A fascinating example is that of Google who 11) _____ 1.000 computers and let _____ an algorithm 12) 10 million YouTube video to identify cat faces, without telling upfront to look for cat faces. In order to achieve this, the computers had to 13) _____ what parts of the YouTube stills would be relevant based only patters in the data. Two other areas of Machine learning are 14) _____ , which is based on trial-and-error search and a delayed reward. This means that it is not told what actions to 15) But the algorithm will have to discover itself which actions yield the most rewards by trying them. The other is deep learning, which is dubbed on of the hottest 16) In big data currently. It means teaching computers to think more 17) Or more contextually and it typically user artificial neural 18) _____ . It is capable of breaking down different characteristic 19)_____ in the data and uses those characteristics to learn itself different combinations of those characteristics to know what it sees (a face for example) or what to do (walk for example with 20).

VI. Put in the correct preposition.

1. My friend is good _____ playing computer games.
2. They are afraid _____ losing their revenue.
3. She doesn't feel working _____ the computer.
4. We are looking forward _____ going out at the weekend.
5. Laura dreams _____ living on a small island.
6. Andrew apologized _____ being late with the project.
7. Do you agree _____ encouraging the development of software for systems?
8. The manager insisted _____ fixing a fault in the call server.

VII. Fill in thecorrectform of the adjective.

My computer is _____(FAST) thanyours. This is (INTERESTING) book on computer I haveeverread. (GOOD) laptops havefast, efflcientprocessors, plenty of memory and sufficientstorage for all your mulumediaflles and application. The numbers are actually (BIG) than this, becausenanolechnologywillcreate an additionalfivemillion jobs in support fields and industries. One of (DIFFICULT) things to understandaboutnanotechnology is to get a solidgrip of axactly how smallnanopanicles are. Network operatorswant to make (GOOD) of their networks and usethem. This middleware service is responsible for selecting (SUITABLE) resources for the application programs submitted by uses. Building a PC is (CHEAP) than buying _____one. It is (CONVENIENT) to urlntemet-based dedicated applications for this purpose. Who is (RICH) programmer on eanh?

VIII. Read this passage about the structure of the processor and fill in the gaps using the words below.

The processor consist of a_____ ,which isacircuit board onwhicharemounted chips, and other components linked together by lines or channels in the form of control, address, and data_____.Inaddition,aprocessor has,which areelectronic circuits providing specialized functions such as graphies, or which connect a system board to. The system board also consist of electronic devices, such as an electronic for controlling the speed of operation which store numeric data during the course of processing; and various _____ ,including sequence control register, address register, and function register.

adaptor boards	registers	microprocessor
clock	conductive	buses
system board	accumulators	input onoutput devices

IX. Read the dialogues in pairs. Learn them by heart and then perform the conversations in pairs.

I

A: Hi. Pavel. Are you free? I want to talk to you about that Linux idea. I assume we

still have to buy antivirus software that works with Linux?

B: That's the thing - even the security software is free.

A: I see. I'm still not comfortable losing Microsoft Office.

We don't gave to. OpenOffice is actually compatible with Office and other programs.

A: My other concern is printer trouble. I don't want to install Linux and have our equipment suddenly stop working.

B: That's why we'll get that Samba program. The print server will act as if nothing changed.

A: That sounds too easy. Surely there's something else to it.

B. Actually, I'll have to reconfigure the TCP/IP protocols, but that's a small task.

II

A: Nick, how is the website coming along?

B: Well, for the most part, it's coming along fine.

A: So, you are close to finishing then?

B: Actually, we're having a little trouble with it,

A: Why's that?

B: Well, the media player you requested won't work on all the computers. I'd suggested using Flash Player instead.

A: I don't think Flash player has a high enough quality. I want my potential clients to see everything clearly.

B: I understand, but using Flash player will allow everyone to view the media you've given us.

A: I'll think about it, but everything else is finished?

B: Yes. Actually, the rest of the site could go online today.

LESSON 14

TEXT

TACKLING TELEPHONE INTERVIEWS

You have only to Google 'telephone interview tips' to realise that telephone interviews are part and parcel of most job hunts these days.
Telephone interviews are often used as the first interview stage, to select those to be interviewed face-to-face.
Telephone Interviews are Still Interviews.
It may sound obvious, but a telephone interview is still an interview. It is not a cosy chat with a friend, but a serious chance for the company to see if you will fit in, and are capable of doing the job. Treat it as seriously as you would treat any other job interview.

But how does a telephone interview differ from one that is face-to-face?
Just like a face-to-face interview, you still need to prepare thoroughly. There is no substitute for doing your research about the company, and preparing a list of questions. Make sure you are clear about the company's product or service, and how your potential role will fit in. Also make sure that you have good examples of how you have used all the required skills.

There is more about preparing for interviews in our page on Interview Skills.

The major differences between telephone interviews and face-to-face interviews are:

1. You get to choose your location
You can do a telephone interview from almost anywhere: café, street, car, train. But since you effectively have a choice of venue, it is as well to choose somewhere quiet, where you will be able to both hear what the interviewer is saying, and also concentrate.
In practice, this probably means that it is a good idea to be at home, or in your room, with the door closed. If you share accommodation with other people, it might be worth putting a note on the door to ask not to be interrupted.
You should also be well away from the landline, if you're on the mobile, and switch off the mobile if the call is due on your landline.
The Element of Surprise
While many potential employers will make an appointment for a telephone interview, others prefer to surprise candidates. If you are phoned out of the blue and asked if it is convenient to have an interview right now, **don't** feel that you need to say 'yes' if it really isn't.
For example, you may be:

- Out and about in a crowded place, and unable to hear properly;
- Trying to put children to bed, or give them tea; or
- About to go into a lecture or class.

If it is really inconvenient, say
"I'm sorry, I'm afraid I don't have time just now, as I have another commitment. Can we fix another time instead, as I'd really like to talk to you?"
You will then need to fix the time then and there, as they are unlikely to call back otherwise, so make sure that you have your diary to hand. You can even say
"I should be free in about an hour/two hours/at 5pm, can I call you back then?"
and **make sure that you take down the number**.

2. You don't have to dress up, but you do have to sound professional

It is true that you will not be visible to your interviewer, unless it is a video interview. Some advisers recommend, however, that you wear smart clothes, and sit up straight, as if it was a face-to-face interview, as they suggest that this makes you feel, and therefore sound, more professional.

Answer the phone professionally.

"*Hello*" is fine.

"*Hello, Joe Smith speaking*" is better.

"*Yo dude!*" is not going to give the right impression.

Just in case you're on another call when the interview call comes through, make sure that your voicemail or answerphone message is professional too.

It is also worth remembering that you should not be eating or drinking during an interview. Slurping sounds are not attractive. You might want a glass of water to hand, though, in case your mouth goes a bit dry.

3. You are responsible for the technology

In other words, if your phone goes flat or you lose your mobile signal during the interview, then that is your problem, not your interviewer's. If it happens, they probably won't call you back.

Make sure your phone is charged, that you have good reception in your chosen venue, or that you know how to use Skype on your chosen device, well in advance.

4. You can have crib sheets and information out in front of you

Unless you are doing a video telephone interview (and it is worth checking this in advance), the interviewer will not be able to see you. So you can have your CV, written examples of when you have demonstrated your skills, and even reminders about smiling, spread out in front of you.

Try not to rustle your papers during the interview, though, as it will probably be audible.

Make sure you give yourself enough time before the interview to spread out everything you need and check that it will all be visible. Have a pen and some paper handy in case you want to make notes, and also consider using a hands-free system or headset to make that easier.

5. Neither you nor the interviewer has body language to help you

This means that you need to work harder to build rapport. Smile a lot, because odd though it sounds, it can be heard in your voice. It is also worth trying to emphasise your tone of voice: concentrate on sounding enthusiastic and interested, and always speak clearly and slightly more slowly than normal.

For more about this, see our pages on **Building Rapport** and ***Non-Verbal Communication: Face and Voice***.

You may also want to ask whether you have provided enough information or answered the question fully, as a check. Useful phrases include "I can go into more detail, if you would like?" as well as "*Have I given you enough information there?*"

6. You will need to listen hard, and concentrate more

It is often harder to concentrate when there is only a voice to listen to, and nothing to look at.

Don't let yourself zone out, or start looking at Facebook or YouTube. If you know

that you struggle to concentrate when you have nothing to see, have a notebook or paper, and make notes during the questions. This will not only keep you focused and listening, but will also help you check whether you have answered the question.

7. You may need to signal a pause in advance

Remember, your interviewer can't see you, so if you go silent, they don't know if you are still there. If they have asked a hard question, and you need to think about it, say something like "Let me just take a minute or two to get my thoughts in order", and then they will know what you are doing.

It is also worth pausing before answering any question to make sure that the interviewer has finished speaking.

8. It is important to remain enthusiastic right up to the end

Towards the end of the interview, you may get tired. It is, however, important to continue to focus on your tone of voice, and sounding enthusiastic about the process. It's a good idea to remember to ask when you might hear, and whether you can call if you haven't heard, as this emphasises your interest in the job.

It is also worth emailing the interviewer to thank them afterwards, as it confirms your interest.

The list of literature

1. Blayse, A.M. And Manley, K. (2004), Key influences on construction innovation, Construction Innovation, 4, pp.143–154
2. Dulaimi, M.H., Ling, F.Y.Y., Ofori, G., et al (2002), Enhancing integration and innovation in construction, Building Research & Information, 30.4, pp. 237-247
3. Dulaimi, M.H., Nepal, M.P. and Park, M. (2005), A Hierarchical Structural Model of Assessing Innovation and Project Performance, Construction Management and Economics, 23.6, pp. 565-577
4. Eaton, D (2001), A temporal typology for innovation within the construction industry, Construction Innovation, 1, pp. 165-179
5. Smith, Michael G. "Cob Building, Ancient and Modern," in Kennedy, Smith and Wanek, (2002), pp. 132–133.
6. "Top 5 Reasons Why Bricks Are The Most Popular Building Material". *primedb. co. May 11, 2017.*