Санкт- Петербургское государственное бюджетное профессиональное образовательное учреждение
«Академия управления городской средой, градостроительства и печати»

УТВЕРЖДАЮ

Заместитель директора

по учебно-методической работе

О.В.Фомичёва,

_____ 20 23 г

Методические рекомендации по организации и проведению практических занятий

«СГ.02 ИНОСТРАННЫЙ ЯЗЫК В ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ»

для специальности

08.02.15 Информационное моделирование в строительстве

Форма обучение –очная

Санкт-Петербург

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Одобрены на заседании цикловой комиссии

Филологических дисциплин

Протокол №. 2

« 29 » 11 20 23 г.

Председатель цикловой комиссии

_____ А.П. Минковская

формируемые ПК, ОК, ЛР	Умения	Знания
ОК 02 ОК 04- 05 ОК 09 ПК 1.4. ПК 3.4. ЛР1-3, ЛР5, ЛР 7- 8, ЛР11-12	Уметь: строить простые высказывания о себе и о своей профессиональной деятельности; взаимодействовать в коллективе, принимать участие в диалогах на общие и профессиональные темы; применять различные формы и виды устной и письменной коммуникации на иностранном языке при межличностном и межкультурном взаимодействии; понимать общий смысл четко произнесенных высказываний на общие и базовые профессиональные темы; понимать тексты на базовые профессиональные темы; составлять простые связные сообщения на общие или интересующие профессиональные темы; общаться (устно и письменно) на иностранном языке на профессиональные и повседневные темы; переводить иностранные тексты профессиональной направленности (со словарем); самостоятельно совершенствовать устную и письменную речь, пополнять словарный запас	Знать: лексический и грамматический минимум, относящийся к описанию предметов, средств и процессов профессиональной деятельности; лексический и грамматический минимум, необходимый для чтения и перевода текстов профессиональной направленности (со словарем); общеупотребительные глаголы (общая и профессиональная лексика); правила чтения текстов профессиональной направленности; правила построения простых и сложных предложений на профессиональные темы; правила речевого этикета и социокультурные нормы общения на иностранном языке; формы и виды устной и письменной коммуникации на иностранном языке при межличностном и межкультурном взаимодействии

ОК.02 Использовать современные средства поиска, анализа и интерпретации информации, и информационные технологии для выполнения задач профессиональной деятельности

ОК. 04 Эффективно взаимодействовать и работать в коллективе и команде

ОК. 05 Осуществлять устную и письменную коммуникацию на государственном языке Российской Федерации с учетом особенностей социального и культурного контекста

ОК. 09 Пользоваться профессиональной документацией на государственном и иностранном языках

ПК 1.4. Подготавливать контент электронных справочников, библиотек компонентов и баз данных для информационного моделирования зданий в соответствии с техническим заданием

ПК 3.4. Формировать техническую документацию информационной модели здания

Практическое занятие Учеба в колледже. Система профессионального образования.

My college

My name is Alexander. I'm sixteen years old. I live in St Petersburg, Russia. I have recently graduated from my school and entered the College. It is one of the best colleges in the city. I really like this college and some of my close friends have also applied to study here. My parents have always wanted me to be a lawyer, but I have made up my mind to become a technician or an electrician.

I am **delighted to** study such subjects as Technical mechanics, Physics, English, Math analyses, Russian language and literature, Physical Education and else. Our college is rather **well equipped**. There is a large **sports ground** outside and one gym inside. There is also a huge **library** with a good choice of technical books. Actually, this college is one of the oldest educational institutions in the city and in Russia.

From my point of view our college is modern and well-designed.

On the ground floor there are the classrooms for the **first-year students**, workshops and a library. There are all kinds of **tools** and machines in the **workshops**. In the library **the librarian** help students to find the books they need. In the reading room there are **laptops**which we can use during the breaks and after classes.

Our c**antee**n is **spacious**, l**ight** and clean. We have our **meals** there.

The physical training lessons **take place** in the gymnasium and the **swimming pool**. We like to go there even after the lessons. To the left of the gym there is a hall and a staircase. The staircase leads to the first floor.

The classrooms are **well-equipped**. Each room has a teacher's table, students' desks, a board, a computer and a multimedia projection unit. There are special classrooms for Chemistry, Physics, Biology, History, Geography, English and Russian. My English classroom is on the fourth floor. It has three big windows. There are lots of potted plants on the window sills, and we take good **care** of them. The board in our classroom is magnetic. We write with markers on it and attach our projects to it with magnets. Next to the board there are **maps** of Russia and Great Britain, various grammar tables and charts. There is a computer in the right-hand corner. We often listen to original English texts, songs and watch films on a big screen which make our lessons interesting.

I like my college. It **provide**s us with everything to help us **become** good specialists.

Are these statements true or false? Correct the false ones.
1. Alexander studies in Moscow.
2. There is an indoor swimming pool in his college.
3. The library is equipped with laptops.
4. All the classrooms are on the first floor.
5. The classrooms are the same.
6. After classes the students rush home.
7. The students like their English classes.
8. At the English lessons they watch films, listen to texts and present their projects.
9. They don't use chalk in their English classroom.
10. Alexander is proud of his college

Практическое занятие Моя специальность

My Future Profession (Building/Construction)

A building profession is one of the most important and necessary in any country of the world. It used to be so since ancient times, when people built caves, made of mud, leaves and stones.

During the last 100 years many new methods of building have been discovered. Nowadays the building is completed in concrete, prestressed concrete, steel, plastics, foamed glass and bricks.

Almost everyone saw the construction of a building and followed its progress with interest. First the excavation is dug for the basement. Then the foundation walls bellow ground level are constructed. After this the framework is erected and clothed with various finishing materials and protected by several coats of paint. The floors, walls, roofs and other parts of a building must be carefully designed and proportioned.

The architect must decide what the size of the walls, the floors, the beams, the girders will be and how they will be placed and arranged. Every building should be provided with water, electricity, ventilation and heating systems. The water supply and sewerage systems are called plumbing.

An estimate must be calculated after which the builders' work can be started. Among the building professions you can come across a carpenter, a bricklayer (mason), a plumber, an electrician, a house painter, a concrete layer, a slater, a roofer, a welder, a fitter, a glazier and many more.

Building Materials
mud/clay-глина
cut stone-обработанный камень
brick-кирпич
concrete-бетон
prestressed concrete-железобетон
steel-сталь
plastics-пластмасса
foamed glass-пеностекло
paint-краска
Building Professions
a carpenter-плотник
a bricklayer (mason)-каменщик
a plumber-сантехник
an electrician-электрик
a house painter-маляр
a concrete layer-бетонщик
a slater-плиточник
a roofer-кровельщик
a welder-сварщик
a fitter-слесарь
a glazier-стекольщик
Parts of a Building
a basement-фундамент

a foundation-основание
a framework-каркас
a floor-пол, этаж
a wall-стена
a roof-крыша
a beam-балка
a girder-перекрытие
Systems of a building
plumbing-сантехника
water supply-водоснабжение
sewerage system-канализационная система
ventilation-вентиляция
heating-отопление
electricity-электричество
to erect (to build)-строить
to complete-завершать
to construct-строить
to clothe-покрывать
to design-разрабатывать
to proportion-рассчитывать
to protect-защищать
to provide-обеспечивать
estimate –смета

Практическое занятие Возможности карьерного роста

As a Builder, you'll be responsible for a range of manual, managerial and administrative responsibilities, which may include:

• Interpreting plans or organizing for plans to be drawn that meet building code regulations and client specifications.
• Providing quotes or submitting tenders for building works.
• Submitting plans to local authorities for approval.
• Arranging inspections of building work.
• Organizing contractors including carpenters, electricians, plumbers and painters to carry out building tasks.
• Undertaking some building work personally.
• Calculating quantities and costs and sourcing of building materials and labor.
• Supervising contractors or employees to ensure safety standards are maintained and works remain on schedule.
• Coordinating administrative tasks such as payment.

Времена группы Simple

По каждой группе времен мы будем подводить итоги. Если вы уже прочитали про present, past и future simple, то вам сюда — будем подводить итоги. А если нет, то милости просим:
Present simple
Past simple
Future simple

В чем суть Simple?

Как вы знаете, в английских временах есть четыре аспекта: simple, continuous, perfect, и perfect continuous. Каждый из них отвечает за свою «территорию». Simple – это простые времена, которые обычно описывают действие как факт. Нас интересует только само действие, сам факт, что действие произошло. Нас не интересует длительность или продолжительность действия, его результат или связь с другими действиями.
Далее будет таблица по всем основным характеристикам каждого времени. Посмотрите что у них общего, какие различия, вспомните строение, познакомьтесь с примерами, а в конце выполните упражнение на все три времени. Это урок-резюме.

	Past simple	**Present simple**	**Future simple**
Строение	V2 (Ved)	V (V-s в 3 лице, ед.ч)	will + V
Вспомогательный глагол	did	do/does	will
Слова-маркеры	yesterday, last week/month/year, when I was a child/at school/young	every day, usually, often, never, always, sometimes *(то же для регулярных действий в прошлом и будущем)*	tomorrow, next week/month/year
Формы глагола to be	was/were	am/is/are	will be
Случаи употребления			

Регулярно повторяющиеся действия	I ran every morning last summer. – Я бегал каждое утро прошлым летом.	I run every morning. – Я бегаю каждое утро.	I will run every morning next summer. – Я буду бегать каждое утро следующим летом.
Обычное простое действие с указанием времени или без	I needed your help yesterday. – Мне нужна была твоя помощь вчера.	I need your help. – Мне нужна твоя помощь.	I will need your help tomorrow. – Мне понадобится твоя помощь завтра.
Последовательные действия	I went home, cooked dinner and watched TV. – Я пришел домой, приготовил ужин и посмотрел телевизор.	Usually I go home, cook dinner and watch TV. – Обычно я прихожу домой, готовлю ужин и смотрю телевизор.	I will come home, cook dinner and watched TV. – Я приду домой, приготовлю ужин и посмотрю телевизор.
Общеизвестные факты, законы природы		Two times two is four. — Дважды два — четыре.	
Планы, прогнозы, предположения, обещания			I promise I will be ready. – Я обещаю я буду готов.

Упражнение на времена группы Simple:

Переведите простые предложения, выбрав нужное время. Проверьте себя по ответам ниже, удачи!

1. Я встаю в 7 утра каждый день.
2. Он приедет в следующую субботу.
3. Я звонил своим родителям вчера.
4. Меня не будет на вечеринке на следующей неделе.
5. Анна купит новое платье завтра.
6. Когда я был школьником, я часто пропускал уроки.
7. Он думает что это сработает.
8. Она не очень часто нас навещает.
9. Мы не доверяем тебе.
10. Мама приготовила вкусный ужин вчера вечером.
11. Она русская?
12. Я не знал о дне рождении Кейт.

Практическое занятие История развития строительства. Первые постройки.

The first structures history

1. Active vocabulary

Ex. 1. Read and learn the words from the active vocabulary:

bark — кора
to bury ['berɪ] — закапывать, засыпать
bundle ['bʌndl] — вязанка, пучок, связка
dry-laid stone — сухая каменная кладка
to daub [dɔːb] — обмазывать
dome — купол, свод
domed — куполообразный, купольный
dwelling — жилище, жильё, место жительства
granary ['græn(ə)rɪ] — амбар, сарай, зернохранилище
hide — кожа, шкура
hut [hʌt] — лачуга, хижина, шалаш
lateral stability ['læt(ə)r(ə)l stə'bɪlətɪ] — поперечная устойчивость
to intertwine [ˌɪntə'twaɪn] — переплетать, сплетать, закручивать
to lay out — раскладывать **packed** — плотный
pole — столб, шест, кол
the post and lintel method — каркасный метод, стоечно- балочный метод
reed — камыш, тростник, солома
responsive [rɪ'spɔnsɪv] — реагирующий, восприимчивый, отзывчивый
to restrict — ограничивать, сужать **rafter** — стропило
ridge — конёк, выступ
sapling — побег, отводок
shelter — кров, защита, прикрытие, приют
to span — перекрывать (о крыше, арке), наводить (о мосте) **thatch** [θæʧ] — солома, тростник (как материал для кровли) **wattle** ['wɔtl] — плетень, лозняк
wattle and daub — мазанка (тонкие ветки дерева или хвороста, обмазанные глиной)

Ex. 2. Translate from English into Russian the following word- combinations:

to find / take a shelter;
a bamboo hut;
to have smb's hide;
to intertwine all these aspects; a private dwelling; a bundle of nerves;
to span a river with a bridge;
a concrete pole, the ridge pole; to restrict certain information; to rafter;

Ex. 3. Guess the cross-word:

По вертикали:
1. Молодое деревце, побег.
2. Высокое прибрежно-водное растение.
3. Длинный тонкий прут (деревянный или металлический), который закапывают одним
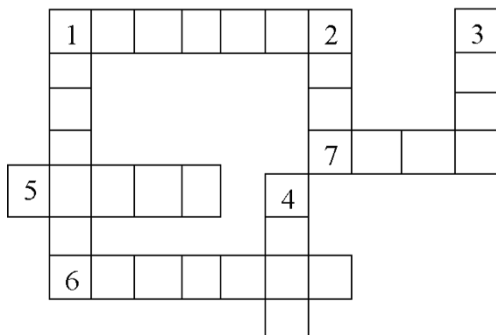
концом в землю и используют с целью поддержки.
4. Зарывать, закапывать.

По горизонтали:

1. Место, временно защищающее от плохой погоды или опасности.
5. Конёк.
6. Место для хранения зерна. 7. Свод.

Ex. 5. *Make up your own sentences with the following word- combinations:*

to put up a pole;

a thatched hut;

to be restricted by smth.;

responsive people; hard-packed snow; a modern dwelling; to bury treasure.

to seek a shelter from smth.;

Ex. 6. *Make the following sentences complete by translating the words and phrases in brackets into English:*

1. The first buildings were simple (**шалаши, палатки, кровы**) meant to suit the basic needs of protection from the elements, built by their inhabitants.

2. Cultures from pre-history to modern times constructed (**куполообразное жилье**) using local materials: leaves, shingles, wood, stones, reed, thatch and bricks later.

3. Wigwams are formed with a frame of (**выгнутые шесты**), most often wooden, which are covered with some sort of roofing material.

4. To build a wigwam, long fresh poles of oak or willow are driven into the ground or (**закапывать**) in holes made with a digging stick.

5. These poles, which form the framework, are arranged at (**интервал в один фут**) and are bound together at the top with yucca-leaf strands.

6. The ancient builders (**закапывать**) the bones of deer and oxen at the bottom of the ditch and had looked after them for some time.

7. (**Мазанка**) is a form of wall construction consisting of inter- woven twigs plastered with a mixture of clay, lime, water, and sometimes dung and chopped straw.

8. Rafter is a type of beam, which (**поддерживать**) the roof of a building. In home construction rafters are typically made of (**дерева**); they are a feature of traditional roof styles.

9. Katsuogi are short, decorative logs found on Japanese architecture, which are placed at a right angle along the (**конёк крыши**), and are usually featured in religious or imperial (**архи- тектура**).

10. It's a good idea to (**вырезать несколько лишних стро- пил**); I've found that a couple of mine have bowed when I didn't put them exactly straight into the roof ring, and it's nice to be able to replace them easily.

Ex. 7. Study the patterns showing the ways some nouns are formed from verbs. Complete the charts, translate formed words:

Pattern 1

Example:achieve—достигать → achieve**ment**—достижение

Verb + **-ment** → Noun

Verb	Noun	Verb	Noun
to arrange		to reinforce	
to measure		to improve	
to base		to require	
to move		to treat	
to develop		to manage	

1.1.2. The text «Building construction in the prehistoric times»

Ex. 1. Before you read the text discuss the following questions with your groupmates:

1. Where did ancient people live?

2. What materials did ancient people use to build their dwellings?

3. Why did ancient people erect their dwellings?

Ex. 2. Read and translate the text «Building Construction in the Prehistoric Times»:

BUILDING CONSTRUCTION IN THE PREHISTORIC TIMES

Construction has always been a reflection of the technological and ethical values of a specific society and its values at any given moment of time. The first "shelters" built by humankind date back to before 12,000 BC. From the very beginning man was a hunter- gatherer so building types characteristics of this period are: tents, huts and stone structures.

Then man begins to cultivate land and building types characteristics of this period are: villages of circular huts and the communal houses.

Construction was based on simple techniques using readily available materials.

The Tent

Hunting generated animal hides and bones. These were used to create tents. Wooden poles and / or animal bones were utilized to erect a framework over which packed clay, animal hides or leaves were draped. In its crude form, the tent was erected by driving a pole in the ground, and slinging animal hides over it. Stones took the place of the hides then.

The Hut

The huts in its simplest form were made from wooden branches, which were stuck into the ground in a circle, and their upper, softer ends were tied together at the top. Over this framework, either hide was used as a cover, or broad leaves were intertwined to form a covering. With the advent of the agricultural revolution, more permanent forms developed. In the Middle East, remains of whole villages of round dwellings have been unearthed. These round dwellings, called tholoi[1], were built of packed clay. Although all traces of the roofs have disappeared, there were most likely built of dry-laid stone forming domed roofs.
Composite building materials were also used. Clay and wood were often used for permanent dwellings. The walls were made of small saplings or reeds driven into the ground, and tied laterally with vegetable fibers. This was then plastered over with wet clay for rigidity and waterproofing. The roofs must have been made of crude thatch bundles or bundled reeds.

Stone Structures

Some of the first stone structures built by man were the structures in which two stones were placed vertically and one flat stone was spanned them across. These were called dolmens[1].

Other stone buildings include granaries and temples. But some, like the Stonehenge, are still a puzzle to us today. The construction of such buildings was based on the post and lintel method, similar to the dolmens.

Many of these structures are still being used by tribal populations all over the world. They are the igloo[2], tepee[3], Mongolian yurt, the Zulu kraal[4] etc.

The Communal House

Heavier timber buildings were also found. These buildings were restricted in size as the stone tools used by man at that time were not very effective in cutting large trees for timber. Using the post and lintel system, a central row of columns was used to support the ridge pole and similar rows of columns were used for the long walls. Rafters were run from the ridge pole to the wall beams. The columns were buried deep into the ground for lateral stability. The ridge pole and rafters were tied using vegetable fibers. Thatch was used to roof the structure. Light wooden poles were spanned between the rafters to lay out the thatch on top. The walls were infilled with various materials, including clay, wattle and daub, tree bark, and thatch.

All these buildings protected man from severe weather conditions, like rain, snow, winds, excessive heat etc. Also these structures were very thermally responsive as they could heat and cool very fast.

Практическое занятие Современные тенденции в развитии строительного производства

Read the text «Flatiron Building — Skyscraper». Tell the main idea of the text in few sentences.

FLATIRON BUILDING — SKYSCRAPER

The "invention" of the skyscraper lies with George A. Fuller (1851—1900). George Fuller worked on solving the problems of the "load bearing capacities" of tall buildings. George Fuller built the Tacoma Building in 1889, the first structure ever built where the outside walls did not carrying the weight of the building. Using Bessemer steel beams, Fuller created steel cages that supported all the weight in tall buildings or skyscrapers. The Flatiron Building was one of New York City's first skyscrapers, built in 1902 by Fuller's building company. Daniel H. Burnham was the chief architect. It became known as the Flatiron Building because it was wedge-shaped like a clothing iron. Burnham gave the building this unusual shape to maximize use of the triangular lot. The Flatiron Building is only six feet wide at its tip. Offices at the narrow point offer spectacular views of the Empire State Building.

When it was constructed, some people worried that the Flatiron Building would collapse. They called it Burnham's Folly. But the Flatiron Building was actually a feat of engineering that used newly developed construction methods. A sturdy steel skeleton allowed the Flatiron Building to achieve record-breaking height without the need for wide supporting walls at the foundation.

Практическое занятие №6 Требования к профессии.

CONSTRUCTION

1. Read these international words and try to guess their meaning:

Climate, material, region, standard, construction, monument, sphinxes, column, pyramid, tourists, method, industrial, traditional, crane, bulldozer, excavator.

2. Read out the following words and memorize them:

convenient	удобный

to remain	оставаться
to exist	существовать
flat	плоский
slanting	покатый
instead of	вместо
improved	улучшенный
to flourish	расцветать
thick	толстый
an invasion	нашествие
to manufacture	производить
advanced	прогрессивный
to assemble	собирать

a site	площадка
residential	жилой, жилищный
unskilled	неквалифицированный
former	бывший
to place	класть
to hoist	поднимать
a gantry-crane	портальный кран
a plumber	сантехник

3. Make up your own sentence with the words given above. Use as many words as you can in this sentence.

4. Read out these phrases several times till you remember their meaning:

to have smth at hand – иметь что-то под рукой; to be engaged – быть занятым (вовлеченным); since then – с тех пор;
although – хотя;

to depend on – зависеть от;
to arouse one's wonder – приводить в восхищение; to serve as – служить в качестве чего-то;
a reinforced concrete – армированный бетон;
a precast concrete – железобетон;
to be in great use – широко использоваться;
to pay much attention – уделять много внимания; the prefabricated units – сборные конструкции.

5. Match the English words with their Russian equivalents:

1. slanting	a. жилой
2. an arch	b. расцветать

3. to manufacture	c. плоский
4. flat	e. площадка
5. to flourish	f. неквалифицированный
6. a site	g. улучшенный
7. residential	h. арка
8. a reinforced concrete	i. покатый
9. improved	j. армированный бетон
10. unskilled	k. производить

*6. Combine the words with the help of the preposition **of.** Translate these word combinations:*

1. the kind	a. time
2. were made	b. Belarusian people
3. the greater part	c. prefabricated flats
4. a few	d. wood
5. the Egyptian art	e. precast concrete
6. the art	f. house
7. the churches	g. our country
8. Cathedral	h. the earth
9. the use	i. making columns
10. the National Economy	j. them
11. thousands	k. living
12. the general level	l. St. Sophia
13. blocks	m. building

7. Give the three forms of the following verbs:

To build, to depend, to cover, to dry, to put, to arise, to give, to remain, to come, to destroy, to hold, to get, to have, to pay.

8. These words can be used both as verbs and nouns. Make up your own sentences to show the difference in their usage:

Part, cover, dry, place, change, manufacture, rain, paint, affect, flourish, hoist.

9. Write the derivatives of the following words:

Great, construct, Egypt, resident, build, large, skill, educate, machine, wonderful, govern, live, architect.

10. Read the text and get ready to speak about construction:

CONSTRUCTION

Man has always been a builder. The kind of house he built in the beginning depended on the climate, on his enemies and on the building material at hand. The first houses in many parts of the world were made of wood, for in those days the greater part of the earth was covered with forests. In other regions the most convenient building material was stone. Although houses were built without cement, the remains of a few of them still exist.

The ancient Egyptians built very simple houses by present standards. Having dried the bricks in the sun they put up four walls and above these they placed a flat roof. The roof was flat because there was very little rain in Egypt. Although their buildings were simple in construction, the Egyptian art of building was very beautiful. Their pyramids and monuments, sphinxes and palaces arouse our wonder to this day.

The first lessons in the art of making columns were given to the world in ancient Egypt.

In our country architecture flourished for the first time in Kiev Russ. Unfortunately, only a few of the church buildings of that period have remained. The churches of the time were strong buildings with thick walls and small windows. They often had to serve as fortresses during enemy invasions. Tourists from all over the world come to see the famous Cathedral of St. Sophia in Polotsk the cornerstone of which was laid in 1037 to commemorate the victory over the Pechenegs.

Since then the architecture and structural materials have been greatly changed. A very advanced construction technique today is the use of precast concrete. According to this method the reinforced concrete units are manufactured at a factory and are then simply assembled at the construction site. This method helped our country to restore its economy after the Second World War, when many residential as well as industrial buildings were destroyed.

The first blocks made of prefabricated units appeared in the villages in the Volgograd and Moscow regions.

At present, the building industry is the largest in Belarus and it holds an important place in the National Economy of our country. Many highly- educated civil engineers, who are trained at Belarusian universities, skilled and unskilled workers are engaged in construction. Builders use many new materials such as reinforced concrete, precast concrete, light weight concrete, gas concrete, many decorative materials, oil paints, wall paper. Synthetics are among them. Such traditional materials as stone, brick, wood are in great use as well. Various elements and components are assembled on the site.

Now everywhere in Belarus vibro-rolled panels are being widely used in construction. The assembly method is developing into the main method of apartment and industrial construction.

All the working processes are mechanized. Modern construction can't be imagined without building machinery. Lorries, cranes, bulldozers,

excavators are available at all construction sites of Belarus. Prefabricated structures are transported by lorries and immediately hoisted into position. Finished blocks of prefabricated flats with interior decoration are assembled on many construction sites. Transport brings a complete flat to the prepared foundations of a building. A powerful gantry-crane lifts the 18 – 20 ton flat and carefully sets it on the foundation. After the final inspection, electricians, plumbers and gas-men can begin their work.

As a result our country builds more than any other country of the former Soviet Union. Thanks to special government's programmes thousands of Belarusian people get flats every year. Flats have all modem conveniences, such as hot and cold water supply, central heating, lifts, ventilating plants, etc.

The building industry is paid much attention in our country as it affects greatly the general level of living.

Практическое занятие Научно-технические стили русского и английского языков

PART 1
READING (30)

1 The Internet is a global system of interconnected computer networks. It carries a vast array of information resources and services. The origins of the Internet reach back to the 1960s when the United States funded research projects of its military agencies to build distributed computer networks. Information sent over the Internet takes the shortest path available from one computer to another. Because of this, any two computers on the Internet will be able to stay in touch with each other as long as there is a single route between them. This technology is called packet switching. If some computers on the network are knocked out, information will just route around them. One such packet switching network already survived a war. It was the Iraqi computer network, which was used during the Gulf War.

2 Use of the term "Internet" to describe a single global TCP/IP network originated in December 1974 with the publication of the first full specification of TCP. The opening of the network to commercial interest began in 1988. Over the decade, the Internet successfully accommodated the majority of previously existing public computer networks (although some networks, such as FidoNet, have remained separate). During the 1990s, it was estimated that the Internet grew by 100% per year, with a brief period of explosive growth in 1996 and 1997. By 1996 usage of the word Internet had become commonplace.

3 The most popular Internet service is E-mail. The most of the people, who have the access to the Internet, use the Network only for sending and receiving e-mail messages. However, other popular services are available on the Internet: reading Usenet News, using the World Wide Web, Telnet, FTP, IRC, ICQ and Gopher. Most computer- mediated communication (CMC) is asynchronous. The participants are not on line at the same time and there are delays between messages. Examples of asynchronous communication include: mobile phone text messages, chat rooms, e-mail. Synchronous CMC depends on participants being on line at the same time. There may be a few seconds delay – like a satellite phone. Examples of synchronous communication include: Internet Relay Chat, audio and video conferencing.

1. Find a suitable title for the text.
A. THE INTERNET

B. THE INTERNET SERVICES C. NETWORKS

2. Answer the questions.

1. Where did the Internet appear?
2. When was the term 'Internet' first used?
3. How is the technology used in the information transmission called?
4. What is the basic principle of the information transmission in the Internet? 5. When was the most intensive growth of the Internet in the 20th century?
6. What are the two types of computer-mediated communication?
7. What are the examples of asynchronous communication?

3. Read the statements and decide if they are true (T) or false (F).

1. Packetswitchingtechnologyprovedtobesurvivable.
2. Militaryagenciesandcommercialinterestscooperatedtodesigntheinternet.
3. When there is a delay between messages about a millisecond the communication can be called asynchronous.
4. Internet includes all the networks which have been separate before.

5. IfonecomputerintheInternetstopsworking,thewholenetworkfunctionsbadly.
6. Peoplebegantousethename"Internet"intheendof1996.
7. Usersshouldbeonlineatthesametimetomakeasynchronouscommunicationpossible.

Практическое занятие Особенности лексики и перевода иностранной научно-технической литературы

PART 2 VOCABULARY (30) 1. Match the words.

1.to receive 2.to damage 3.electrical 4.floppy
5.to store 6.to arrange 7.to eliminate 8.human 9.medical 10.to deliver

a. disk
b. signal
c. cell
d. nanorobot e. appliance f. health
g. atoms
h. output
i. pollution
j. information

2. Complete the sentences with the following words and expressions:
amounts modems relaxed rate anti-glare screen helpline inexpensively too is

responsible for back up

1. Nanotechnology will let us .... arrange atoms and molecules in many ways permitted by physical law. 2. It seems .... good to be true.
3. Gravitation .... keeping the earth around the sun.
4. Computers can process vast .... of data in a very short time.

5. For computer support you can call a ....
6. Most monitors have .... to eliminate health problems.
7. Make sure your wrists are completely .... when typing.
8. Always .... not to lose necessary files.
9. Fax machines send information at the .... of 9,600 bits of information per second. 10. .... are used to convert analogue signals into digital and vice verse.

3. Match the words with similar meaning.

1. to complete
2. to delete
3. to produce
4. to input
5. unit

a) to remove
b) to manufacture c) to finish
d) device
e) to feed

4. Match the words with opposite meaning.

1. to reduce
2. to disconnect
3. sophisticated
4. to reflect
5. to push

a. to link
b. simple
c. to attract d. to pull
e. to increase

GRAMMAR (40)
1. Underline which answer – A, B or C – best fits each gap.

1. Why does the earth always .... around the sun? A move B moves C moved

2. The laws of physics .... little for either our hopes or our fears. A cares B is caring C care

3. The progress of technology .... already......... us more precise, less expensive manufacturing technologies.

A had given B has given C is given
4. The size of computer hardware .... into the deep submicron range.

A has shrunk B have shrunk C is shrunk
5. Everything in the universe .... everything else towards itself.

A attracts B attracted C attract
6. There .... millions of galaxies in the universe.

Aare B is Cwas
7. Gravitation ....all objects at the same rate.

A accelerates B accelerate C accelerated
8. Make sure your files .... well .... so that you can find them easily.

A have organized B are organized C had organized
9. If the line is noisy, the sending machine .... to reduce the amount of information lost.

A will slow down B slow down C slows down 10. Computer error usually .... human error.

A mean B meant C means

2. Make questions with a question word.

1. There are about million stars in the galaxy. (How many?).
2. Einstein produced a new law of gravitation. (Who?)
3. In 1687 Newton first studied gravitation and published Principia. (When?)

4. Bigger objects have stronger attraction. (Which?)
5. Repetitive strain syndrome can be caused by working at a keyboard for a long time. (What?)
6. Take a 10-minute break every hour you work to rest your eyes and parts of the body. (How often?) 7. Data and instructions are stored in the memory unit. (Where?)
8. The lens can read the image in black and white. (How?)
9. A document can be sent to several places at once. (How fast?)
10. The sending machine will slow down to reduce the amount of information lost. (Why?)

3. Make sentences from the following words beginning with the word in bold. 1. the / fly / earth / off / Why / space? / cold / into / does / not
2. everything / else / in / the / towards / itself. / Everything / universe / attracts
3. memory. / instructions / and / Data / are / in / stored

4. your / Never / wrists / typing. / while / bend
5. times. / Technology / at / primitive / was /medieval

4. Correct mistakes in the following sentences.

1. Large objects has a stronger pull than small ones.
2. There is many types of computers nowadays.
3. Molecular manufacturing made no pollutants.
4. A microprocessor convert the binary data into digital information.
5. Facsimile technology come into use in the late 1970s.

Практическое занятие Социально-бытовое благоустройство жилых территорий.

TYPES OF BUILDINGS

The house shows the owner. English proverb

1. Read these international words and try to guess their meaning:

Social, function, activity, condition, technique, technological, evolution, minimum, stimulate, industry, standardization, production, mechanization, bulldozer, decoration.

2. Read out the following words and memorize them:

an apartment	многоквартирный дом
recreational	развлекательный
a permanence	постоянство, прочность
to tend	направлять
an assemblage	сборка, монтаж
to erect	сооружать, воздвигать, устанавливать
a built-in	вставка, встроенность
a load	нагрузка
to conceal	скрывать, маскировать
a search	поиск
expressive	выразительный
meaningful	многозначительный

to suit	удовлетворять
resultant	результативный
private	частный
an excavation	земляные работы, выемка грунта
an output	Производительность

3. Make up your own sentence with the words given above. Use as many words as you can in this sentence.

4. Read out these phrases several times till you remember their meaning:

at once – одновременно;
to depend upon – зависеть от;
interchangeability of smth – взаимозаменяемость чего-либо; modular design – блочная конструкция (модульное проектирование); to classify according smth – классифицировать согласно чему-то;
a minimum of materials – минимальное использование материалов; to protect smb from smth – защищать кого-то от чего-то;
the methods by which – методы, с помощью которых;
at lower cost – при наименьших затратах;
carefully think of smth – тщательно продумывать что-то;
in order to do smth – для того, чтобы сделать что-то;
to form from – производить из.

5. Match the English words with their Russian equivalents:

1. recreational	a. многозначительный
2. resultant	b. скрывать
3. a load	c. встроенность
4. meaningful	d. выемка грунта
5. an apartment	e. удовлетворять
6. to conceal	f. развлекательный
7. a permanence	g. поиск
8. a built-in	h. результативный
9. a search	i. выразительный
10. an assemblage	j. постоянство, прочность
11. to erect	k. частный
12. a permanence	l. многоквартирный дом
13. to suit	m. сооружать
14. private	n. сборка
15. an excavation	o. Нагрузка

*6. Combine the words with the help of the preposition **of**. Translate these word combinations:*

1. types	a. materials
2. permanence	b. elements

3. character	c. techniques
4. technological development	d. the construction
5. the evolution	e. mechanization
6. maximum	f. buildings
7. combinations	g. built-in cabinets
8. standardization	h. better structures
9. interchangeability	i. society
10. output	j. an apartment
11. the high degree	k. stability
12. a variety	l. a structure
13. the upper part	m. a fixed unit
14. the built-in space	n. parts
15. the extent	o. construction methods

7. Give the three forms of the following verbs:

To classify, to build, to form, to influence, to condition, to dig, to tend, to lay, to think, to determine, to conceal.

8. These words can be used both as verbs and nouns. Make up your own sentences to show the difference in their usage:

Load, soil, condition, function, suit, form, influence, desire, change, design, part, aim, cost, contact, work.

9. Write the derivatives of the following words:

Suit, education, industry, stable, technology, build, meaning, adapt, change, success, durable, available, firm, careful, consider, satisfy, free.

10. Read the text and get ready to speak about the types of buildings:

TYPES OF BUILDINGS

Types of buildings depend upon social functions and may be classified according to the role in the Community. The types of buildings may be domestic, educational, office, industrial, recreational, etc. The common and necessary conditions are:

a) its suitability to use by human beings in general and its adaptability to particular human activities;

b) the stability and permanence of its construction.

Speaking of residential construction we must say that the apartment houses are mostly built to suit urban conditions. Group housing provides home for many families and is at once public and private. The techniques of construction or the methods by which structures are formed from particular materials are influenced not only by the availability and character of materials but also by the total technological development of society.

The evolution of techniques is conditioned by two factors:

1) one is economic – the search for a maximum of stability and durability in building with a minimum of materials, labour and time;

2) the other is expressive – the desire to produce meaningful form.

Large housing programmes have tended to stimulate technological change in the building industry. Modular design (i.e. design in which the elements are dimensioned in combinations of a fixed unit) has led to standardization of elements, interchangeability of parts and increased possibilities for mass production, with resultant economies. Entire apartment assemblages are available and are being used to an increasing extent. These techniques aim at a higher output of better structures at lower cost. The high degree of mechanization and standardization is successfully achieved by reinforced concrete blocks and units. Reinforced concrete homes are produced by a variety of construction methods. Various methods of constructing reinforced concrete houses involve extensive use of large sec- tions manufactured in heavily mechanized factories and erected at the site.

In order to build a house first an excavation is dug by bulldozers. Then a foundation is laid to carry the load of a structure and to keep the walls and the floors from the contact with soil. Floors divide a building into storeys and carry the loads too. The upper part of a structure is a roof; it ties a building, gives the firmness to the structure and protects people from rain, wind, snow, etc. Doors, windows, stairs, lifts are integral elements of a building and they are always precast or prefabricated.

When a structure is ready builders start to decorate it. When decoration work is over a building is considered to be finished. The built-in space of an apartment should be carefully thought of as well. There is a consider- able trend toward built-in furniture. Rooms should be both efficient and visually satisfying. The extent of built-in cabinets must be determined. Drawers and shelves can often be concealed behind walls, freeing valuable floor space.

11. Answer the following questions:

1. What do types of buildings depend upon? 2. In what way may be they classified? 2. What are the common and necessary conditions? 4. What is the function of group housing? 5. The evolution of techniques is conditioned by several factors, isn't it? 6. What is modular design? 7. Why is it used? 8. What is the aim of entire apartment assemblages? 9. What methods are used to produce reinforced concrete homes? 10. Where are large sections manufactured and erected? 11. What is necessary to first in order to build a house? 12. Why is the foundation laid? 13. What is the upper part of a structure? 14. What elements are integral? 15. Who starts to decorate the structure? 16. When is a building considered to be finished? 17. What do we call the built-in space of an apartment? 18. Should rooms be both efficient and visually satisfying? 19. What must be determined? 20. Where can be drawers and shelves concealed?

Практическое занятие Экология жилой среды.

### Defining an ecology of construction

The construction and operation of the built environment has disproportionate impacts on the natural environment relative to its role in the economy. Although it represents about 8% of gross domestic product (GDP) in the USA, the construction sector consumes 40% of all extracted materials, produces one-third of the total landfill waste stream, and accounts for 30% of national

energy consumption for its operation. The sustainability of this industrial sector is dependent on a fundamental shift in the way in which resources are used, from non-renewables to renewables, from high levels of waste to high levels of reuse and recycling, and from products based on lowest first cost to those based on life cycle costs and full cost accounting, especially as applied to waste and emissions from the industrial processes that support construction activity. Construction, like other industries, would benefit from observing the metabolic behavior of natural systems, in which sustainability is a property of a complex web of niche elements. The emerging field of industrial ecology, which is examining Nature for its lessons for industry, provides some insights into sustainability in the built environment or sustainable construction. This book proposes and outlines the concept of construction ecology, a view of construction industry based on natural ecology and industrial ecology for the purpose of shifting construction industry and the materials and manufacturing industries supporting it onto a path much closer to the ideals of sustainability. Additionally, construction ecology would embrace a wide range of symbiotic, synergistic, built environment–natural environment relationships to include large-scale, bioregional, "green infrastructure" in which natural systems provide energy and materials flows for cities and towns and the human occupants provide nutrients for the supporting ecological systems.

What is Eco-friendly material?

Dictionary: describes a product that has been designed to do the least possible damage to the environment. US EPA – EPP program defines as: "products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose". Thus we talk of two issues – one that it does the least possible environmental damage and two that it is a comparative scale as there are very few materials that are completely eco-friendly. One more point to note when we talk of eco-friendly construction is that it consist of two parts – Material and Technique.
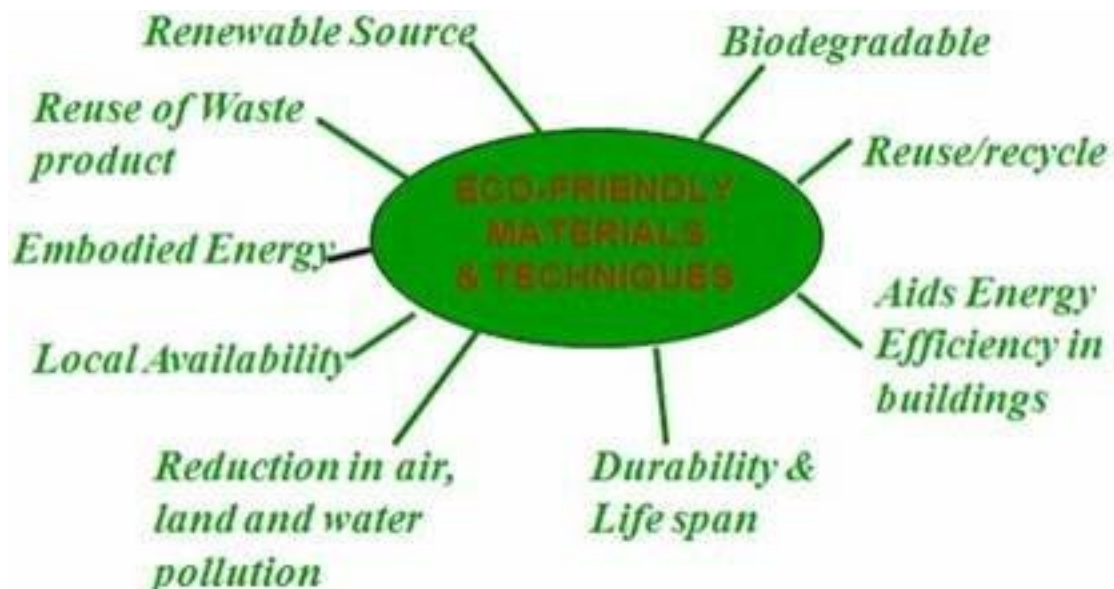
Практическое занятие Строительные материалы, их свойства и функции.

Building material

Building material is any material used for construction purpose such as materials for house building. Wood, cement, aggregates, metals, bricks, concrete, clay are the most common type of building material used in construction. The choices of these are based on their cost effectiveness for building projects.

Many naturally occurring substances, such as clay, sand, wood and rocks, even twigs and leaves have been used to construct buildings. Apart from naturally occurring materials, many man-made products are in use, some more and some less synthetic.

The manufacture of building materials is an established industry in many countries and the use of these materials is typically segmented into specific specialty trades, such as carpentry, plumbing, roofing and insulation work. This reference deals with habitats and structures including homes.

Практическое занятие Части здания

Parts of a Building: CIVIL WORKS.

The important parts of an ordinary building are shown in **Figures 1.1 and 1.2.**

They are as follows:

1. Foundation,

2. Plinth,

3. Walls and columns,

4. Floors,

5. Lintels and chajjas,

6. Roof,

7. Doors and windows,

8. Stairs and lifts,

9. Finishing work (plastering and painting),

10. Building services,

11. Fencing and external works.,

A building can be divided into substructure (foundation) and superstructure, the plinth level being the dividing line between them.

In building construction, we study how the civil works are carried out in the field after they have been planned by an architect and structurally designed by an engineer.

We should be aware that many aspects are involved in the preliminary planning and design of buildings.
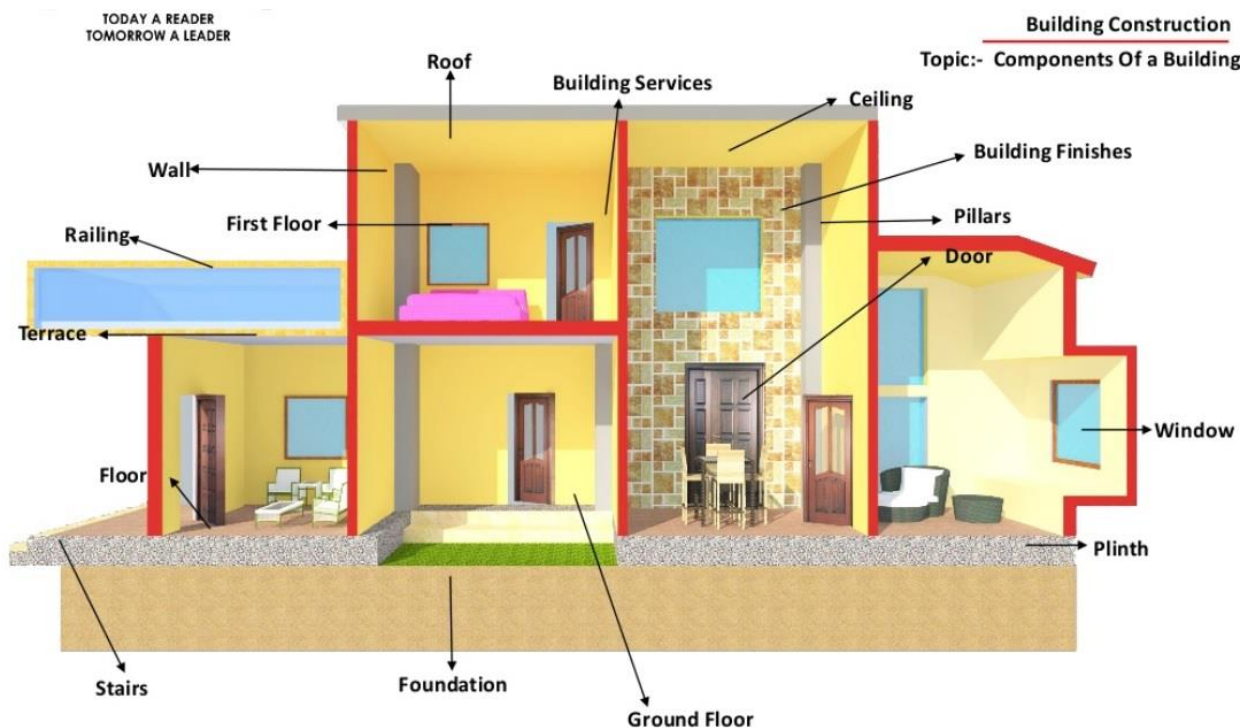
Практическое занятие Фундамент.

Foundation, Part of a <u>structural system</u> that supports and anchors the superstructure of a <u>building</u> and transmits its loads directly to the earth. To prevent damage from repeated freeze-thaw cycles, the bottom of the foundation must be below the frost line. The foundations of low-rise residential buildings are nearly all supported on spread footings, wide bases (usually of concrete) that support walls or <u>piers</u> and distribute the load over a greater area.
A <u>concrete</u> grade <u>beam</u> supported by isolated footings, piers, or <u>piles</u> may be placed at ground level, especially in a building without a <u>basement</u>, to support the exterior <u>wall</u>. Spread footings are also used—in greatly enlarged form—for <u>high-rise</u> buildings. Other systems for supporting heavy loads include piles, concrete <u>caisson</u> columns, and building directly on exposed rock. In yielding <u>soil</u>, a floating foundation—consisting of rigid, boxlike structures set at such a depth that the weight of the soil removed to place it equals the weight of the construction supported—may be used.

Практическое занятие №38 Дизайн стен.

https://www.architecturaldigest.com/story/wall-decor-ideas

Пройдите по ссылке, переведите текст и сделайте краткий конспект в своей рабочей тетради. Предложите свои варианты .

Практическое занятие   Техника безопасности при работе на стройплощадке.

10 Simple Construction Site Safety Rules

Construction sites are dangerous places to work. Follow these 10 simple construction site safety rules to keep yourself, and others, safe. From wearing your PPE, to following procedures, you can help make your site a safer place to work, and prevent accidents.

Construction sites are dangerous places to work. Every year, thousands of people are injured at work on construction sites. So, if you work in construction, it's even more important that you put health and safety into everything you do.

Follow these 10 simple construction site safety rules to keep yourself, and others, safe.

1. Wear your PPE at all times

When you enter the site, make sure you have the PPE you need. PPE is important, it's your last line of defence should you come into contact with a hazard on site. Hi-viz helps make sure you are seen. Safety boots give you grip and protect your feet. Hard hats are easily replaced, but your skull isn't.

It can't protect you if you don't wear it. Wear your hard hat, safety boots and hi-viz vest as a minimum, along with any additional PPE required for the task being carried out.

2. Do not start work without an induction

Each site has its unique hazards and work operations. No two sites are exactly the same. Make sure you know what is happening so that you can work safely. Inductions are a legal requirement on every construction site you work on.

Your induction is important. It tells you where to sign in, where to go, what to do, and what to avoid. Don't start work without one.

3. Keep a tidy site

Construction work is messy. Slips and trips might not seem like a major problem compared to other high-risk work happening on the site, but don't be fooled. According to HSE statistics, slips and trips accounted for 30% of specified major injuries on construction sites (2016/17 – 2018/19).

Remember to keep your work area tidy throughout your shift to reduce the number of slip and trip hazards. Pay particular attention to areas such as access and escape routes.

4. Do not put yourself or others at risk

Actions speak louder than words. Especially on construction sites where one wrong move could put you in harm's way. Set a good example, think safe and act safely on site.

You are responsible for your own behaviour. Construction sites are dangerous places to work. Make sure you remain safety aware throughout your shift.

5. Follow safety signs and procedures

Follow construction safety signs and procedures. These should be explained to you in your induction (rule number 2). Your employer should ensure a risk assessment is carried out for your activities. Make sure you read and understand it.

Control measures are put in place for your safety. Make sure they are in place and working before you start.

6. Never work in unsafe areas

Make sure your work area is safe. Know what is happening around you. Be aware. According to HSE statistics, 14% of fatalities in construction were caused by something collapsing or overturning, and 11% by being struck by a moving vehicle (2014/15-2018/19).

Don't work at height without suitable guard rails or other fall prevention. Don't enter unsupported trenches. Make sure you have safe access. Don't work below crane loads or other dangerous operations.

7. Report defects and near misses

If you notice a problem, don't ignore it, report it to your supervisor immediately. Fill out a near-miss report, an incident report, or simply tell your supervisor. Whatever the procedure in place on your site for reporting issues, use it.

Action can only be taken quickly if the management has been made aware of the problem. The sooner problems are resolved the less chance for an accident to occur.

8. Never tamper with equipment

If somethings not working, or doesn't look right, follow rule number 7 and report it. Don't try and force something, or alter something, if you're trained to or supposed to.

Never remove guard rails or scaffold ties. Do not remove machine guards. Do not attempt to fix defective equipment unless you are competent to do so. Do not ever tamper with equipment without authorisation.

9. Use the right equipment

One tool does not fit all. Using the correct tool for the job will get it done quicker, and most importantly, safer. Visually check equipment is in good condition and safe to use before you start.

Only use 110v equipment on the site. 240v equipment is strictly prohibited without prior authorisation from management and will only be used if no 110v alternative available and additional safety precautions are taken.

10. If in doubt, ask

Unsure what to do? Or how to do something safely? Or you think something is wrong? Stop work, and ask. It takes 5 minutes to check, but it might not be so easy to put things right if things go wrong. It's better to be safe than sorry. Mistakes on construction sites can cost lives, don't let it be yours.

10 SIMPLE CONSTRUCTION

SITE SAFETY RULES

Every year thousands of people are injured on construction sites. Follow these rules and stay safe.

1 ALWAYS WEAR PPE
PPE is your last line of defence against danger. It protects you if something goes wrong, and helps make sure you are seen. Wear it.

2 GET YOUR INDUCTION
Make sure you know what is happening on site so you can work safely. Your induction is important, don't start without one.

3 BE TIDY
Construction work is messy. Keep your work area tidy to reduce the risk of trips and slips, and fire hazards. Keep access routes clear.

4 ACT SAFE
Construction sites are dangerous places to work. Think safe and act safe throughout your shift.

5 FOLLOW SIGNS
Follow signs and procedures. Check risk assessments and systems of work. Control measures are put in place for your safety.

6 DO NOT ENTER
Never work in unsafe areas. Don't work at height without suitable fall prevention. Don't enter unsupported trenches. Don't work below crane loads or other dangerous operations.

7 REPORT
If you notice a problem, don't ignore it, report it to your supervisor immediately.

8 DON'T TAMPER
Never remove guard rails or scaffold ties. Do not remove guards. Do not attempt to fix defective equipment unless you are competent to do so. Do not ever tamper with equipment without authorisation.

9 USE THE RIGHT EQUIPMENT
Use the right equipment for the task. Check and test for defects before use. Use 110v equipment only, suitable for use on a construction site.

10 IF IN DOUBT, ASK
Better safe than sorry. Mistakes on construction sites can cost lives - don't let it be yours. If you need help or further information speak to your supervisor.

www.haspod.com

Практическое занятие № 52 Несчастные случаи на строительной площадке

Construction Accidents

According to Census Bureau, there are over 700,000 construction companies which employee 7.3 million people in the country. Unfortunately, this industry has a high number of accidents.

Common Causes of Construction Accidents

Falling Debris and Materials
Electrical Shock, Burns, and Explosions
Falls from Ladders or Scaffolding
Roof and Wall Collapse
Defective Tools
OSHA/Safety Code Violations
Improper Storage of Materials
Exposure to Toxic Chemicals and Fumes

It is estimated that over 150,000 construction injuries occur each year. In 2011, there were 738 deaths among construction workers.

259 Deaths due to Falls
73 Deaths due to being Struck by an Object
69 Deaths due to Electrocution
18 Deaths due to being Caught in between Objects

You May Be Entitled to Receive Money For

Medical Expenses and Rehabilitation
Lost Income
Pain and Suffering
Scarring
Loss of Consortium (if applicable)
Wrongful death (if applicable)

Construction-Related Injuries

Stress Injuries caused by Repetitive Motion
Back or Neck Injuries
Asthma
Cuts
Burns

Eye Injuries and Vision Loss
Broken Bone
Spinal Cord Injuries
Head Injuries

Call d'Oliveira & Associates
at 1-800-992-6878 for a Free Consultation

Практическое занятие   Архитектура зданий.

In short:
- •☐☐What changes have occurred in recent years?
- •☐☐Are all office staff computer trained and multi-skilled?

Must know

drawing board - чертѐжная доска
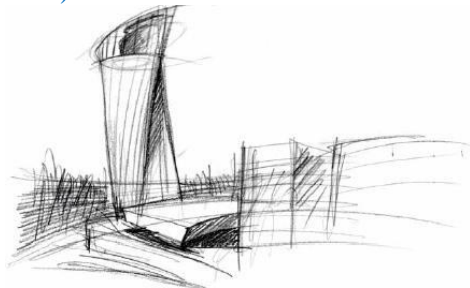tee-square - тавровый угольник
stencil - трафарет, шаблон
filing cabinet - шкаф для хранения документов
dyeline – светокопия
drawing ink - чертѐжная тушь
cable clutter - путаница проводов

1. a)Read and translate the text.

Architects who have been in practice for more than 15 years are fully aware of the changes, which have taken place due to information technology. Over the years, drawing boards, tee squares, stencils and tracing paper have been replaced by computer applications. There is no longer a need for large filing cabinets to store dyelines. Today the originals are nicely stored on disks and printed out on plotters when required. Changes are simply made by a mouse click without requiring razor blades to remove the drawing ink once used to make the drawings. Nowadays, all office staff are computer trained and multi-skilled in that they not only prepare their own drawings, but also draw up diagrams and charts, as well as write a lot of their own letters and e-mails. The cable clutter, which once occupied much of the floor space behind and under tables and desks, has disappeared since introduction of wireless equipment. Wireless phones, printers, monitors and keyboards bring great flexibility to once very rigid office arrangements.

Despite all these changes, architecture is one profession which will never be able to cope as a paperless office. Paper and pencils will always remain the architect's first tool. A pencil is small, quick, totally independent of electricity and
able to express such a lot in a small space of time.

b) Discuss these questions.
1. What things have been replaced by computer applications?
2. What changes have occurred in recent years?
3. Are all office staff computer trained and multi-skilled nowadays?
2. Grammar point: Simple present and simple past.

Simple Present is used to describe current facts and regular activities. Simple Past is used to describe completed activities or facts of the past.

If you take a look at the two pictures you will notice a lot of differences between the past and the present situation.

3. Complete the text below by putting the verb in brackets into either the simple present or simple past tense.
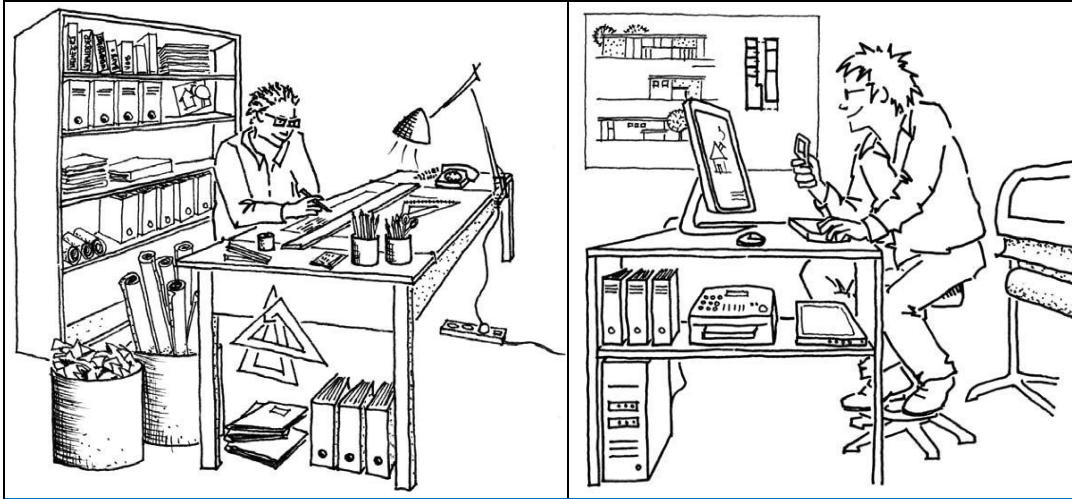
Architecture has always been practised. Even in ancient times master-builders .... (design) buildings and .... (manage) their construction. Up until the late 80ies draughtspersons .... (sit) at drawing boards using tee squares,

compasses and stencils. In 1938, Konrad Zuse .... (invent) the Z1 – the first digital computer. The first CAD programmes .... (appear) in the 70ies, however, they .... (not become) affordable for smaller offices until the early 90ies. Nowadays, most architects .... (sit) in front of flat screens and .... (give) instructions to the computer by clicking the mouse. Despite all the changes, architects .... (still use) paper and pencil to jot down first thoughts.
Source:Sharon Heidenreich English for Architects and Civil Engineers

1. Vocabulary

a.	regulation [ˌregjəˈleɪʃ(ə)n]	регулирование
	manufacture [ˌmænjəˈfæktʃə]	производство
	fabrication [ˌfæbrɪˈkeɪʃ(ə)n]	производство, изготовление
	maintenance [ˈmeɪnt(ə)nən(t)s]	(техническое) обслуживание
	whilst [(h)waɪlst]	пока, в то время как
	demarcation [ˌdiːmɑːˈkeɪʃ(ə)n]	разделение, размежевание
	blurred [blɜːd]	неясный, расплывчатый
	minor works	вспомогательные работы
	enormously [ɪˈnɔːməslɪ]	весьма, очень
	to decline [dɪˈklaɪn]	уменьшаться, идти на убыль
	premises [ˈprɛmɪsɪz]	недвижимость
	one-off design	индивидуальный проект
	traditional arrangement [əˈreɪndʒmənt]	традиционные договоренности
	to separate [ˈsep(ə)reɪt]	отделять, разделять
	vagary [ˈveɪɡ(ə)rɪ]	каприз
b.	to be based on trust	основываться на доверии
	occupier [ˈɔkjupaɪə]	арендатор
	mediator [ˈmiːdɪeɪtə]	посредник
	building contractor [ˈbɪldɪŋ kənˈtræktə]	строитель-подрядчик

to settle ['setl]	урегулировать, разрешить (спор)
contractual disputes [kən'træktʃuəl ['dɪspjuːt]	договорные споры
competitive tender [kəm'petɪtɪv 'tendə]	конкурентные торги
subcontractor [ˌsʌbkən'træktə]	субподрядчик (лицо, которому передается часть или весь контракт)
liable adj ['laɪəbl]	ответственный
clerk of works [klɑːk]	представитель заказчика на стройплощадке
workmanship ['wɜːkmənʃɪp]	изделие; качество изготовления
conform [kən'fɔːm]	согласовывать, приводить к соответствию
organigram [ɔː'ganɪgram]	схема организационной структуры
functional link ['fʌŋkʃ(ə)n(ə)l lɪŋk]	функциональная связь
appointment [ə'pɔɪntmənt]	назначение
binding agreement ['baɪndɪŋ ə'griːmənt]	обязательное соглашение
oral contract ['ɔːr(ə)l 'kɒntrækt]	устный договор
terms and conditions	постановления и условия (договора)
tracing paper	восковка, бумажная калька
razor blade ['reɪzə bleɪd]	лезвие безопасной бритвы
client's representative ['klaɪənt] [ˌreprɪ'zentətɪv]	представитель заказчика
thermal insulation calculation ['θɜːm(ə)l ˌɪnsjə'leɪʃ(ə)n ˌkælkju'leɪʃ(ə)n]	расчет теплоизоляции
advice [əd'vaɪs]	консультация (специалиста)
specification [ˌspesəfɪ'keɪʃ(ə)n]	подробное описание, технические условия
supervision [ˌs(j)uːpə'vɪʒ(ə)n]	надзор за качеством работ
building services engineer	инженер по обслуживанию здания
quantity surveyor ['kwɒntətɪ sə'veɪə]	инженер-сметчик
bill of quantities ['kwɒntətɪ]	накладная, фактура

workmanship ['wɜːkmənʃɪp]	изделие; качество изготовления
conform [kən'fɔːm]	согласовывать, приводить к соответствию
organigram [ɔːˈganɪgram]	схема организационной структуры
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terms and conditions	постановления и условия (договора)
tracing paper	восковка, бумажная калька
razor blade ['reɪzə bleɪd]	лезвие безопасной бритвы
master-builder ['mɑːstə'bɪldə]	строитель-подрядчик; архитектор
draughtsman/-men pl ['drɑːftsmən]	чертёжник; рисовальщик
draughtswoman/-women pl [	чертёжница; рисовальщица
folding rule ['fəuldɪŋ ruːl]	складной метр
power outlet strip	штепсельная розетка
(rubbish) bin BE, trashcan AE ['rʌbɪʃ] [bɪn], ['træʃˌkæn]	мусорное ведро, мусорная урна

Практическое занятие Гражданское строительство

What is Civil Engineering?

"When you understand civil engineering, you see the world differently." (Institution of Civil Engineers www.ice.org.uk)

Your future profession is civil engineering.

What do you know about it? What do civil engineers do? What are they responsible for?

1. Make sure that you understand English words and expressions in the left-hand column, matching them with their Russian equivalents in the right-hand column.

Activity 1

1. rely on	1. загрязнение
2. processing and recycling waste 3. find solutions to problems	2. метро
	3. полагатьсяна
4. pollution	4. переходить по подземному переходу
5. network of roads	5. железные дороги
6. underground system	6. проектировать и строить
7. walk through an underpass	7. найти решение проблем
8. bridge	8. устойчивое развитие энергетики
9. design and build	9. многоэтажные автостоянки
10. railways	10. подача чистой воды
11.tunnels	11. переработка и утилизация отходов
12.tall structures	12. мост
13.multy-storey car parks	13. сеть дорог
14.train stations	14. туннели
15.supply of clean water	15. высотные сооружения
16.sustainable energy	16. железнодорожные вокзалы

☐☐2. **Read the text "What is Civil Engineering?" and find the answers to the questions in Lead-in section.**

☐☐**Do they coincide with your answers?**
☐☐**Have you found any new information about your future profession?** ☐☐**Would you like to add something to the text?**

What is civil engineering?

Civil engineering is all about people. It's the work that civil engineers do to develop and improve the services and facilities we, the public, all use.

We rely on civil engineering every day for a variety of things: from supplying energy and clean water to our homes, to processing and recycling our waste, to finding solutions to problems like pollution.

What do civil engineers do?

To understand what civil engineers do, you need to think about what you do in the first hour after you wake up on a Monday morning.

You clean your teeth using the running water in your bathroom. Have a cup of tea or coffee. You travel to work on a finely constructed network of roads or on a train or underground system. You park your car or grab another cup of coffee at the train station before heading to the office. You might even walk through an underpass or over a bridge before finally settling at your desk. None of this would have been possible without civil engineers.

Civil engineers design and build bridges, roads, railways, and tunnels. They design and build tall structures and large buildings such as multi-storey car parks, train stations, and even the Olympic stadium.

Without civil engineers we wouldn't have a constant supply of clean water, or sustainable energy to help us save our planet. Without civil engineers the world we live in would be completely unrecognisable.

(Adapted from http://www.ice.org.uk/What-is-civil-engineering/What-do-civil-engineers-do)

Culture corner
The Institution of Civil Engineers (ICE) is a registered charity that strives to promote and progress civil engineering.
ICE was founded in 1818 by a small group of idealistic young men. Their aim is to "foster and promote the art and science of civil engineering". Now ICE represents around 80,000 members worldwide.

Grammar
If + past simple, *would* + infinitive without *to*
This describes an unlikely situation and its probable result.
*If we **didn't have** civil engineers we **wouldn't live** in cities.*
Instead of *would* we can use *might* or *could*, depending on the meaning. *If he **spoke** English fluently he **could work** in a multinational company.*

Second conditional
1. Find examples of Second conditional in the text.
2. Fill in the gaps with Second conditionals of the verbs in brackets.
1. If civil engineers _____ (build) the Great Wall of China today, it _____ (cost) £ 300 billion.
2. If I _____ (have) a degree in Civil Engineering I _____ (have) a chance to get a well-paid job.
3. If I _____ (study) at Melbourne university I _____ (have) the opportunity to specialize in nanotechnology.
4. If I _____ (be) an office-based civil engineer I _____ (work) on computer designs.
5. If I _____ (work) in aerospace engineering I _____ (be) designing structures for use in space.
6. If I _____ (do) an outstanding civil engineering or construction project I _____ (receive) an ICE International Medal.
3. Complete the following sentences.
1. If I had a chance to study abroad ...
2. If I didn't choose to become a civil engineer ...
3. If I worked on a construction site ...
4. If I were the chief architect of Saint-Petersburg ...

Практическое занятие   №59 /61/62/63Жилищное строительство

10. Read the text and get ready to speak about residential and industrial building:

RESIDENTIAL AND INDUSTRIAL BUILDINGS

In technically developed countries the building industry, comprising skilled and unskilled workers in many trades, building engineers and architects, managerial staff and designers employs a considerable proportion of the available labour force.

Building industry, including residential public and industrial construction, holds a considerable place in the National Economy and is being carried on a large scale. It is the largest single industry in the country. The problems of construction have grown into major, political issues in most countries.

Housing is prominent among the factors affecting the level of living. The improvement of the housing represents a concrete and visible rise in the general level of living. In many countries residential construction has constituted at least 12 per cent and frequently more than 25 per cent of all capital formation. Since the USSR home building industry is the concern of the state. The research and development in housing technology is carried out on a national scale and is being paid much attention to.

The ever growing housing demands have brought to life new methods of construction with great emphasis upon standardization, new levels of technological advance, utilizing such techniques as offsite prefabrication, precutting, use of reinforced concrete panels and large-scale site planning. At present, prefabricated structures and precast elements may be classified into two principal groups – for residential houses and industrial buildings.

5. Match the English words with their Russian equivalents:

1. a site	a. склад
2. an amenity	b. воздействовать
3. a furnishing	c. проблема
4. available	d. удобство
5. a fraction	e. достигать
6. a tenant	f. хранение
7. an advance	g. доля
8. a hangar	h. доступный
9. an issue	i. меблировка
10. a storage	j. строительная площадка
11. to affect	k. развитие
12. to acquire	l. квартиросъемщик

13. Complete the sentences according to the text:

1. Building industry, … holds a considerable place in the National Economy. 2. This industry is … . 3. … have grown into major, political issues in most countries. 4. Housing is prominent among the factors … . 5. … has constituted at least 12 per cent of all capital formation. 6. … is being paid much attention to. 7. At present, … may be classified into two principal groups – for … . 8. Present day designs … envisage all modern amenities for a dwelling. 9. There is a marked improvement in … . 10. A house … where a family develops is acquiring … . 11. … another significant type of construction. 12. … the advantages of reinforced concrete arches, metal frames, glass walls and … . 13. Windows can be enlarged to the extent that … .

Практическое занятие   Способы строительства.

Definitions

Construction is a very general term meaning the art and science to form material or immaterial objects, systems or organizations, and comes from Latinconstructionem (from com- "together" and struere "to pile up") and Old French construction. Construction is used as a verb: the act of building, and a noun: how a building was built, the nature of its structure.

Construction is often used as a synonym with building in its verb tense. As a noun, Russell Sturgis distinguished between architecture as being artistic structure, where a building is unadorned and can be "poor… commonplace, ugly, insufficient, or otherwise of small importance; " and the use of the word construction as meaning built using scientific principles in a highly skillful way.

The distinction between a building and a non-building structure is not always clear but is sometimes determined if the structure has walls or by its size or use. The Oxford English Dictionary includes that structure may be used for a large or imposing building

Types of construction projects

1. Military residential unit construction by U.S. Navy personnel in Afghanistan
2. In general, there are nine types of construction:
3. Residential building construction
4. Light commercial construction
5. Multi-family construction
6. Health-Care construction
7. Environmental construction
8. Industrial construction
9. Commercial building construction
10. Institutional construction

11. Heavy civil construction
12. Each type of construction project requires a unique team to plan, design, construct and maintain the project.

Практическое занятие   История архитектуры

https://www.youtube.com/watch?v=uFBu9aIOtjU

Посмотрите видео, сделайте краткий конспект основных понятий.

Relationship Between Architecture and Art

Ever since Antiquity, architecture - the art of designing and constructing buildings - has always been closely intertwined with the history of art, for at least three reasons. First, many public works (especially religious buildings) were designed with aesthetics in mind, as well as functionality. They were built to inspire as well as serve a public function. As a result, they involved the services of a wide range of 'artists' and decorative craftsmen as well as labourers. Second, in many of these buildings, the exteriors and interiors acted as showcases for fine art painting (eg. Sistine Chapel), frieze and relief sculpture (eg. The Parthenon, European Gothic cathedrals), stained glass art(eg. Chartres Cathedral), and other artworks like mosaics and metalwork. Thirdly, public building programs typically went hand in hand with the development of visual art, and most major 'arts' movements (eg. Renaissance, Baroque, Rococo, Neoclassical) influenced both architecture and the fine arts.

Практическое занятие Стили в архитектуре

Renaissance-Style Architecture (1400-1620)

Background

Financed by commercial prosperity and competition between city-states, such as Florence, Rome and Venice, as well as rich families like the Medici banking dynasty in Florence and the Fuggers banking family in Germany, the Renaissance was neverthess a triumph of will over world events. Not long before, there had been a run of disastrous European harvests (1315-19); the Black Death plague (1346) which wiped out one third of the European population; the 100 Years War between England and France (1339-1439), and the Christian Church was polarized by schism. Hardly ideal conditions for the rebirth or *rinacimento* that followed. As it was, the 16th century Popes in Rome almost bankrupted the Church in the early 16th century due to their profligate financing of fine buildings and the visual arts.

Architectural Style

Renaissance architecture was catalyzed by the rediscovery of architectural styles and theories of Ancient Rome. The first depictions of this Classical architecture emerged in Italy during the early 15th century when a copy of *De Architectura* ("Ten Books Conerning Architecture") by the 1st century Roman architect Vitruvius, was sudddenly unearthed in Rome. At the same time, the Florentine architect and artist **Filippo Brunellesci** (1377-1446) had begun studying ancient Roman designs, and was convinced that ideal building proportions could be ascertained from mathematical and geometrical principles. It was Brunellesci's magnificent 1418 design for the

dome of the **Florence Cathedral** (1420-36) - now regarded as the first example of Renaissance architecture - which ushered in a new style based on the long-neglected placement and proportion rules of Classical Antiquity.

Famous Renaissance Architects

Another important Renaissance architect was **Leon Battista Alberti** (1404-72), who is still revered as one of the founders of modern architectural theory. Believing that ideal architectural design was based on the harmony of structure, function and decoration, he was greatly inspired by the theory and practice of ancient Roman architects and engineers.

Other famous Italian architects included: (1) **Donato Bramante** (1444-1514), the leading designer of the High Renaissance; (2) **Guiliano da Sangallo**(1443-1516), an important intermediary architect between the Early and High Renaissance periods; (3) **Michelangelo Buonarroti** (1475-1564), a leading architect, as well as one of the greatest sculptors and painters of the age; (4) **Baldassare Peruzzi** (1481-1536), an important architect and interior designer; (5) **Raffaello Santi (Raphael)** (1483-1520), a visionary designer as well as painter; (6) **Michele Sanmicheli** (1484-1559), the most famous pupil of Bramante; (7 & 8) **Jacopo Sansovino** (1486-1570) and **Andrea Palladio**(1508-1580), the two top figures in **Venetian Renaissance architecture**; (9) **Giulio Romano** (1499-1546), the main exponent of Italian Mannerist-style architecture; (10) **Giorgio Vasari** (1511-1574) who designed the loggia for the Uffizi gallery and the connecting *Vasari Corridor*; and (11) **Vincenzo Scamozzi** (1548-1616) one of the great theorists of the late Renaissance.

Практическое занятие Деловое письмо, структура. Виды деловых писем.

Starting a Career

Discuss these questions.

1. Are you ambitious? Why or why not?
2. Do you have a career plan? Where do you want to be in 10 years' time?
3. Which of the following areas would you like to work in? Why?

  design
  construction   research
  teaching
  management

4. How are you going to find a job?
What documents are necessary to have to apply for a job?

1. Study David M. Beekman's CV below and write each heading in the correct space (David is the last year student).
2. What headings can you add?

ADDRESS, *PROFESSIONAL OBJECTIVE*, *EDUCATION*, *EXPERIENCE*, *AFFILIATIONS*[1], *REFEENCES*[2], *E-MAIL*, *TELEPHONE*

CURRICULUM VITAE
DAVID M. BEEKMAN

I . *Address*   P.O. **Box 130 - Pennington, New Jersey 08534-0130**

II ._____   **(609) 730-0510**

III._____   **jccpc@msn.com**

IV. _____

Establish a career in **Civil Engineering** design and research allowing me to practice my engineering knowledge for the benefit of the firm and society.

V._____

OHIO UNIVERSITY, Athens, OH
Bachelor of Science in Civil Engineering
Master of Science in Civil Engineering, expected June 2018

VI. _____

Research Assistant for Dr. T.J. Chang - Present
OHIO UNIVERSITY DEPARTMENT OF CIVIL ENGINEERING

- o Conduct studies in water resources management
- o Manage laboratory computer systems, software, and web page.

Inspector - Summer Break 2012
PIKE COUNTY ENGINEER'S OFFICE

- o Primary inspector for construction site
- o Performed occasional routine inspections of construction of a bridge
- o Calculate how much the work will cost

Student Intern[3] - Summer Break 2011
ENGINEERING DIVISION OF BECHTEL JACOBS COMPANY LLC at the PORTSMOUTH GASEOUS DIFFUSION PLANT

- o Assisted Lead Engineers in designs, calculations, and **AutoCAD** drawings for construction activities.

VII. _____

American Society of Civil Engineers
National Society of Professional Engineers

VIII. _____

Available upon request.

Практическое занятие Устройство на работу. Документы

1. **Now read the job description and find out if David M. Beekman suits the requirements? If not, what does he lack?**

PROFESSIONAL (CIVIL) ENGINEER

Introduction

Description

.Civil engineers design and supervise the building and repair of things such as buildings, roads, bridges, tunnels, dams, water supply and sewer systems, and wharves. Civil engineers usually specialize in one of these areas.

Tasks and Duties

Civil engineers:

- consult with clients, other professionals and government officials
- study, evaluate and investigate construction and land development sites
- design structures such as roads, drainage and buildings that are required for the site
- work within the guidelines of the local government authority
- get plans approved by relevant authorities
- may prepare cost estimates and contract documents for the work
- tender out the contract and find contractors to do the work
- supervise and monitor construction to ensure the structure is built in accordance with the construction drawings and contract
- ensure construction standards are met
- may attend construction site meetings with the contractor and client.

Personal Requirements

Skills

.Civil engineers need to have good organisation and problem-solving skills. They should also have design skills and skill in interpreting construction plans. Excellent communication skills are essential.

Knowledge

Civil engineers need to know about surveying methods, environmental issues and the properties of the materials they are working with. They also need to have a technical knowledge of civil engineering design. Civil engineers need to know building and safety regulations, local authority and government regulations, acceptable standards for construction and how to draw plans. Civil engineers should be computer literate in order to use design and drawing software.

Практическое занятие Собеседование

Activity 7 Role Play	1. Work in pairs:

Pairs A are interviewers.

Pairs B are candidates (interviewees).

Pairs A. Work on the questions that interviewers are supposed to ask and prepare to answer the candidate's questions about the company Leap 33 (See Supplementary Materials). Swap the questions and discuss them together in the class.

Pairs B. Make up a list of questions you are going to ask the interviewers about the company Leap 33 and the job, think of the questions interviewers might ask you, prepare to answer them.
Swap the questions and discuss them together in the class.

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2. **Role play the job interview situation. Use your CVs and letters of application.**

3. **When you have finished the interview, complete the following evaluation sheet for the candidate you've interviewed. Would you employ him or her? Why/ Why not? Discuss your reasons with the candidate.**

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

calculating device
multiple
abacus
slide rule
logarithm table
calculus
general-purpose
to cut out the human being altogether
to manipulate
data processing
tabulate the census
means of coding
to punch the holes
punched card
to perform
unit of data
Keyboard terminals
proliferation

2. Read and translate the text. Choose the information in it to give a summary of the text.

Text 1 The first calculating devices

Let us take a look at the history of computers that we know today. The very first calculating device used was the ten fingers of a man's hands. This, in fact, is why today we still count in tens and multiples of tens. Then the abacus was invented. People went on using some form of abacus well into the 16th century, and it is still being used in some parts of the world because it can be understood without knowing how to read.

During the 17th and 18th centuries many people tried to find easy ways of calculating. J.Napier, a Scotsman, invented a mechanical way of multiplying and dividing, which is now the modern slide rule works. Henry Briggs used Napier's ideas to produce logarithm tables which all mathematicians use today.

Calculus, another branch of mathematics, was independently invented by both Sir Isaac Newton, an Englishman, and Leibniz, a German mathematician. The first real calculating machine appeared in 1820 as the result of several people's experiments. In 1830 Charles Babbage, a gifted English mathematician, proposed to build a general-purpose problem-solving machine that he called "the analytical

engine". This machine, which Babbage showed at the Paris Exhibition in 1855, was an attempt to cut out the human being altogether, except for providing the machine with the necessary facts about the problem to be solved. He never finished this work, but many of his ideas were the basis for building today's computers.

By the early part of the twentieth century electromechanical machines had been developed and were used for business data processing. Dr. Herman Hollerith, a young statistician from the US Census Bureau successfully tabulated the 1890 census. Hollerith invented a means of coding the data by punching holes into cards. He built one machine to punch the holes and others to tabulate the collected data. Later Hollerith left the Census Bureau and established his own tabulating machine company. Through a series of merges the company eventually became the IBM Corporation. Until the middle of the twentieth century machines designed to manipulate punched card data were widely used for business data processing. These early electromechanical data processors were called unit record machines because each punched card contained a unit of data.

In the mid—1940s electronic computers were developed to perform calculations for military and scientific purposes. By the end of the 1960s commercial models of these computers were widely used for both scientific computation and business data processing. Initially these computers accepted their input data from punched cards. By the late 1970s punched cards had been almost universally replaced by keyboard terminals. Since that time advances in science have led to the
proliferation of computers throughout our society, and the past is but the prologue that gives us a glimpse of the future.

Tasks

Task 1. Look back in the text and answer the following question:

1. What was the very first calculating device? 2. What is the abacus? 3. What is the modern slide rule? 4. Who gave the ideas for producing logarithm tables? 5. How did Newton and Leibniz contribute to the problem of calculation? 6. When did the first calculating machine appear? 7. What was the main idea of Ch.Babbage's machine? 8. How did electromechanical machines appear and what were they used for? 9. What means of coding the data did Hollerith devise? 10. How were those electromechanical machines called and why? 11. What kind of computers appeared later? 12. What new had the computers of 1970s?

Task 2. Find the English equivalents in the text.

Вычислительное устройство; легкий способ вычисления; поэтому (вот почему); кратное десяти; изобрести механический способ умножения и деления; логарифмическая линейка; составить таблицы логарифмов; математический анализ; изобрести независимо (друг от друга); в результате; полностью исключить человека; кроме (за исключением); обработка деловой

информации; средство кодирования информации; перфокарты; пробивать отверстия; оформить собранные данные в таблицу; работать с данными на перфокарте; устройство, записывающее информацию блоками; единица информации; выполнять вычисления; для научных целей; клавишный терминал.

Task 3. Remember the meaning of the given verbs. Use your dictionary.

To compute, to invent, to know, to multiply, to divide, to depend, to solve, to provide, to process, to code, to punch, to collect, to design, to store, to contribute, to use, to manipulate, to assemble, to connect, to consume, to rely, to divide, to multiply, to inform, to instruct, to discover, to operate.

Task 4. Translate the following word combinations including:

A: Participle I
Computers using vacuum tubes; the machine calculating mathematical problems; the computer keeping instructions in its memory; binary code storing data and instructions; the vacuum tube controlling and amplifying electronic signals; computers performing computations in milliseconds; electronic pulses moving at the speed of light; students coding the information by using a binary code; devices printing the information; keyboard terminals replacing vacuum tubes.

B: Participle II
The given information; the name given to the machine; the coded data; the device used in World War II; the invention named ENIAC; the machine called EDVAC; instructions kept in the memory; the engine designed for storing data; data stored in a binary code; vacuum tubes invented by J. Neumann; the general-purpose machine proposed by Ch. Babbage; the machine provided with the necessary facts.

Unit 2 The first computers

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

analog computer
digital computer
to aim guns
to figure out
at a fast rate
memory / storage
to store data and instructions
stored program computer
binary code
condition
vacuum tube
to amplify
to perform computations

2. Read and translate the text. Give the summary obit.

Text 2 The first computers

In 1930 the first *analog* computer was built by American named Vannevar Bush. This device was used in World War II to help aim guns. Many technical developments of electronic *digital* computers took place in the 1940s and 1950s. Mark I, the name given to the first digital computer, was completed in 1944. The man responsible for this invention was Professor Howard Aiken. This was the first machine that could figure out long lists of mathematical problems at a very fast rate.

In 1946 two engineers at the University of Pennsylvania, J.Eckert and J.Maushly, built their digital computer with vacuum tubes. They named their new invention ENIAC (the Electronic Numerical Integrator and Calculator).

Another important achievement in developing computers came in 1947, when John von Neumann developed the idea of keeping instructions for the computer inside the computer's memory. The contribution of John von Neumann was particularly significant. As contrasted with Babbage's analytical engine, which was designed to store only data, von Neumann's machine, called the Electronic Discrete Variable Computer, or EDVAC, was able to store both data and instructions. He also contributed to the idea of storing data and instructions in a *binary code* that uses only ones and zeros. This simplified computer design. Thus computers use two conditions, high voltage, and low voltage, to translate the symbols by which we communicate into unique combinations of electrical pulses. We refer to these combinations as codes. Neumann's stored program computer as well as other machines of that time were made possible by the invention of the vacuum tube that could control and amplify electronic signals. Early computers, using vacuum tubes,

could perform computations in thousandths of seconds, called milliseconds, instead of seconds required by mechanical devices.

Tasks

Task 1. Answer the questions about the text.

1. When was the first analog computer built? 2. Where and how was that computer used? 3. When did the first digital computers appear? 4. Who was the inventor of the first digital computer? 5. What could that device do? 6. What is ENIAC? Decode the word. 7. What was J.Neumann's contribution into the development of computers? 8. What were the advantages of EDVAC in comparison with ENIAC? 9. What does binary code earn? 10. Due to what invention could the first digital computers be built?

Task 2. Find the English equivalents of the following word combinations in the text.

Цифровые компьютеры; технические усовершенствования; совершенствование компьютеров; ответственный за изобретение; математические задачи; электронные трубки; важное достижение; запоминающее устройство; значительный вклад; двоичный код; высокое напряжение; низкое напряжение; электрические импульсы; тысячная доля секунды.
Происходить; завершать; вычислять; хранить команды внутри компьютера; запоминать информацию; запоминать команды; содействовать; использовать единицу и ноль; упрощать дизайн; усиливать сигналы; выполнять вычисления.

Task 3. Fill in the gaps with the correct words.

1. The first digital computer could a lot of mathematical problems at a fast_____. 2. Vannevar Bush built the first _____ computer in 1930. 3. Babbage's analytical engine was designed to _____ data. 4. J. von Neumann invented a machine that was able to _____ not only data but also _____ . 5. Neumann _____ the idea of storing data in a _____. 6. Computers use two conditions for _____ symbols. 7. The invention of _____ made computers possible to control and _____ electronic signals. 8. Due to _____ computers could perform _____ much faster.

Task 4. Translate the following sentences and word combinations into Russian including:
A: The infinitive in function of adverbial modifiers.

1. Computers were designed to perform thousands of computations per second. 2. To make computers more reliable transistors were used. 3. They were applied to reduce computational time. 4. To integrate large numbers of circuit elements into a small chip, transistors should be reduced in size. 5. To use integrated circuit technology new computers were built. 6. Analytical engine was invented to store data.

B: The infinitive in function of attributes

The problem to be solved; the work to be finished; the cards to be punched; calculations to be performed; the machine to be shown at the exhibition; the device to be provided with the necessary facts; computers to be used for data processing; efforts to increase reliability; electronics to connect systems and subsystems; the speed of response to depend on the size of transistor; computers to perform thousands of calculations per second; vacuum tubes to control and amplify electric signals; these are circuits to use a large number of transistors; operations to be performed.

Unit 3 What is a computer?

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

device
intelligence
hardware
software
processing
procedures
perform
manner
various
purpose
to convert
data
to store
digital

2. Read and translate the text.

Text 3 What is a computer?

Computer is a device for processing information. Computer has no intelligence by itself and is called hardware. A computer system is a combination of four elements:
a) Hardware
b) Software
c) Procedures
d) Data/information

Software are the programs that tell the hardware how to perform a task. Without software instructions, the hardware doesn't know what to do. The basic job of the computer is the processing of information. Computers take information in the form of instructions called programs and symbols called data. After that they perform various mathematical and logical operations, and then give the results (information). Computer is used to convert data into information. Computer is also used to store information in the digital form.

Computers

Computer is an electronic device that can receive a program (a set of instructions) and then carry out this program by calculating numerical information. The modern world of high technology is possible mainly due to the development of the computer. Computers have opened up a new era in manufacturing by means of automation, and they have enhanced modern communication systems.

Personal computers

Personal computers also called microcomputers or home computer. The most compact are called laptops. They are portable and work on build-in batteries. Personal computers are designed for use at homes, schools, and offices. At home

they can be used for home management (balancing the family finances, for example) and for playing computer games, watching films or listening to music. Schoolchildren can use computers for doing their homework and many schools now have computers for independent learning and computer-literacy studies. In the office personal computers may be used for word processing, bookkeeping, storage and handling of necessary information. Personal computers were made possible by two technical innovations in the field of microelectronics: the integrated circuit, or IC, which was developed in 1959 and the microprocessor that first appeared in 1971. The IC permitted the miniaturization of computer-memory circuits, and the microprocessor reduced the size of a computer's CPU to the size of a single silicon chip. Because a CPU calculates, performs logical operations, contains operating instructions, and manages data flows, a complete microcomputer as a separate system was designed and developed in 1974.

In 1981, IBM Company offered its own microcomputer model, the IBM PC that became a necessary tool for almost every business. The PC's use of a 16-bit microprocessor initiated the development of faster and more powerful personal computers, and its use of an operating system that was available to all other computer makers led to a standardization of the industry.

In the mid – 1980s, a number of other developments were especially important for the growth of personal computers. One of these was the introduction of a powerful 32-bit CPU capable of running advanced operating systems at high speeds.

Another innovation was the use of conventional operating systems, such as UNIX, OS/2 an Windows. The Apple Macintosh computers were the first to allow the user to select icons – graphic symbols of computer functions – from a display screen instead of typing commands. New voice-controlled systems are now available, and users are able to use the words and syntax of spoken language to operate their personal computers.

Tasks

Task 1. Answer the following questions:

1) What does the term "computer" describe?
2) Is computer intelligent?
3) What are four components of computer system?
4) What is software?
5) What's the difference between the hardware and software?
6) In what way terms "data" and "information" differ?
7) How does computer convert data into information?

Task 2. Find Russian equivalents for the following words:

Computer, diskette, metal, processor, scanner, information, data, microphone, printer, modem, Internet.

Task 3. Here are some sentences. Are they true or false? Correct the false sentences:

1) Computer is made of electronic components so it is referred to aselectronic device.
2) Computer has no intelligence until software is loaded.
3) There are four elements of computer system: hardware, software, diskettes and data.
4) Without software instructions hardware doesn't know what to do.
5) The software is the most important component because it is made by people.
6) The user inputs data into computer to get information as an output.

Unit 4 Types of computer systems

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

mainframe
process

store
simultaneous process
server
network
desktop PC
monitor
keyboard
laptop
memory capacity
portable
touchpad
sensitive
USB (Universal Serial Bus) port
memory card
battery pack
electrical outlet
tablet PC
editable text
voice recognition
personal digital assistant
access the Internet
wearable computer
wireless modem

2. Read and translate the text.

Text 4 From mainframes to wearable computers

A mainframe is the most powerful type of computer. It can process and store large amounts of data. It supports multiple users at the same rime and can support more simultaneous processes than a PC. The central system is a large server connected to hundreds of terminals over a network. Mainframes are used for large-scale computing purposes in banks, big companies and universities.

A desktop PC lias its own processing unit (or CPU), monitor and keyboard. Ir is used as a personal computer in the home or as a workstation tor group work. Typical examples arc the IBM PC and the Apple Macintosh. It's designed to be placed on your desk. Some models have a vertical case called a tower.

A laptop (also called a notebook PC) is a lightweight computer that you can transport easily. It can work as fast as a desktop PC, with similar processors, memory capacity, and disk drives, but it is portable and has a smaller screen. Modern notebooks have a TFT (Thin Film Transistor) screen that produces very sharp images. Instead of a mouse, they have a touchpad built into rhe keyboard - a sensitive pad that you can touch to move the pointer on the screen. They offer a lot of connectivity options: USB (Universal Serial Bus) ports for connecting

peripherals, slots for memory cards, etc. They come with battery packs, which let you use the computer when there arc no electrical outlets available.

A tablet PC looks like a book, with an LCD screen on which you can write using a special digital pen. You can fold and rotate the screen ISO degrees. Your handwriting can be recognized and converted into editable text. You can also type at the detached keyboard or use voice recognition. It's mobile and versatile.

A personal digital assistant or PDA is a tiny computer which can be held in one hand. The term PDA refers to a wide variety of handheld devices, palmtops and pocket PCs. For input, you type at a small keyboard or use a stylus - a special pen used with a touch screen to select items, draw pictures, etc. Some models incorporate handwriting recognition, which enables a PDA to recognize characters written by hand. Some PDAs recognize spoken words by using voice recognition software. They can be used as mobile phones or as personal organizers for storing notes, reminders and addresses. They also let you access the Internet via wireless technology, without cables.

A wearable computer runs on batteries and is worn on the user's body, e.g. on a belt, backpack or vest; it is designed for mobile or hands-free operation. Some devices are equipped with a wireless modem, a small keyboard and a screen; others are voice-activated and can access email or voice mail.

Tasks

Task 1. Look at the descriptions. Which type of computer do they refer to?

1) a hand-held computer which can be used as a telephone, a web explorer and a personal organizer;
2) a typical computer found ill many businesses and popular for home use;
3) a large computer used for intensive data processing and often linked to many terminals;
4) a small computer that fits into items of clothing;
5) a portable computer that can be closed up like a briefcase, but it can be as powerful as a desktop PC;
6) a full-function PC though it only weighs 1.2 kg - you can go to a meeting and write your notes on it, like a paper notepad; its screen mode can be changed from portrait to landscape.

Task 2. Look at the computer advertisement and answer the questions.

Toshiba Satellite

- Intel Centrino processor
- 1,024 MB RAM, 100 GB hard disk drive
- DVD SuperMulti (+/-R double layer) drive
- 15.4" widescreen TFT active-matrix LCD display
- 85-key keyboard and touchpad
- 2 memory slots, 1 PC Card or PCMCIA slot
- Wireless communications: Wi-Fi compliancy and Bluetooth
- 4 USB ports for connecting peripherals: digital camera, MP3 player, modem,

etc.
- 6-cell rechargeable Lithium-ion battery pack.

1. What type of computer is advertised?
2. What kind of screen does it have?
3. Which pointing device replaces rhe mouse?
4. What type of ports does it have for connecting cameras and music players?
5. What sort of power supply does it use?

Task 3. Read this interview with Adam Hawkins, an IT manager, and complete it with words from the PDA section of text 4.

Interviewer: What are the basic features of a PDA?
Adam: Well, a typical PDA is a (1)_____ device that runs on batteries and combines computing, phone and Net capabilities.
Interviewer: And how do you enter information?
Adam: For input, you use a (2)_____ or pen to write and make selections on a (3)_____; they also have buttons for launching programs. Some models have a small keyboard. They may have a (4)_____system that reacts to the user's voice.
Interviewer: Do they need special software?
Adam: Yes, most of them run on *Windows Mobile.* Palmtops supported by Palm Inc. use *Palm OS.* Pen-based systems include (5) _____so you write on the screen and the computer recognizes your handwriting and inserts the appropriate letters.
Interviewer: What sort of things can you do with a PDA?
Adam: You can store personal information, take notes, draw diagrams and make calculations. Many PDAs can access the Net via (6)_____technology.

Task 4. Answer the questions.

1. Write down two benefits and two limitations of PDAs.
2. Explain how laptops can be beneficial to business people.
3. Write three examples of how tablet PCs can be used in the classroom.

Unit 5 What is hardware?

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

input hardware
to convert
suitable
mouse

to roll
to reach
cursor
processing hardware
execution
to direct
central processing unit (CPU), microprocessor
brain
to interpret
RAM
ROM
storage hardware
to retrieve
hard disk
CD-ROM
CD-ROM drives
digitized
graphics
temporary
output hardware
purpose
to connect
to provide
to affect
amount

2. Read and translate the text. Give the summary of the text using the professional vocabulary:

Text 5 What is hardware?

Webster's dictionary gives us the following definition of the hardware – the devices composing a computer system.
Computer hardware can be divided into four categories:
1) input hardware
2) processing hardware
3) storage hardware
4) output hardware

Input hardware

Input hardware collects data and convert them into a form suitable for computer processing. The most common input device is a **keyboard**. It looks very much like a typewriter. The **mouse** is a handheld device connected to the computer by a small cable. As the mouse is rolled across the desktop, the **cursor** moved across the screen. When the cursor reaches the desired location, the user usually pushes a button on the mouse once or twice to give a command to the computer.

Another type of input hardware is optic-electronic **scanner**. Microphone and video camera can be also used to input data into the computer.

Processing hardware

Processing hardware directs the execution of software instructions in the computer. The most common components of processing hardware are the **central processing unit** and main memory. The central processing unit (CPU) is the brain of the computer. It reads and interprets software instructions and coordinates the processing. **Memory** is the component of the computer in which information is stored. These are two types of computer memory: RAM and ROM. **RAM** (random access memory) is the memory, used for creating, loading and running programs. **ROM** (read only memory) is computer memory used to hold programmed instructions to the system. The more memory you have in your computer, the more operations you can perform.

Storage hardware

The purpose of **storage hardware** is to store computer instructions and data and retrieve when needed for processing. Storage hardware stores data as electromagnetic signals. The most common ways of storing data are Hard disk, floppy disk and CD-Rom. **Hard disk** is a rigid disk coated with magnetic material, for storing programs and relatively large amounts of data. **Floppy disk (diskette)** – a thin, usually flexible plastic disk coated with magnetic material, for storing temporary computer data and programs. These are two formats for floppy disks: 5.25' and 3.5'. 3.5' disks are formatted 1.4 megabytes and are widely used. **CD-ROM** (compact disk read only memory) is a compact disk on which a large amount of digitized data can be stored. CDROMs are very popular now because of the growing speed which CDROM drives can provide nowadays.

Output hardware

The purpose of output hardware is to provided the user with the means to view information produced by the computer system. Information produced by the computer system. Information is in either hardcopy of softcopy form. Hardcopy output can be held in your hand, such as paper with text (word or numbers) or graphics printed on it. Softcopy output is displayed on a monitor. **Monitor** is display screen for viewing computer data, television programs, etc. Printer is a computer output device that produces a paper copy of data of graphics. **Modem** is an example of communication hardware – an electronic device that makes possible the transmission of data to or from computer via telephone or other communication lines. Hardware comes in many configurations, depending on what you are going to do on your computer.

Tasks

Task 1. Answer the following questions:

1) What is the Webster's dictionary definition of the hardware?
2) What groups of hardware exist?
3) What is input hardware? What are the examples of input hardware?

4) What is the mouse designed for?
5) What is processing hardware? What are the basic types of memory used in a PC?
6) What is a storage hardware? What is CD-ROM used for? Can a user record his or her data on a CD? What kind of storage hardware can contain more information: CD-ROM, RAM or ROM?
7) What is modem used for? Can a PC user communicate with other people without a modem?

Task 2. Decide whether the following statements are true or false in relation to the information in the text:

1) The purpose of the input hardware is to collect data and convert them into a form suitable for computer processing.
2) Scanner is used to input graphics only.
3) CPU reads and interprets software and prints the results on paper.
4) User is unable to change the convents of ROM.
5) Printer is a processing hardware because it shows the information.
6) Modem is an electronic device that makes possible the transmission of data from one computer to another via telephone or other communication lines.
7) The purpose of storage hardware is to store computer instructions and data.

Task 3. Match the given words with their definitions from the text :

1) CPU
2) ROM
3) Floppy-disk
4) CD-ROM
5) Printer
6) Modem
7) Hard disk
8) Keyboard

Task 4. Choose the words mean "Hardware":

1) program
2) mouse
3) CPU
4) printer
5) modem
6) instruction
7) cursor or the pointer
8) keyboard
9) symbol

Task 5. Read and translate the text:

Windows 98

Windows 98 is an operational system based on the expanding windows principle which uses icons to graphically represent files. It's very easy to use Internet if you have Windows 98 on your computer. Windows 98 makes the way you and your computer interact with Internet more easy. Most everyday tasks are easier to do than before. For example, the second mouse button has become a powerful weapon. Recycle Bin makes it easier to recover accidentally deleted files. Your computer probably will crash less with Windows 98. Microsoft says that it is moving forward to the time when we will all think more about our data and less about the programs used to create them. Windows 98 plug-and-play capability makes it easy to upgrade your computer hardware. A new Windows 98 shortcuts capability makes it easy to reach frequently used files.

Vocabulary:
expanding windows principle – принцип расширяющихся окон
icon – иконки
represent – представлять
to interact – взаимодействовать
weapon – оружие
recycle bin – корзина
to recover – восстановить
deleted files – удаленные файлы
to crash – зависать, давать сбои
plug-and-play – подключай и работай
upgrade – апгрейд (увеличение возможностей компьютера)
support – поддержка
necessity – необходимость
to move forward – двигаться вперед
shortcut capability – возможность нахождения кратчайшего пути
frequently – часто

Unit 6 Input devices: type, click and talk!

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

input devices
alphanumeric keys
numeric keypad
function keys
cursor keys
insertion point
dedicated keys
to issue commands

select items on the screen
button
scroll wheel
an optical mouse
a cordless (wireless) mouse
infrared signal
click, press and release the button
drag, hold down the button
a list of commands
word processor
email program
launch programs
open, save or print files
search the Web
chat

2. Read and translate the text.

Text 6 Interacting with your computer

Input devices are the pieces of hardware which allow us to enter information into the computer.

The keyboard

A standard PC keyboard has various groups of keys:

- Alphanumeric keys - these represent letters and numbers, arranged as on a typewriter.
- A numeric keypad appears to the right of the main keyboard and contains numeric and editing keys; the Num Lock key is used to switch from numbers to editing functions.
- Function keys appear at the top of the keyboard and can be programmed to do special jobs.
- Cursor keys include "arrow keys" which move the insertion point, and keys such as Home, End, Page Up, and Page Down, which let you move around documents.
- Dedicated keys are used to issue commands or produce alternative characters. For example: Ctrl changes the functions of other keys (e.g. Ctrl + X cuts the selected text). Caps Lock sets the keyboard in "CAPITALS" mode; it only affects letters. Enter (or Return) is pressed to select options from a menu or to start a new paragraph. Backspace deletes the character to the left of your current position.

The mouse

A mouse is a hand-held device that lets you move a pointer (or cursor) and select items on the screen. It has one or more buttons to communicate with the PC. A scroll wheel lets you move through your documents or web pages. The pointer looks like an I-bar, an arrow or a pointing hand.

An optical mouse has an optical sensor instead of a ball underneath.

A cordless (wireless) mouse has no cable; it sends data via infrared signals or

radio waves. Mouse actions:
- to click, press and release the left button.
- to double-click, press and release the left button twice.
- to drag, hold down the button, move the pointer to a new place and then release the burton.
- to right-click, press and release the right button; this action displays a list of commands.

Voice input

Today you can also interact with your computer by voice with a voice-recognition system that converts voice into text, so you can dictate text directly onto your word processor or email program. You can also control your PC with voice commands; this means you can launch programs, open, save or print files. Some systems let you search the Web or chat using your voice instead of the keyboard.

Tasks

Task 1. Which input device would you use for these tasks?

1) to play computer games;
2) to copy images from paper into a computer;
3) to read price labels in a shop;
4) to select text and click on links on web pages;
5) to enter drawings and sketches into a computer;
6) to input voice commands and dictate text;
7) to draw pictures or select menu options directly on the screen to take and store pictures and then download them to a computer.

Task 2. Complete each sentence by choosing from the following devices: *touch screen, trackball, touchpad, webcam.*

1. A _____is a stationary device that works like a mouse turned upside down. You roll the ball with your hand to move the pointer on the screen.
2. Interactive _____ are used in museums, information centres and Internet kiosks.You use your finger to point directly to objects on the screen.
3. A _____ is used to send live video images via the Internet.
4. A _____ is found on notebook PCs. You use it by pressing the sensitive pad with a finger.

Task 3. Complete these sentences with the correct "mouse action".

1) To start a program or open a document you _____ on its icon - that is, you rapidly press and release the mouse button twice.
2) If you want to select a menu option, you just _____ on the left button.

3) If you want to find the commands for a particular text, image, etc., you have to _____ on it.
4) If you want to move an object, press the button and _____ the object to the desired location.

Task 4. Make a list of the things you can do with a voice-recognition system.

Unit 7 Input devices: the eyes of your PC

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

to capture
to copy images
convert into electronic codes
flatbed
photocopier
film scanner
hand-held scanner
pen scanner
barcode scanner
to give a unique identification number

to measure
Optical Character Recognition software
to scan
digital camera
to store as digital data
storage device
flash memory card
view or print the images
digital video (DV) camera
manipulate video images
video editing software
cut, paste, add effects
export the result
display on a screen
create a DVD
put movie on the Web
webcam
record photos and video onto hard disk
FireWire port
microphone
earpiece

2. Read and translate the text.

Text 7 Input devices: the eyes of your PC
Scanners

Input devices such as scanners and cameras allow you to capture and copy images into a computer. A scanner is a peripheral that reads images and converts them into electronic codes which can be understood by a computer. There are different types.

- A flatbed is built like a photocopier and is for use on a desktop; it can capture text, colour images and even small 3D objects.
- A film scanner is used to scan film negatives or 35 mm slides - pictures on photographic film, mounted in a frame.
- A hand-held scanner is small and T-shaped, ideal to capture small pictures and logos.
- A pen scanner looks like a pen; you can scan text, figures, barcodes and handwritten numbers.

Barcode scanners read barcodes on the products sold in shops and send the price to the computer in the cash register. Barcodes consist of a series of black and white stripes used to give products a unique identification number.

The resolution of a scanner is measured in dpi or dots per inch. For example, a 1,200 dpi scanner gives clearer, more detailed images than a 300 dpi scanner.

Most scanners come with Optical Character Recognition software. OCR allows you to scan pages of text and save them into your word processor; they can then be edited.

Digital cameras

A digital camera doesn't use film. Photos are stored as digital data (bits made up of 1s and 0s), usually on a tiny storage device known as a flash memory card. You can connect the camera or memory card to a PC and then alter the images using a program like Adobe Photoshop, or you can view the images on a TV set. Many printers have a special socket so that you can print images directly from a memory card or camera.

Digital video cameras and webcams

A digital video (DV) camera records moving images and converts them into digital data that can be processed by a PC. You can manipulate video images with video editing software. You can cut, paste, add effects, etc. You can store or export the result, display it on a screen or create a DVD, email or put your movie on the Web.

Webcams (short for Web cameras) let you send and receive live video pictures through the Internet. They are primarily used for video conferences - video calls - but they can be used to record photos and video onto your hard disk. The resolution of webcams is expressed in megapixels (million pixels). Webcams connect to the PC via a USB (universal serial bus) or FireWire port; they display video at 24 to 30 frames (pictures) per second. Some include a headset with a microphone and earpiece.

Tasks

Task 1. Complete these sentences with the correct words.

1) Scanners and cameras are _____devices used to transfer images into a format that can be understood by computers.

2) A _____ lets you copy photos and printed documents into your PC.

3) It has become one of life's most familiar sounds - the beep of the supermarket till whenever a _____ is scanned.

4) If you need to scan 35mm _____ you should go for a dedicated 35mm film scanner which concentrates all its dots into a tiny area.

5) This scanner has a resolution of 300 x 600 _____.

6) A _____ scanner is small enough to hold in your hand.

7) A _____ scanner is used to capture lines of text, barcodes and numbers.

8) Most digital cameras use flash _____cards to store photos.

9) _____scanners have a flat surface and take at least A4-sized documents.

10) To scan photographic negatives or slides you will need a _____ scanner.

Task 2. Decide if these sentences are *True* or *False*. If they are false, correct them.

1) The details detected by a scanner are not determined by its resolution.
2) A barcode scanner is a computer peripheral for reading barcode labels printed on products.
3) Scanners cannot handle optical character recognition.
4) A digital camera uses a light sensitive film instead of a memory card for storing the images.
5) A digital video (DV) camera is used to take still photographs.
6) Video editing software allows you to manipulate video clips on the computer.

Task 3. Complete this advertisement with words from the webcam section.
Having (1)_____with friends and family has never been easier or more enjoyable. You get the highest-quality audio and video, no matter which chatting solution you use. With the WebCam Live! Ultra, its CCD image sensor with 640 x 480 (VGA) resolution produces rich, vibrant colours. Combined with its (2) _____ 2.0 Hi-Speed connection, the result is top-quality, full-motion video at 30 (3)_____ per second for all your web conversations, even in dimly-lit rooms. The WebCam Live! Ultra lets you do more. Let your voice be heard clearer than ever before with the included (4)_____ , unlike the built-in microphones in most other (5)_____. Take still pictures at up to 1.3 (6)_____ resolution (interpolated), and enjoy the many great features that accompany the bundled award-winning WebCam Center software, such as motion detection, remote security monitoring, timelapse video capture and much more.

Unit 8 Output devices: printers

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

printout or hard copy
printer driver
print spooler
output quality
print server
dot-matrix printer
print head
tiny pins
ink-jet (bubble-jet) printer
cartridge

laser printer
page description language or PDL
professional imagesetter
plotter
computer-aided design

2. Read and translate the text.

Text 8 Output devices: printers

A printer is a device that prints your texts or graphics on paper. The output on paper or acetate sheets is called printout or hard copy. A program in your computer, called the printer driver, converts data into a form that your printer can understand. A print spooler stores files to be printed when the printer is ready. It lets you change the order of documents in the queue and cancel specific print jobs. The output quality, or resolution, is measured in dpi or dots per inch. The speed of your printer is measured in pages per minute (ppm). In a network, users can share a printer connected to a print server, a computer that stores the files waiting to be printed.

Types of printers

A dot-matrix printer uses a group, or matrix, of pins to create precise dots. A print head containing tiny pins strikes an inked ribbon to make letters and graphics. This impact printing technology allows shops, for example, to print multi-part forms such as receipts and invoices, so it's useful when self-copying paper is needed. It has two important disadvantages: noise and a relatively low resolution (from 72 to 180 dpi).

An ink-jet (also called bubble-jet) printer generates an image by spraying tiny, precise drops of ink onto the paper. The resolution ranges from 300 to 1,200 dpi, suitable for small quantities or home use.

A standard ink-jet has a three-colour cartridge, plus a black cartridge. Professional ink-jets have five-colour cartridges, plus black; some can print in wide format, ranging from 60 cm up to 5 metres (e.g. for printing advertising graphics). Some ink-jet based printers can perform more than one task. They are called multi-function printers because they can work as a scanner, a fax and a photocopier as well as a printer. Some units accept memory cards and print photos directly from a camera.

A laser printer uses a laser beam to fix the ink to the paper. A laser works like a photocopier; a powder called toner is attracted to paper by an electrostatic charge and then fused on by a hot roller. Laser printers are fast and produce a high resolution of 1,200 to 2,400 dpi, so they are ideal for businesses and for proofing professional graphics work. Lasers use a page description language or PDL which describes how to print the text and draw the images on the page. The best-known languages are Adobe PostScript and HP Printer Control Language. A professional imagesetter is a typesetting printer that generates very high-

resolution output (over 3,540 dpi) on paper or microfilm. It's used for high-quality publications.

A plotter is a special type of printer which uses ink and fine pens held in a carriage to draw detailed designs on paper. It's used in computer-aided design, maps, 3-D technical illustrations, etc.

Tasks

Task 1. Complete these sentences with words from the text.

1) The differences in _____ are noticeable: the more dots per inch, the clearer the image.

2) A print resolution of between 600 _____ and 2,400_____ ensured that even text as small as 2 pt was legible.

3) Passengers with an electronic ticket will need a _____ of ticket confirmation or a boarding pass to be admitted to secured gate areas.

4) The key advance of recent years is printing speed: the latest generation of ink-jets prints black-and-white text at 15_____ (_____).

5) With appropriate software, you can view the images on a computer, manipulate them, or send them to a _____ and produce excellent quality colour copies.

6) A_____ is a dedicated computer that connects a printer to a network. It enables users to share printing resources.

7) A_____ is a utility that organizes and arranges any documents waiting ro be printed.

8) In computers, a_____ is a program installed to control a particular type of printer.

Task 2. Choose the most appropriate type of printer for these situations from the text.

1) a home user who wants to print text documents and family photographs;
2) business people who need to print in large quantities at high quality in an office;
3) engineers who want to make detailed line drawings;
4) professional typesetters in desktop publishing (e.g. to publish catalogues and magazines);
5) a company that wants to print carbon copies of bills and receipts.

Task 3. Find terms in the text which correspond to these definitions.

1) a container that holds the ink in an ink-jet printer;
2) powdered ink used in laser printers;
3) small needles that press on the inked ribbon to make the characters on paper;
4) printer technology that produces text and pictures by hammering pins against

a ribbon and the paper;
5) a language that tells a printer how to print a document;
6) a peripheral which combines a printer, a fax machine and photocopying and scanning capability into one device.

Task 4. Describe the characteristics of the printer that you have or would like to have at home or at work. Give details about: type of printer, speed, resolution, ink cartridges, price and customer support.

Unit 9 Output devices: display screens

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

screen of a computer
visual display unit
video card
CRT or an LCD screen
electron gun
active-matrix LCDs
transistor switch
screen size
sharpness of images
brightness
colour depth

refresh rate
flicker

2. Read and translate the text.

Text 9 Output devices: display screens

CRTs and LCDs

The screen of a computer is often known as the monitor, or VDU (visual display unit). Inside the computer, there is a video card which processes images and sends signals to the monitor. When choosing a monitor, you have to take into account a few basics.

- Type of display - the choice is between a CRT or an LCD screen.

The Cathode Ray Tube of a monitor is similar to a traditional TV set. It has three electron guns (one for each primary colour: red, green and blue) that strike the inside of the screen, which is coated with substances called phosphors, which glow and create colours. CRTs are cheap, but they are heavy, can flicker and emit radiation.

A Liquid Crystal Display is made from flat plates with a liquid crystal solution between them. The crystals block the light in different quantities to create the image. Active-matrix LCDs use TFT (thin film transistor) technology, in which each pixel has its own transistor switch. They offer better quality and take up less space, so they are replacing CRTs.

- Screen size - the viewing area is measured diagonally: in other words, a 17" screen measures 17 inches from the top left corner ro the bottom right.

- Resolution - the clarity of the image depends on the number of pixels (short for picture elements) contained on a display, horizontally and vertically. A typical resolution is 1,024 x 768. The sharpness of images is affected by dot pitch, the distance between the pixels on the screen, so a dot pitch of 0.28 mm or less will produce a sharp image.

- Brightness - the luminance of images is measured in ed/m^2 (candela per square metre).

- Colour depth - the number of colours a monitor can display. For example, a VGA monitor produces 256 colours, enough for home use; a SuperVGA can produce up to 16.7 million colours, so is ideal for photographic work and video games.

- Refresh rate - the number of times that the image is drawn each second. If a monitor has a refresh rate of 75 Hertz (Hz), it means that the screen is scanned 75 times per second. If this rate is low, you will notice a flicker, which can cause eye fatigue.

Tasks

Task 1. Correct these false statements.

1) The images shown on a monitor are not generated by the video card.
2) All visible colours can be made from mixing the three primary colours of red, yellow and blue.
3) Typical CRT-based displays occupy less space than LCD displays.
4) Active-matrix LCDs do not use a technology called thin film transistor or TFT.
5) The size of the screen is measured horizontally.

Task 2. Match each term with the correct definition.

1) phosphors
2) LCD screen
3) pixel
4) dot pitch
5) refresh rate

a) the frequency at which a monitor renews its image, measured in Hz;
b) a flat-panel display which works by emitting light through a special liquid;
c) the space between a display's pixels;
d) the smallest element in a displayed image;
e) materials that emit light and produce colours when they are activated by an electron beam.

Task 3. Complete the technical specifications of this monitor with words from the text.

The new Paintview XT-85 combines a television and a computer 1)_____ in one display.	
Type of display	Flat panel LCD
2)_____	19 inches
3) Display _____	1,280 x 1,024 pixels
Dot pitch	0,294 mm
4) _____	16.7 million colours
Contrast ratio	1,000:1
5) _____	450 cd/m^2
Built-in TV tuner	Yes
Audio	Two 3-watt speakers and a 5-watt subwoofer; headphone jack
The Picture-in-Picture function allows you to watch more than one program at the same time and lets you adjust the size of each window.	

Unit 10 Types of data

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

data
to divide
to compute
computation
arithmetic operation
logical operation
addition
subtraction
false
to benefit
equal
to determine
to compare

comparison
value
tool
microwave oven
embedded
accept
flexible
advent
to expand
sequence
increase
decimal point
save

2. Read and translate the texts:

Text 10 Types of data

A. Much of the processing computers can be divided into two general types of operation. Arithmetic operations are computations with numbers such as addition, subtraction, and other mathematic procedures. Early computers performed mostly arithmetic operations, which gave the false impression that only engineers and scientists could benefit from computers. Of equal importance is the computer's ability to compare two values to determine if one is larger than, or equal to the other. This is called a logical operation. The comparison may take place between numbers, letters, sounds, or even drawings. The processing of the computer is based on the computer's ability to perform logical and arithmetic operations. Instructions must be given to the computer to tell it how to process the data it receives and the format needed for output and storage. The ability to follow the program sets computers apart from most tools. However, new tools ranging from typewriters to microwave ovens have embedded computers, or built-in computers. An embedded computer can accept data to use several options in it's program, but the program itself cannot be changed. This makes these devices flexible and convenient but not the embedded computers itself.

B. With the advent of new computer applications and hardware, the definition of data has expanded to include many types. Numeric data consists of numbers and decimal points, as well as the plus (+) and minus (-) signs. Both arithmetic operations and logical operations are performed on numeric data. This means that numbers can be used for calculations as well as sorted and compared to each other. Text, or textual data, can contain any combination of letters, numbers and special characters. Sometimes textual data is known as alphanumeric data. Various forms of data that we can hear and see makes up audio-visual data. The computer can produce sounds, music and even human voice. It can also accept audio information as an input. Data can also take form of drawings and video sequences. Physical data is captured from the environment. For example, light, temperature and

pressure are all types of physical data. In many large buildings, computer systems process several kinds of physical data to regulate operations. Computers can set off security alarms, control temperature and humidity, or turn lights on and off, all in response to physical data. These applications increase people's safety and save the time and money.

Tasks

Task 1. Answer the following questions:

1) In what two major parts could be computer operations divided?
2) What are arithmetic operations?
3) What are logical operations?
4) Can computer compare two graphical objects?
5) What makes computer so different from other tools?
6) What is embedded computer? What modern devices have embedded computers?
7) How many are types of data?
8) What is physical data?

Task 2. Decide whether the following statements are true or false in relation to the information in the text:

1) Arithmetic operations are operations with numbers - subtraction and division.
2) Early computers gave false impression about their capabilities.
3) Logical operations are computer's ability to com-pare two values.
4) The major difference between the computer and tools lies in the flexibility of the program.
5) Embedded computers are found only in typewriters and ovens.
6) Microwave oven's program is flexible and could be changed because of the embedded computer.
7) Numeric data consist of numbers, decimal points and the (+) and (-) signs.
8) Computer can accept human speech as an audio-visual input data.

Task 3. Match the given words with their definitions using the vocabulary:

1) Software
2) Arithmetic operation
3) Logical operation
4) Numeric data
5) Textual data
6) Physical data
7) Audio-visual data

Task 4. Fill in the gaps using the words below:

1) ... are computations with numbers such as addition, subtraction, and other mathematical procedures.

2) The computers ability to compare two values to determine if one is larger than, smaller than, or equal to the other is called a ...

1) New tools ranging from typewriters to microwave ovens have embedded computers, or ... computers

2) An ... can accept data to use several options in it's program, but the program itself cannot be changed.

3) ... can be used for calculations as well as sorted and compared to each other.

4) ... can contain any combination of letters, numbers and special characters.

5) Various forms of data that we can hear and see makes up... which is captured from the environment.

a) logical operation
b) text, or textual data
c) audio-visual data
d) physical data
e) arithmetic operations
f) built-in
g) numbers

Unit 11 Types of Software

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

to direct
to conduct
to complete
equipment
internal
to require
control
specific
general-purpose
aid
regard
regardless
memory capacity
to install
to transfer
to provide with
to secure

security
to develop
developer
to check
attach
Web-browser
peripheral
to boot
to handle
gimmick

Read and translate the text:

Text 11 Types of Software

A computer to complete a job requires more than just the actual equipment or hardware we see and touch. It requires Software - programs for directing the operation of a computer or electronic data. Software is the final computer system component. These computer programs instruct the hardware how to conduct processing. The computer is merely a general-purpose machine which requires
specific software to perform a given task. Computers can input, calculate, compare, and output data as information. Software determines the order in which these operations are performed.

Programs usually fall in one of two categories: system software and applications software. System software controls standard internal computer activities. An operating system, for example, is a collection of system programs that aid in the operation of a computer regardless of the application software being used. When a computer is first turned on, one of the systems programs is booted or loaded into the computer's memory. This software contains information about memory capacity, the model of the processor, the disk drives to be used, and more. Once the system software is loaded, the applications software can start to work.

System programs are designed for the specific pieces of hardware. These programs are called drivers and coordinate peripheral hardware and computer activities. User needs to install a specific driver in order to activate his or her peripheral device. For example, if you intend to buy a printer or a scanner you need to worry in advance about the driver program which, though, commonly go along with your
device. By installing the driver you «teach» your main board to «understand» the newly attached part.

Applications software satisfies your specific need. The developers of application software rely mostly on marketing research strategies trying to do their best to attract more users (buyers) to their software. As the productivity of the hardware has increased greatly in recent years, the programmers nowadays tend to include all kinds of gimmicks in one program to make software interface look

more attractive to the user. These class of programs is the most numerous and perspective from the marketing point of view.

Data communication within and between computers systems is handled by system software. Communications software transfers data from one computer system to another. These programs usually provide users with data security and error checking along with physically transferring data between the two computer's memories. During the past five years the developing electronic network communication has stimulated more and more companies to produce various communication software, such as Web-Browsers for Internet.

Tasks

Task 1. Answer the following questions:

1) What is software?
2) In what two basic groups software (programs) could be divided?
3) What is system software for?
4) What is an operating system — system or application software?
5) What is a «driver»?
6) What is application software?
7) What are application software for?
8) What is the tendency in application software market in recent years?
9) What is the application of the communication software?

Task 2. Choose the words mean "Software"
1) Program
2) Mouse
3) CPU
4) Word processor
5) Modem
6) Web-browser
7) Operating system
8) Scanner
9) Developer
10) Equipment

Task 3. Decide whether the following statements are true or false in relation to the information in the text:

1) Computer programs only instruct the hardware how to handle data storage.
2) System software controls internal computer activities.
3) System software is very dependable on the type of application software being used.
4) The information about memory capacity, the model of the processor and disk drives is unavailable for system software.

5) The driver is a special device usually used by car drivers for Floppydisk driving.
6) It is very reasonable to ask for a driver when you buy a new piece of hardware.
7) Software developers tend to make their products very small and with poor interface to save computer resources.
8) Communication software is of great need now because of the new advances in communication technologies.
9) Application software is merely a general-purpose instrument.
10) Web-browsers is the class of software for electronic communication through the network.

Task 4. Find the equivalents in the text:

1) Программное обеспечение определяет порядок выполнения операций.
2) Прикладные программы выполняют поставленную вами конкретную задачу (удовлетворяют вашу потребность).
3) Этот класс программ самый многочисленный и перспективный с точки зрения маркетинга.
4) Системные программы предназначены для конкретных устройств компьютерной системы.
5) Устанавливая драйвер, вы «учите» систему «понимать» вновь присоединенное устройство.
6) Когда компьютер впервые включается, одна из системных программ должна быть загружена в его память.
7) Развитие систем электронной коммуникации за последние пять лет стимулировало к производству многих соответствующих программных продуктов всё возрастающее число компаний-разработчиков.

Task 5. Give the definitions using the vocabulary:

1) Software
2) Driver
3) Application software
4) Operating system
5) Communication software
6) Computer
7) Peripheral device
8) Operating system

Unit 12 Operating systems

Organizing vocabulary:

1. Organize the following words in your notebook. Translate them.

complex
to consume
consumer
to realize
smart
decade
version
to enhance
top
on top of DOS
compatible
with a click of a mouse
access
to allow
multiple users
simultaneously
to desire
to ship

2. Read and translate the text:

Text 12 Operating systems

When computers were first introduced in the 1940's and 50's, every program written had to provide instructions that told the computer how to use devices such as the printer, how to store information on a disk, as well as how to perform several other tasks not necessarily related to the program. The additional program instructions for working with hardware devices were very complex, and time consuming. Programmers soon realized it-would be smarter to develop one program that could control the computer's hardware, which others programs could have used when they needed it. With that, the first operating system was born. Today, operating systems control and manage the use of hardware devices such as the printer or mouse. They also provide disk management by letting you store information in files. The operating system also lets you run programs such as the basic word processor. Lastly, the operating system provides several of its own commands that help you to use the computer.

DOS is the most commonly used PC operating system. DOS is an abbreviation for disk operating system. DOS was developed by a company named Microsoft. MS-DOS is an abbreviation for « Microsoft DOS ». When IBM first released the IBM PC in 1981, IBM licensed DOS from Microsoft for use on the PC and called it PC-DOS. From the users perspective, PC-DOS and MS-DOS are the same, each providing the same capabilities and commands.

The version of DOS release in 1981 was 1.0. Over the past decade, DOS has undergone several changes. Each time the DOS developers release a new version, they increase the version number.Windows NT (new technology) is an operating system developed by Microsoft. NT is an enhanced version of the popular Microsoft Windows 3.0, 3.1 programs. NT requires a 386 or greater and 8 Mb of RAM. For the best NT performance, you have to use a 486 with about 16 Mb or higher. Unlike the Windows, which runs on top of DOS, Windows NT is an operating system itself. However, NT is DOS compatible. The advantage of using NT over Windows is that NT makes better use of the PC's memory management capabilities. OS/2 is a PC operating system created by IBM. Like NT, OS/2 is DOS compatible and provides a graphical user interface that lets you run programs with a click of a mouse. Also like NT, OS/2 performs best when you are using a powerful system. Many IBM-based PCs are shipped with OS/2 preinstalled. UNIX is a multi-user operating system that allows multiple users to access the system. Traditionally, UNIX was run on a larger mini computers to which users accessed the systems using terminals and not PC's. UNIX allowed each user to simultaneously run the programs they desired. Unlike NT and OS/2, UNIX is not DOS compatible.

Most users would not purchase UNIX for their own use.Windows 95 & 98 are the most popular user-oriented operating systems with a friendly interface and multitasking capabilities. The usage of Windows 95 and its enhanced version Windows 98 is so simple that even little kids learn how to use it very quickly. Windows 95 and 98 are DOS compatible, so all programs written for DOS may

work under the new operating system. Windows 95 requires 486 with 16 megabytes of RAM or Pentium 75-90 with 40 megabytes of free hard disk space.

Tasks

Task 1. Answer the following questions:

1) What problems faced programmers in the 1940's and 1950's?
2) Why first programs were «complex» and «time-consuming»?
3) What are the basic functions of operating system?
4) What does DOS abbreviation means?
5) What company developed the first version of DOS operating system? For what purpose? Was the new operational system successful?
6) What is the difference between the PC-DOS and MS-DOS?
7) What does the abbreviation NT stand for? Is it DOS-compatible? What are the basic requirements for NT?
8) Who is the developer of OS/2?
9) What makes UNIX so different from the other operational systems?
10)What are the remarkable features of Windows 95?

Task 2. Fill in the gaps using the words below:

1) Like NT,... is DOS compatible and provides a graphical user interface that lets you run programs with a click of a mouse.
2)... is the most commonly used PC operating system
3)... is a multi-user operating system that allows multiple users to access the system
4)... is an operating system developed by Microsoft, an enhanced version of the popular
Microsoft Windows programs.
5) The usage of... is so simple that even little kids learn how to use it very quickly.

a) UNIX
b)DOS
c)NT
d) OS/2
e) Windows 95

Task 3. Decide whether the following statements are true or false in relation to the information in the text:

1) When computers were first introduced in 40s and 50's programmers had to write programs to instruct CD-ROMs, laser printers and scanners.

2) The operational system control and manage the use of the hardware and the memory usage.

3) There are no commands available in operating systems, only word processors.

4) Microsoft developed MS-DOS to compete with IBM's PC-DOS.

5) NT requires computers with 486 CPU and 16 M random access memory.

6) OS/2 is DOS compatible because it was developed by Microsoft.

7) Traditionally, UNIX was run by many users-simultaneously

8) Windows 95 and Windows 98 are DOS compatible and have very «friendly» and convenient interface.

Task 4. Find the equivalents in the text:

1) Современные операционные системы контролируют использование системного оборудования, например, принтера и мыши.

2) С точки зрения пользователя, операционные системы PC-DOS и MS-DOS идентичны, с равными возможностями и набором системных команд.

3) OS/2 — DOS совместимая операционная система, позволяющая запускать программы при помощи графического интерфейса пользователя.

4) Дополнительные программы для работы с устройствами системного оборудования были очень сложны и поглощали много времени.

5) Операционная система также позволяет запускать программы, такие как простейший текстовый редактор.

6) DOS — наиболее распространенная операционная система для персонального компьютера.