

АНГЛИЙСКИЙ ЯЗЫК БАЗОВЫЙ КУРС

ELEMENTARY (A2)

ЧАСТЬ 2

Методические указания для студентов
всех технических специальностей

НОВОСИБИРСК

2008

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Работа выполнена на кафедре иностранных языков ТФ НГТУ

Настоящие методические указания предназначены для студентов I курса всех технических специальностей НГТУ, изучающих английский язык (уровень владения языком A2 – Elementary).

Цель пособия – развитие приобретенных ранее навыков коммуникативной деятельности в области говорения, чтения, письма и аудирования.

Методические указания включают в себя три модуля: «Компьютеризация», «Основы инженерного дела», «Устройство на работу», содержащих обширный лексико-грамматический материал.

Предтекстовые задания каждого модуля направлены на моделирование фоновых знаний и формирование навыков и умений вероятностного прогнозирования.

Послетекстовые задания направлены на выявление основных элементов содержания текста, выработку умений структурирования высказываний, коммуникативная цель которых может выглядеть как описание, повествование, рассуждение и доказательство.

Указания могут быть использованы для аудиторной и внеаудиторной работы, в зависимости от целей, поставленных преподавателем.

Module II

Fundamentals of Engineering

Unit 5

Engineering

Vocabulary

1. aeronautical engineering (n)	[,eərən'é:tɪkl]	самолетостроение
2. ancient (adj)	[ˈeɪn](ə)nt]	древний
3. apply (v)	[ə'plai]	применять, использовать
4. automobile engineering (n)	[ˈé:təmə,bi:l]	автомобилестроение
5. branch (n)	[brä:ntʃ]	отрасль
6. branch off (v)		отделяться
7. by means of (prep)		при помощи, посредством
8. chemical engineering (n)		химическое машиностроение
9. chemicals (n)		химикалии
10. civil engineering (n)	[sɪvl]	строительство
11. contrive (v)	[kən'traɪv]	изобретать
12. create (v)	[kri'eɪt]	создавать, творить
13. derive (v)	[dɪ'raɪv]	происходить
14. design (n, v)	[dɪ'zaɪn]	чертеж, проект; проектировать, разрабатывать
15. efficient (adj)	[ɪ'fɪʃnt]	действенный, эффективный
16. electrical engineering (n)	[ɪ'lektɪkl]	электротехника
17. engine (n)	[ˈendʒɪn]	двигатель
18. evolve (v)	[ɪ'vɔlv]	эволюционировать, развиваться
19. experience (n)	[ɪks'pɪəriəns]	опыт (жизненный)
20. field (n)	[fi:ld]	область
21. force (n)	[fé:s]	сила
22. humane (adj)	[hju'meɪn]	гуманный
23. installation (n)	[,ɪnstə'leɪʃn]	установка, сборка; оборудование
24. machine-tool (n)	[mə'ʃi:n ,tu:l]	станок
25. maintenance (n)	[ˈmeɪntənəns]	техническое обслуживание, текущий ремонт
26. manufacture (n)	[,mænj]'fæktʃə]	производить
27. marine engineering (n)	[mə'ri:n]	кораблестроение
28. mean (meant) (v) meaning (n)	[mi:n], [ment]	значить, означать значение
29. mechanical engineering (n)		машиностроение
30. military engineering (n)	[ˈmɪlɪt(ə)rɪ]	военно-инженерное дело
31. mining (n)	[ˈmaɪnɪŋ]	горное дело
32. nuclear engineering (n)	[ˈnju:kliə]	ядерная техника
33. occupation (n)	[,ɔkj]'peɪʃn]	занятие, профессия
34. operate (v)	[ˈɔpə,reɪt]	работать, действовать, управлять

35. power engineering (n)	[pa ə]	энергетика
36. proliferation (n)	[prə,lɪfə'reɪʃn]	распространение
37. root (v)		корень
38. seek (sought) (v)	[si:k; sé:t]	искать
39. skill (n)		умение, мастерство
40. space engineering (n)		космическая техника
41. structure (n)	[ˈstrʌktʃə]	строение, сооружение
42. switchgear (n)	[ˈswɪtʃɡɪə]	коммутационное оборудование, распределительная аппаратура
43. the former ... the latter (adj)	[ˈfɜ:mə...ˈlætə]	первый (из двух упомянутых) ... (последний из двух упомянутых)

5.1 What is engineering? Write everything you know (you have 5 minutes). Discuss your ideas with a partner.

5.2 Read the words and try to guess what they mean.

natural [ˈnætʃ(ə)rəl]	practice [ˈpræktɪs]
metallurgy [mæˈtælədʒi]	pyramid [ˈpɪrəˌmɪd]
mechanical [mɪˈkæˌnɪkl]	method [ˈmeθəd]
machine [məˈʃi:n]	energy [ˈenədʒi]
civilization [ˌsɪvəlaɪˈzeɪʃ(ə)n]	industrial [ɪnˈdʌstriəl]
modern [ˈmɑːd(ə)n]	process (n) [ˈprəʊses]
equivalent [ɪkˈwɪvələnt]	process (v) [ˈprəʊses]
profession [prəˈfeʃn]	design [dɪˈzaɪn]
mathematical [ˌmæθəˈmætɪkl]	electricity [ˌɪˌlekˈtrɪsəti]
chemical [ˈkemɪkl]	textiles [ˈtekstaɪlz]

5.3 Match English words and their Russian equivalents.

1. natural sciences	a) работать, управлять
2. experience	b) труд
3. force	c) энергетика
4. branch	d) сила
5. labour	e) область
6. device	f) создавать
7. efficient	g) опыт
8. branch off	h) отрасль
9. produce	i) прибор. устройство
10. power engineering	j) естественные науки
11. operate	k) эффективный
12. field	l) отделиться

5.4 Read the text. Make a list of the facts that are new for you. Compare your list with a partner.

The Engineering Profession

Engineering is one of the most ancient occupations in history. Without the skills included in the broad field of engineering, our present-day civilization could never have evolved.

The term 'engineering' is a modern one. There is no single meaning of this word and therefore it is sometimes difficult to find the proper Russian equivalents at once. The most widely used ones are: техника, строительство, машиностроение, инженерное дело (искусство), инженерия. The term 'engineering' is applied to the profession in which the knowledge of mathematical and natural sciences gained by study, experience and practice, is applied to the efficient use of the material and forces of nature.

The words 'engine' and 'ingenious' are derived from the same Latin root, 'ingenerare', which means 'to create'. The early English verb 'engine' meant 'to contrive'.

The art of building houses, palaces, temples, pyramids, and other structures was known as far back as many thousand years ago. Now we call it civil engineering.

At the time of the Roman Empire there were already two branches of engineering: civil engineering and military engineering. The former included building houses, roads, bridges, etc; the latter was concerned with building fortifications and military devices. The great engineering works of ancient times were constructed and operated by means of slave labour.

During the Middle Ages people began to seek devices and methods of work that were more efficient and humane.

Wind, water and animals were used to provide energy for some of these new devices.

This led to the Industrial Revolution that began in the eighteenth century.

England and Scotland were the birthplace of mechanical engineering.

Chemical engineering grew out of the 19th-century proliferation of industrial processes involving chemical reactions in metallurgy, food, textiles and many other areas.

The growth of knowledge in electricity led to the development of electrical and electronics engineering. Electrical engineering is divided into two main branches: communications engineering and power engineering. In the middle of the 20th century there appeared nuclear engineering and space engineering.

At present there are hundreds of subdivisions of engineering but they all, at one time or another, branched off from civil, mechanical, electrical or chemical engineering.

5.5 In the text, find English equivalents for the following:

1. Современная цивилизация не могла бы развиваться.
2. Нет одного единственного значения этого слова.
3. Соответствующие русские эквиваленты.
4. Происходят от одного и того же латинского корня.
5. Посредством труда рабов.
6. Люди начали искать устройства и методы работы
7. Это привело к промышленной революции
8. В середине XX века появились
9. Все они отделились от

5.6 Fill in the gaps with appropriate words and phrases from the text.

1. The term 'engineering' is a _____ one.
2. The words 'engine' and 'ingenious' _____ from the same Latin root 'ingenerare'.
3. At the time of Roman Empire there were already _____ of engineering.
4. Wind, water and animals _____ to provide energy for some of new devices.
5. England and Scotland were the birthplace of _____.
6. The growth of knowledge of electricity _____ the development of electrical and electronics engineering.
7. They all _____ from civil, mechanical, electrical or chemical engineering.

5.7 Mark each statement as T (True), F (False) or N (Not Mentioned).

1. Engineering as a profession appeared with the beginning of the Industrial Revolution.

2. There is only one meaning of the word 'engineering'.
3. The early English verb 'engine' meant 'to contrive'.
4. The art of building houses was known many thousands years ago.
5. It is still possible to find the remains of the great engineering works of ancient times.
6. At the time of the Roman Empire there were many branches of engineering.
7. In the late 20th century electrical and electronics engineers outnumbered all others in the world.
8. At present there are few branches of engineering.

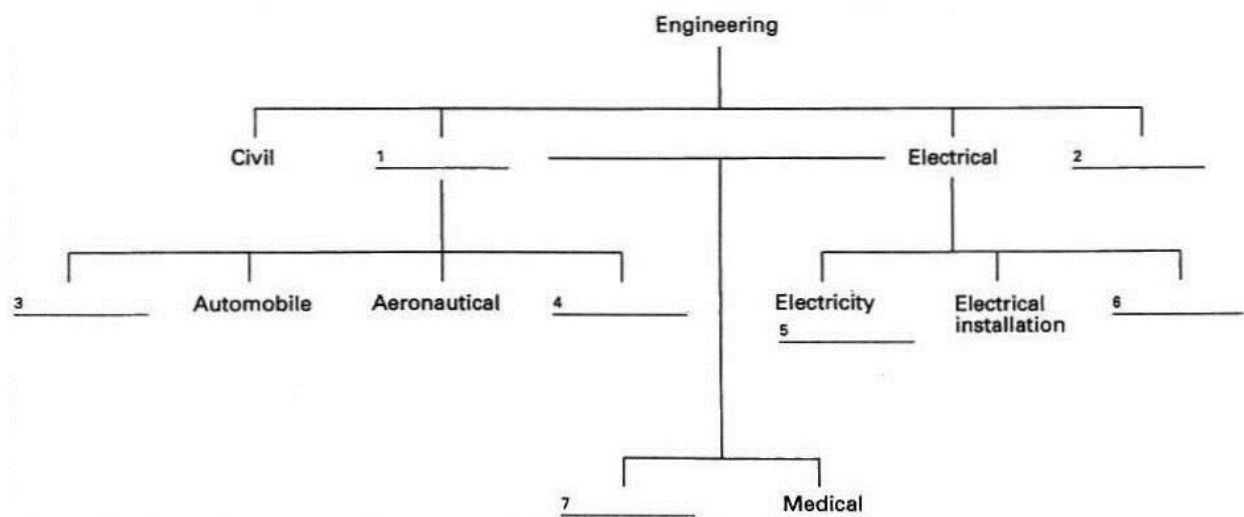
5.8 Answer the following questions:

1. What are the most widely used Russian equivalents to the term 'engineering'?
2. What is the word 'engine' derived from?
3. What was the meaning of the early English verb 'engine'?
4. What art was known many centuries ago?
5. What branches of engineering were there at the time of the Roman Empire?
6. Which countries were the birthplace of mechanical engineering?
7. What led to the development of electrical and electronics engineering?
8. What branches of engineering do you know?

5.9 Read the text and complete the blanks in the diagram.

Engineering is largely a practical activity. It is about putting ideas into action. Civil engineering is concerned with making bridges, roads, airports, etc. Mechanical engineering deals with the design and manufacture of tools and machines. Electrical engineering is about the generation and distribution of electricity and its many applications. Electronic engineering is concerned with developing components and equipment for communications, computing, and so on.

Mechanical engineering includes marine, automobile, aeronautical, heating and ventilating, and others. Electrical engineering includes electricity generating, electrical installation, lighting, etc. Mining and medical engineering belong partly to mechanical and partly to electrical.



5.10 Which branches of engineering are defined below?

1. This branch of engineering deals with the whole field of design, manufacture, maintenance, testing and use of aircraft for both civil and military purposes. It involves the knowledge of aerodynamics, structural design, navigation, communication and other related areas.
2. This branch of engineering is concerned with the design and construction of nuclear reactors.
3. This is the widest field of engineering concerned with systems and devices that use electric power and signals.

4. It deals with the design of large buildings, roads, bridges, canals, railways, airports, tunnels and other structures.
5. Engineers of this field design, test, build and operate machinery of all types.
6. This branch of engineering is concerned with the design, construction and management of factories in which the essential processes consist of chemical reactions.

5.11 Which branch of engineering is concerned with machines? with electricity? Study the examples:

1. Mechanical engineering *deals with* machines.
2. Mechanical engineers *deal with* machines.
3. Mechanical engineering *is concerned with* machines.
4. Mechanical engineers *are concerned with* machines.
5. Machines *are the concern of* mechanical engineers.

Now use these structures in sentences of your own about the things from the list below and branches of engineering that deal with them.

air-conditioning	ships
roads and bridges	planes
body scanners	cars and trucks
cables and switchgear	power stations
communications equipment	

5.12 Fill in the gaps in the following description of the different branches of engineering:

The main branches of engineering are civil, (1) _____, (2) _____ and electronic. Mechanical engineering is (3) _____ (4) _____ machinery of all kinds. This branch of engineering includes (5) _____, automobile, (6) _____, and heating and ventilating. The first three are concerned with transport: (7) _____, cars and planes. The last (8) _____ with air-conditioning, refrigeration, etc.

Electrical engineering deals with (9) _____ from generation to use.

Electricity generating is concerned with (10) _____ stations. Electrical installation deals (11) _____ cables, switchgear, and connecting up electrical equipment.

Two branches of engineering include both (12) _____ and (13) _____ engineers. These are mining and (14) _____ engineering. The former deals with mines and mining equipment, the latter (15) _____ with hospital of all kinds.

5.13 Translate into English.

1. Термин «engineering» имеет много русских значений. Одним из самых распространенных значений слова «engineering» является «техника».
2. Самой старой отраслью техники является гражданское строительство. Оно связано со строительством зданий, дорог, мостов, плотин, тоннелей, железных дорог и т. д.
3. Появление машиностроения было связано с изобретением паровой машины.
4. Инженер-механик имеет дело с проектированием и конструированием различных машин.
5. Важной отраслью техники является электротехника. Ее развитие было связано с достижениями в области электричества.
6. В середине XX века появились новые отрасли машиностроения: ядерная техника и космическая техника. Эти две отрасли основываются на достижениях всех отраслей науки и техники.

5.14 Listen to these short extracts. To which branch of engineering do these engineers belong?

5.15 Listen again. This time note the words which helped you decide on your answers.

Forms of the Infinitive

	Active	Passive
Indefinite (Simple)	To solve	To be solved
Continuous	To be solving	
Perfect	To have solved	To have been solved

Functions of the Infinitive

Function	The Infinitive	Translation
subject	To work with you To be working with you To have worked with you To be taught by you To have been taught by you is a great honour for me./ It is a great honour for me to work with you. to be working with you. to have worked with you. to be taught by you. to have been taught by you.	Работать ... То, что я работаю ... То, что я работал ... То, что меня учите ... То, что я учился ...
predicative	My goal is to work with you. to be taught by you.	... работать чтобы меня учили ...
object	I want to work with you. to be taught by you.	... работать чтобы меня учили ...
adverbial modifier of • purpose	I came here to work with you. to be taught by you.	... чтобы работать чтобы меня учили ...
• result	I think I'm <i>too old/clever enough</i> to work with you to be taught by you	... слишком стар/достаточно умен, чтобы работать чтобы меня учили ...
attribute	There are many problems to solve . The problem to be solved was concerned with fuel consumption. He was <i>the first</i> to solve the problem.	... которые нужно решить. ... которую нужно было решить первым решил ...

5.16 Replace the following complex sentences or groups of sentences by simple sentences with the Infinitive.

Model: I entered this university because I wanted to study electronics.

I entered this university to study electronics.

1. If you want to become a successful engineer, you should constantly develop your knowledge and skills.
2. Mechanical engineers design machine-tools. This is their task.

3. Richard Trevithick, an English mechanical engineer and inventor, was the first man who used a steam engine on a railway.
4. This engineer is not qualified enough. He can't take part in the project.
5. The problem that we are to solve is connected with making the new body scanner as safe as possible.
6. I am glad that I have finished the calculations for the new engine at last.

5.17 Open the brackets using the appropriate form of the Infinitive.

1. Even in ancient times people were ingenious enough (to develop) efficient devices and methods of work.
2. The methods (to introduce) are extremely useful for solving many practical problems.
3. Wind, water and sun may be used (to provide) energy.
4. The young engineer hoped (to involve) in designing a new type of engine.
5. He is lucky (to study) abroad and (to learn) so much.
6. It was very wise of you (to check) the results of the experiment once more.

5.18 Translate into English.

1. Нелегко сразу найти правильный русский эквивалент английского слова 'engineering'.
2. Эта задача слишком сложная, чтобы решать ее в одиночку.
3. Простите, что я заставил Вас ждать.
4. Метод, который будет использоваться в производстве деталей для нового двигателя, был разработан исследователями нашего института.
5. Почему я узнаю обо всем последним?
6. Чтобы тебя допустили к работе с этим оборудованием, нужна специальная подготовка.

5.19 Work with a partner. Look at the list of engineering achievements. Add one more achievement to each category. Decide which is the greatest engineering achievement in each category.

Around the house	the refrigerator, the microwave oven, the vacuum cleaner
Getting around	the railway engine, the jet airliner, the automobile/car
Medicine/health	contact lenses, the thermometer, laser surgery
Entertainment	radio, television, compact discs
Construction	the pyramids, the Eiffel Tower, the Panama Canal

What kind of engineers work at each of them?

5.20 Make a presentation of a modern branch of engineering. In you presentation, answer the following questions:

1. When did this branch appear? What other branches of engineering was it derived from?
2. What do the engineers deal with?
3. What does their job involve?
4. What knowledge and skills are necessary to do this job?

For information, refer to the Appendix or to the Internet, e.g. <http://encarta.msn.com>, <http://www.britannica.com>

Unit 6 Engineering Materials

Vocabulary

- | | | |
|---------------|----------|----------------|
| 1. affect (v) | [ə'fekt] | воздействовать |
|---------------|----------|----------------|

2. alloy (n)	[ˈælɪ, əˈlɪ]	сплав
3. apply (v)	[əˈplaɪ]	применять; наносить
application (n)	[ˌæplɪˈkeɪʃn]	применение
4. armour plate (n)	[ˌɑːməˈpleɪt]	защитная пластина
5. available (adj)	[əˈveɪləbl]	имеющийся в наличии, доступный
6. bearing (n)	[ˈbeərɪŋ]	подшипник
7. bend (n)		сгибать(ся), гнуть(ся)
8. brass (v)	[brä:s]	латунь
9. brittle (adj)	[brɪtl]	ломкий, хрупкий
10. cast iron (n)	[ˌkɑːstˈaɪən]	чугун
11. certain (adj)	[sɪːtn]	определенный
12. coat (v)	[kəʊt]	покрывать
13. contain (v)	[kənˈteɪn]	содержать
14. convert (v)	[kənˈvɜːt]	переделывать, превращать
15. diamond (n)	[ˈdaɪəmənd]	алмаз
16. ductile (adj)	[ˈdʌktaɪl]	пластичный, ковкий, поддающийся обработке
17. durable (adj)	[ˈdjʊərəbl]	долговечный
18. ferrous (adj)	[ˈferəs]	черный (металл)
non-ferrous (adj)	[ˌnɒnˈferəs]	цветной (металл)
19. fibre (n)	[ˈfaɪbə]	волокно
20. flexible (adj)	[ˈfleksəbl]	гибкий
21. frame (n)	[freɪm]	рама
22. gear (n)	[gɪə]	шестерня; передаточный механизм; привод
23. grind (v)	[graɪnd]	молоть, перемалывать, растирать в порошок
24. however (conj)	[haʊˈevə]	однако
25. improve (v)	[ɪmˈpruːv]	улучшать
26. include (v)	[ɪnˈkluːd]	включать
27. increase (v)	[ɪnˈkriːs]	увеличивать(ся)
increase (n)	[ˈɪŋkriːs]	увеличение
28. knot (n)	[nɒt]	узел
29. liquid (adj)	[ˈlɪkwɪd]	жидкий
30. melt (v)		плавить(ся)
remelt (v)	[ˌriːˈmelt]	переплавить
31. mould (n, v)	[məʊld]	лекало, (литейная) форма; отливать, формовать
32. opaque (adj)	[əˈpeɪk]	непрозрачный, непроницаемый
33. pipe (n)	[paɪp]	труба, трубопровод
34. property (n)	[ˈprɒpəti]	свойство
35. raw (adj)	[réː]	необработанный
36. resin (n)	[ˈrezɪn]	смола; камедь
37. resist (v)	[rɪˈzɪst]	сопротивляться, не поддаваться
resistance (n)	[rɪˈzɪst(ə)ns]	сопротивление
38. rigid (adj)	[ˈrɪdʒɪd]	жесткий, негнущийся
39. rod (n)		стержень, прут, брусок

40.rust (n, v)		ржавчина; ржаветь
rust-proof (adj)	[ˈrʌst,pru:f]	нержавеющий, не поддающийся коррозии
41.set (n)		принять определенную форму
42.shape (n, v)		форма; придавать форму; приобретать форму
reshape (v)	[ri:ˈʃeɪp]	придавать иную форму; приобретать иную форму
43.sheet (n)		лист
44.solid (adj)	[ˈsɒlɪd]	твердый (агрегатное состояние вещества), сплошной
45.stainless (adj)	[ˈsteɪnləs]	устойчивый к коррозии
46.stitch (n)		стежок, шов
47.therefore (conj)	[ˈðeəfɔː]	поэтому, следовательно
48.thermoplastic (n)	[θɜːməˈplæstɪk]	термопластмасса
thermoset (n)	[θɜːməˈset]	реактопласт, термоотверждаемый материал
49.thread (n)	[θred]	нить
50.tough (adj)	[tʃʊ]	крепкий, прочный
51.transparent (adj)	[trænsˈpærənt]	прозрачный
52.undergo (v)	[ˌʌndəˈɡəʊ]	испытывать, подвергаться (чему-либо)
53.valve (n)	[vælv]	клапан
54.various (adj)	[ˈveəriəs]	разнообразный
variety (n)	[vəˈraɪəti]	разнообразие, ассортимент
55.wire (n)	[waɪə]	проволока
56.withstand (v)	[wɪðˈstænd]	выдерживать
57.work (v)		обрабатывать
machine (v)	[məˈʃiːn]	обрабатывать с помощью машин

6.1 Read the words and try to guess what they mean.

economical [ˌiːkəˈnɒmɪkl, ˌekəˈnɒmɪkl]	tube [tjuːb]
proportion [prəˈpɔːʃn]	component [kəmˈpɒnənt]
mixture [ˈmɪkstʃə]	powder [ˈpaʊdə]
steel [stiːl]	extract [ɪkˈstrækt]
corrode [kəˈrəʊd]	nylon [ˈnaɪlɒn]
bronze [brɒnz]	cement [səˈment]
plastic [ˈplæstɪk]	polymer [ˈpɒlɪmə]
ceramic [səˈræmɪk]	implant [ˈɪmplɑːnt]
temperature [ˈtemprɪ,tʃə]	compress [kəmˈpres]
coefficient of friction [ˌkəʊˈfɪʃnt əv ˈfrɪkʃn]	expand [ɪkˈspænd]

6.2 Choose the correct Russian equivalent of the English word.

- | | |
|----------------|--|
| 1. bearing | a) клапан, b) подшипник, c) привод, d) рама |
| 2. certain | a) напряженный, b) непрозрачный, c) определенный, d) стойкий |
| 3. to convert | a) вкладывать, b) покрывать, c) превращать, d) смешивать |
| 4. liquid | a) доступный, b) жидкий, c) надежный, d) хрупкий |
| 5. non-ferrous | a) нековкий, b) неметаллический, c) нержавеющий, d) цветной (металл) |

- | | |
|-----------------|--|
| 6. resin | a) изоляционный материал, b) покрытие, c) резина, d) смола |
| 7. therefore | a) однако, b) потому что, c) поэтому, d) так как |
| 8. to withstand | a) выдерживать, b) останавливать, c) прикреплять, d) соседствовать |

6.3 Choose the correct English equivalent of the Russian word.

- | | |
|----------------|---|
| 1. долговечный | a) durable, b) ferrous, c) rust-proof, d) solid |
| 2. лист | a) fibre, b) rod, c) sheet, d) wire |
| 3. применять | a) to apply, b) to coat, c) to shape, d) to undergo |
| 4. прозрачный | a) light, b) pure, c) rigid, d) transparent |
| 5. прочный | a) ductile, b) hard, c) heavy, d) tough |
| 6. содержать | a) to consist, b) to contain, c) to corrode, d) to resist |
| 7. увеличивать | a) to add, b) to improve, c) to include, d) to increase |
| 8. хрупкий | a) brittle, b) flexible, c) opaque, d) soft |

6.4 Match the properties of materials and their opposites.

- | | |
|----------------|-----------|
| 1. brittle | a) heavy |
| 2. flexible | b) liquid |
| 3. hard | c) opaque |
| 4. light | d) rigid |
| 5. solid | e) soft |
| 6. strong | f) tough |
| 7. transparent | g) weak |

6.5 Form the nouns denoting properties.

Model: weak – *weakness*, durable – *durability* [ˌdʒʌrəˈbɪləti], plastic – *placticity* [plæˈstɪsəti], long – *length*

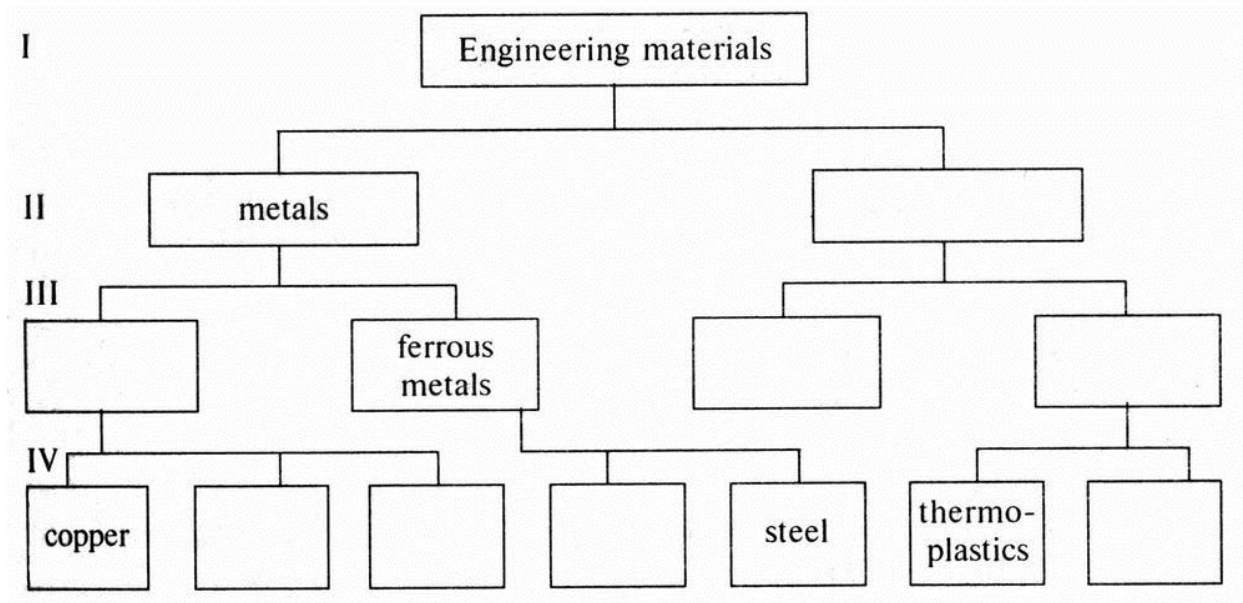
- | | |
|----------|--------|
| brittle | opaque |
| elastic | rigid |
| flexible | soft |
| hard | strong |
| light | tough |

6.6 Read the text and complete the diagram describing the classification of engineering materials.

Engineering Materials

Engineers have to know the best and most economical materials to use. Engineers must also understand the properties of these materials and how they can be worked. There are two kinds of materials used in engineering – metals and non-metals. We can divide metals into ferrous and non-ferrous. The former contain iron and the latter do not contain iron. Cast iron and steel, which are both alloys, or mixtures of iron and carbon, are the two most important ferrous metals. Steel contains a smaller proportion of carbon than cast iron. Certain elements can improve the properties of steel and are therefore added to it. For example, chromium may be included to resist corrosion and tungsten to increase hardness. Aluminium, copper, and the alloys (bronze and brass) are common non-ferrous metals.

Plastics and ceramics are non-metals; however, plastics may be machined like metals. Plastics are classified into two types – thermoplastics and thermosets. Thermoplastics can be shaped and reshaped by heat and pressure but thermosets cannot be reshaped because they undergo chemical changes as they harden. Ceramics are often employed by engineers when materials which can withstand high temperatures are needed.



6.7 Draw similar diagrams displaying the connection between the following:

1. alloys, copper, brass, pure metals, aluminium, metals;
2. computer system, CPU, hardware, main memory, peripherals, software;
3. aeronautical engineering, civil engineering, electrical engineering, engineering, heating and ventilating, marine engineering, mechanical engineering.

6.8 Use the diagrams and the following table to classify the things described.

Classification

There are		two three several many	types kinds sorts classes varieties		of materials
Materials	are of fall into				
We can	classify divide split	materials	into several	classes categories groups types	according to...
Engineering materials		consist of include		metals and non-metals	

6.9 Match the symbols of chemical elements, their English names and their Russian equivalents. What are the properties of engineering materials containing these elements?

Fe	tungsten [ˈtʃŋstən]	алюминий
C	titanium [taɪˈteɪniəm]	молибден
Cr	tin [tɪn]	вольфрам
W	nickel [nɪkl]	марганец
Al	molybdenum [məˈlɪbdənəm]	кобальт
Cu	manganese [ˈmæŋɡə,niːz]	углерод
Mn	iron [ˈaɪən]	железо
Ni	copper [ˈkɑpə]	никель
Sn	cobalt [ˈkə,beɪlt]	олово

Co	chromium [ˈkrəʊmiəm]	титан
Mo	carbon [ˈkɑːbən]	хром
Ti	aluminium [ˌæləˈminiəm]	медь

6.10 Join the pairs of sentences using *however*, *therefore*, *because*. Follow the models:

Model 1

- (a) Copper does not rust.
 (b) Copper corrodes.
 (a + b) Copper does not rust; **however** it corrodes.

Model 2

- (a) Cast iron is a brittle metal.
 (b) Cast iron is not used to withstand impact loads.
 (a + b) Cast iron is a brittle metal, **therefore** it is not used to withstand impact loads.

Model 3

- (a) Titanium is used for aircraft frames.
 (b) Titanium is light and strong.
 (a + b) Titanium is used for aircraft frames **because** it is light and strong.
- Chromium resists corrosion. Chromium is added to steels to make them rust-proof.
 - Manganese steel is very hard. Manganese steel is used for armour plate.
 - Bronze has a low coefficient of friction. Bronze is used to make bearings.
 - Nylon is used to make fibres and gears. Nylon is tough and has a low coefficient of friction.
 - Tin is used to coat other metals to protect them. Tin resists corrosion.
 - Tin is expensive. The coats of tin applied to other metals are very thin.
 - Stainless steels require little maintenance and have a high strength. Stainless steels are expensive and difficult to machine at high speeds.
 - Nickel, cobalt and chromium improve the properties of metals. Nickel, cobalt and chromium are added to steels.

6.11 Join the following sentences into one using the connectors in brackets. You may omit or replace any parts if that is necessary to retain the structure of an English sentence.

Model:

because/and/however

Plastics are used widely in engineering. They are cheap. They have resistance to atmospheric corrosion. Plastics are not particularly strong.

*Plastics are used widely in engineering **because** they are cheap **and** have resistance to atmospheric corrosion; **however**, they are not particularly strong.*

- and**: There are two types of plastics. Thermoplastics are plastics. Thermosets are plastics.
- and/whereas /and**: Thermoplastics will soften when heated. Thermoplastics will harden when cooled. Thermosets set on heating. Thermosets will not remelt.
- from/to**: Plastics are used to make a great variety of products. Plastics are used to make textiles. Plastics are used to make engineering components.
- such as**: Plastics are available in many forms. Plastics are available in the form of sheets, tubes, rods, moulding powders and resins.
- to**: Various methods are used. These methods convert raw plastic into finished products. Compression moulding is a common method. Compression moulding is used for shaping thermosets.
- with/which**: The equipment consists of a press. The press has two heated platens. The two heated platens carry an upper and a lower mould.

7. **then:** Powder is placed in the lower mould. This is moulding powder. The upper mould is pressed down on the lower mould.
8. **to/which:** The pressure and the heat change the powder. The powder becomes liquid plastic. The liquid plastic fills the space between the moulds.
9. **when/and:** The chemical changes have taken place. The mould is opened. The moulding is extracted.
10. **by:** Plastic bowls are made. The compression moulding method is used.

6.12 Translate into English:

1. Как металлы, так и неметаллы обладают определенными свойствами, обуславливающими их пригодность для использования в конкретных целях.
2. Хром может быть добавлен в сталь для повышения качества режущей кромки.
3. На определенной стадии производства пластмассы жидкие, но в готовых изделиях они твердые.
4. Материалы с низким коэффициентом трения используются для изготовления подшипников.
5. Устойчивые к коррозии материалы используются в качестве защитного покрытия для металлов.
6. Метод компрессионного формования используется для изготовления различных изделий из порошков.

6.13 What are the properties and uses of metals? Fill in the appropriate part of the table.

Materials	Properties	Uses
Metals		
Non-metals		

Now listen to the text and add new information to your notes.

6.14 Make a list of properties of non-metals keeping in mind that they are opposite to the properties of metals.

Listen to the text about non-metals and complete the table. What are metalloids?

6.15 Read the information in the table and find out which material (1-10) is best for:

- a) water pipes
- b) a knife for cutting a microscope lens
- c) connecting a socket to the electricity supply
- d) a bicycle frame
- e) television casing

	Material	Properties	Uses
1	aluminium	light, easy to shape	aircraft, window and door frames, cooking foil
2	brass	doesn't rust in contact with air and water, strong	valves, taps
3	cement	mixed with water it dries to a hard material	pre-made building blocks, to hold bricks together
4	copper	easily made into wire, carries electricity well	electrical wire, tubing
5	diamond	hardest natural material, can cut glass and metal	industrial cutting and grinding
6	glass	clear, hard, breaks easily	windows, bottles
7	iron	hard	engineering
8	mild steel (iron + 0.15–0.3% carbon)	hard, strong, quite easy to shape	bridges, ships, cars

9	optical fibre	carries light and coded messages	lighting, cable TV, telecommunications
10	plastic	light, strong, easy to shape	hard hats, telephones, boats, computer casing

6.16 Discuss with a partner the following:

What properties should materials used in medicine have? Why?

6.17 Listen to the dialogue about materials used for body implants and answer the following questions:

1. What properties are important for them?
2. Which of them have been included in your list?
3. Which materials were recommended? Why?

6.18 Translate the text into Russian. Answer the question after the text.

Composite Ceramics

Advanced ceramic materials have such interesting properties that mechanical engineers are becoming more and more interested in their use as structural parts.

Ceramic cutting tools have been in use for some time. However, it is only during the last twenty years that there has been rapid development in this field because of the development of new composite ceramics.

Composite materials are materials in which two or more different substances, such as metals, ceramics, glasses, or polymers are combined without chemical reaction. As a result one can produce a material with properties different from those of any of the individual constituents. The constituents of a composite would retain their individual characteristics.

Recently engineers have developed various kinds of composite ceramics which must combine an increased toughness with the same hardness and strength of usual ceramics. A promising recent development is the addition of a tiny quantity of metal to increase toughness and tool life. Thus, at room and high temperatures (1000°C) the composite ceramics for cutting tools should possess the following properties: high strength, high toughness, high hardness, high thermal shock resistance and high chemical inertness.

Where can materials with such properties be used?

6.19 Make a short presentation of a material widely used in the field you specialize in. Your presentation should include information about the following:

1. When people began using the material. If it is a synthetic material, who and when obtained it first.
2. Properties of the material relevant to the sphere of use described.
3. Uses of the material in the field of your specialization.

6.20 Read the sentences (1-3) below. What does the word *smart* mean in each one?

1. He wore a *smart* suit to the meeting.
2. She's the *smartest* girl in her class.
3. They stayed in a *smart* hotel in New York.

6.21 Look at the title of the text. Which of the meanings of the word *smart* is used? Read the text to check your answer.

Smart Materials

Smart – or shape memory – materials are an invention that has changed the world of engineering. There are two types: metal alloys and plastic polymers. The metal alloys were made first and they are usually an expensive mixture of titanium and nickel.

Shape memory materials are called 'smart' because they react to changes in their environment, for example:

- plastics that return to their original shape when the temperature changes. One use is in surgery where plastic threads 'remember' the shape of a knot, react to the patient's body temperature and make themselves into stitches.
- metal alloys that have a 'memory' and can return to their original shape. They are used in medical implants that are compressed so they can be put inside the patient's body through a small cut. The implant then expands back to its original shape. More everyday uses are for flexible spectacle frames and teeth braces, solids that darken in sunlight, like the lenses in some sunglasses.
- liquid crystals that change shape and colour. These have been used in climbing ropes that change colour if there is too much strain and weight on them.

The future of these materials and their possible uses is limited only by human imagination. One clever idea is that if cars were made of smart metal, a minor accident could be repaired by leaving the car in the sun!

6.22 Read the text again and choose the correct ending for the sentences below.

1. Smart materials change when
 - a) the weather changes.
 - b) something affects them.
 - c) the light is switched on.
 - d) they are put into a human body.
2. Plastic threads are used for
 - a) tying
 - b) sewing.
 - c) knitting.
 - d) stitching.
3. Medical implants made from shape memory alloys are good because
 - a) they save lives.
 - b) they change colour.
 - c) they are easy to put in.
 - d) they react to changes in temperature.
4. Climbing ropes with liquid crystals change colour to
 - a) warn you.
 - b) amuse you.
 - c) make you heavy.
 - d) make you different from other climbers.

6.23 Find in the text words that mean the following:

1. materials made from mixing two metals
2. to change because something else happens
3. everything around a person or thing
4. the first or earliest
5. something medical put inside the body, e.g. a heart valve
6. to become bigger
7. that can bend or be bent easily
8. a situation in which something is holding weight and so might break
9. the ability to form pictures or ideas in your mind

10. small and not very important or serious

6.24 Think of a smart material that could be used in the field of your specialization. Discuss your ideas with a partner.

6.25 Fill in the table with the words from the list. Which of them are derived from other words? Which of them have their own derivatives? What are they?

alloy, brass, brittle, bronze, cast iron, ceramic, corrode, diamond, ductile, durable, fibre, flexible, harden, knot, melt, nylon, opaque, platen, powder, resin, resist, rigid, rod, rust, set, soften, steel, stitch, strong, thermoset, thread, tough, transparent, tube, undergo, weak, wire, withstand

material	property	shape	verb

6.26 Fill in the gaps choosing one of the words in brackets

Plastics

Plastics are usually produced by synthesis from such natural materials as water, air, salt, coal and natural gas. The technology is simple and cheap. While (1) _____ (*solid, cheap, uniform*) in finished state, plastics are liquid at some stage of manufacture, and it is easy to form plastics into various shapes. Plastics are different in (2) _____ (*hardness, properties, needs*), characteristics and (3) _____ (*pressure, application, thermosets*). Plastics are (4) _____ (*reliable, available, thermoplastics*), (5) _____ (*expensive, cheap, structural*), durable. Plastics resist (6) _____ (*weight, strength, corrosion*). Plastics are machined like (7) _____ (*metals, ceramics, carbon*).

Their (8) _____ (*lightness, high weight, colour*), strength, hardness, chemical resistance, (9) _____ (*colour, durability, application*) make it possible to use plastics in electric and electronic equipment, transportation, agriculture, etc.

The application of plastics is (10) _____ (*achieving, satisfying, calling for*) the requirements of all industries. There is no industry now where plastics are not used.

6.27 Answer the following questions:

1. What materials are usually used to build bridges?
2. What properties are important for such materials?

6.28 Listen to the text 'Experimental Bridge' and complete your answers if there is any new information in the text. Why is the bridge experimental?

6.29 Listen again. What do the following numbers refer to?

32 ft; 80 ft; 10 ft; 4 ft; 2 months; 12,000 lb; 9,000 lb

6.30 Answer the following questions:

1. What are the advantages and disadvantages of this experimental bridge?
2. Do you think the material used for constructing it could be used for this purpose?

6.31 Think of a material used in everyday life and answer the following questions:

1. What are the properties of this material?
2. Why is it used this way?
3. Could it be used somewhere else?

6.32 Design a project where a widespread material is used unusually, like paper for constructing bridges. Describe the advantages and disadvantages of using this material for the purpose.

Unit 7

Nanotechnology

Vocabulary

1. arbitrary (adj)	[ˈä:bitrəri]	произвольный, случайный
2. artificial (adj)	[,ä:tiˈfi]	искусственный
3. assemble (adj)	[əˈseɪbl]	собирать, монтировать
assembly (n)	[əˈseɪbli]	монтаж, сборка; агрегат
4. bond (v)	[bænd]	быть крепко связанным (с чем-то)
5. breakthrough (n)	[ˈbreikθru:]	прорыв
6. carry out (v)	[ˈkæri]	выполнять
7. charge (n, v)		заряд; заряжать
recharge (v)	[riˈtʃä:dʒ]	перезаряжать
8. compose (v)	[kəmˈpəz]	составлять
9. compound (n)	[ˈkæmpaʊnd]	(химическое) соединение
10. consider (n)	[kənˈsɪdə]	рассматривать, обдумывать, учитывать
11. consist of (n)	[kənˈsɪst]	состоять из
12. dent (n)		выбоина, вмятина
13. devote attention (v)	[diˈvəʊt əˈtenʃn]	уделять внимание
14. dimension (n)	[daɪˈmenʃn]	размеры, величина
15. drug (n)	[drʒg]	лекарство
16. enhance (v)	[ɪnˈhæ:ns]	увеличивать, усиливать, улучшать
17. equal (adj)	[ˈi:kwəl]	равный
18. extremely (adv)	[ɪksˈtri:mli]	чрезвычайно, в высшей степени
19. fabric (n)	[ˈfæbrɪk]	ткань, материал
20. grasp (v)	[grä:sp]	постичь, понять
21. impact (n)	[ˈɪmpækt]	сильное воздействие, влияние
22. improve (v)	[ɪmˈpru:v]	улучшать
23. internal (adj)	[ɪnˈti:nl]	внутренний
24. observe (v)	[əbˈzɜ:v]	наблюдать, замечать
25. occur (v)	[əˈki:]	встречаться, попадаться
26. operate (v)	[ˈäpə,reit]	работать, действовать, функционировать
27. performance (v)	[pəˈfé:məns]	выполнение, работа
28. pill (n)		пилюля, таблетка
29. stain (n)		пятно
30. profound (adj)	[prəˈfaʊnd]	сильный, глубокий
31. range (n, v)	[reɪndʒ]	диапазон; колебаться в известных пределах
32. refer (v)	[riˈfi:]	относить(ся) (к какому-либо классу); говорить, упоминать (о чем-либо)
33. remove (v)	[riˈmu:v]	удалять, устранять
34. repellent (adj)	[riˈpelənt]	отталкивающий, отбрасывающий
35. replace (v)	[riˈpleɪs]	заменять
36. ribbon (n)	[ˈrɪbən]	лента

37. roughly (adv)	[ˈrʃfli]	приблизительно
38. scale (n)	[skeɪl]	шкала, масштаб, размер
39. scratch (n, v)	[skrætʃ]	царапина; царапать
40. surface (n)	[ˈsɪ:fɪs]	поверхность
41. throughout (prep)	[θru:ˈaʊt]	повсюду, на всем протяжении

7.1 What is nanotechnology? Try to guess from the meaning of the parts of the word.

centi means ‘one hundredth’, so 1 centimeter equals one hundredth of a meter. Match these prefixes and their meanings to learn what the prefix *nano* means.

- | | |
|----------|-------------------|
| 1. giga | b) one thousand |
| 2. kilo | c) one million |
| 3. mega | d) one billion |
| 4. micro | e) one billionth |
| 5. milli | f) one millionth |
| 6. nano | g) one thousandth |

7.2 Read the words and try to guess what they mean.

diameter [daɪˈæmɪtə]	product [ˈprɒdʃkt]
atom [ˈætəm]	catalytic [ˌkætəˈlɪtɪk]
molecule [ˈmɒlɪkjʊ:l]	cosmetics [kɒzˈmetɪks]
protein [ˈprəʊti:n]	radiation [ˌreɪdɪˈeɪʃn]
virus [ˈvaɪrəs]	athlete [ˈæθli:t]
nature [ˈneɪtʃə]	technologist [tekˈnɒlədʒɪst]

7.3 Read the text and complete the sentences with the fragments (a–f) from the list.

- at which special properties have been observed in materials – properties that are profoundly different at the nanoscale.
- the basic building block of matter.
- the basic units of life.
- the smallest part of a chemical compound.
- they have only scratched the surface of nanotechnology’s potential.
- which is about 50,000 times smaller than the diameter of a human hair.

Nanotechnology is the creation and use of materials or devices at extremely small scales. These materials or devices fall in the range of 1 to 100 nanometers (nm). One nm is equal to one-billionth of a meter (.000000001 m), (1) ____ Scientists refer to the dimensional range of 1 to 100 nm as the nanoscale, and materials at this scale are called nanocrystals or nanomaterials.

To grasp the size of the nanoscale, consider the diameter of an atom, (2) ____ The hydrogen atom, one of the smallest naturally occurring atoms, is only 0.1 nm in diameter. In fact, nearly all atoms are roughly 0.1 nm in size, too small to be seen by human eyes. Atoms bond together to form molecules, (3) ____ Molecules that consist of about 30 atoms are only about 1 nm in diameter. Molecules, in turn, compose cells, (4) ____ Human cells range from 5,000 to 200,000 nm in size, which means that they are larger than the nanoscale. However, the proteins that carry out the internal operations of the cell are just 3 to 20 nm in size and so have nanoscale dimensions. Viruses that attack human cells are about 10 to 200 nm, and the molecules in drugs used to fight viruses are less than 5 nm in size.

The possibility of building new materials and devices that operate at the same scale as the basic functions of nature explains why so much attention is being devoted to the world below 100 nm.

But 100 nm is not some arbitrary dividing line. This is the length (5) _____

A number of important breakthroughs have already occurred in nanotechnology. These developments are found in products used throughout the world. Some examples are catalytic converters in automobiles that help remove air pollutants, devices in computers that read from and write to the hard disk, certain sunscreens and cosmetics that transparently block harmful radiation from the Sun, and special coatings for sports clothes and gear that help improve the gear and possibly enhance the athlete's performance. Still, many scientists, engineers, and technologists believe (6) _____

7.4 Mark the following statements T (True), F (False) or N (Not mentioned).

1. A nanometer is the smallest thing occurring in nature.
2. Molecules are the basic units of life.
3. Viruses have nanoscale dimensions.
4. Nanoscale gets so much attention because this is where many of the mechanisms of the biological and physical world operate.
5. At scales above 100 nm gold looks yellow, but at scales below 100 nm it has other colors.
6. The developments of nanotechnology are already used in different products.
7. Smaller and faster chips will make computers smaller and enable them to perform many more functions more quickly.
8. Scientists, engineers and technologists are sure they know everything about nanotechnology.

7.5 Put the following things in the order of their size, from the smallest to the biggest one:

virus nanometer molecule human hair human cell atom

7.6 Match the words and their meaning.

- | | |
|---------------|-------------------------------|
| 1. arbitrary | a) happen or exist |
| 2. enhance | b) improve |
| 3. extremely | c) in every part of |
| 4. occur | d) not exactly |
| 5. refer to | e) size or level |
| 6. roughly | f) speak about |
| 7. scale | g) very |
| 8. throughout | h) without any reason or plan |

7.7 Fill in the gaps with the words from 7.6 in the appropriate form.

1. Nanotechnology is the science of building _____ small things.
2. In the future, we'll be able to work on nano_____ and build things atom by atom.
3. A nanometer is _____ ten times the size of an individual atom.
4. Nanotechnology will help _____ computer performance greatly.
5. The manipulation of atoms or small groups of atoms to manufacture materials and devices _____ as bottom-up approach in nanotechnology.
6. Nanoscale was not chosen _____ly. It is where the properties of materials are profoundly different from the properties of materials _____ in nature.

7.8 Translate into English.

1. Нанотехнология – это создание функциональных материалов, устройств и систем при работе с веществом в масштабе от 1 до 100 нанометров.
2. Ученые ожидают, что на наноуровне будут открыты новые явления, которые будут использоваться в передовых технологиях.
3. Люди уже знали об особых свойствах, проявляемых материалами на наноуровне, хотя они и не понимали, почему это происходит.

4. Добавив мельчайшие частицы золота в стекло, можно получить цвет от желтого до зеленого и красного в зависимости от размера этих частиц.
5. Структурируя вещество на наноуровне, можно влиять на основные свойства материалов, не изменяя их химический состав.
6. Полупроводниковые нанопровода – это одномерные структуры с уникальными электрическими и оптическими свойствами, используемые в качестве элементов наноустройств.

7.9 Match the words and their meaning.

- | | |
|----------------------------|--|
| 1. in a nutshell | a) without any definite plan, aim, or pattern |
| 2. to take sth for granted | b) in a short, clear way |
| 3. to arrange | c) surprising or difficult to believe |
| 4. randomly | d) to expect sth to be always there never thinking how important or useful it is |
| 5. amazing | e) to put a group of things in a particular order or position |
| 6. incredible | f) very pleasant in an unexpected way |

7.10 Listen to Marshall Brain, founder of HowStuffWorks, a resource Web site explaining how the world around us works, talking about nanotechnology and choose the correct ending for the sentences below.

1. Diamond, graphite and soot have different properties because
 - a) they consist of different atoms.
 - b) the same atoms in them are arranged in different ways.
 - c) different methods are used to obtain them.
 - d) nanotechnology is used to make them different.
2. Nanotubes will make it possible to create a space elevator because
 - a) they are very strong and light.
 - b) they can be shaped into a ribbon up and down which the space elevator will run.
 - c) they can withstand the conditions of the open space.
 - d) they are obtained using nanotechnology.
3. Batteries with nanogranules work better because
 - a) everything made using nanotechnology works better.
 - b) nanogranules can change their properties when the battery is recharged.
 - c) nanogranules last longer.
 - d) nanoparticles have large surface area.
4. The nanotechnology methods used to obtain new materials involve
 - a) moulding plastic materials into nanoparticles.
 - b) cutting big pieces of materials into smaller particles.
 - c) assembling the new material atom by atom.
 - d) using cultured cells to produce the necessary compounds.

7.11 Listen again and fill in the gaps in this summary of the text about nanotechnology.

Nanotechnology has the potential to change the world in many (1) _____ ways. It will improve many of the products that we use every day and make many new products possible.

Nanotechnology is the science of very small things, usually smaller than a hundred nanometers. A hundred nanometers is equivalent to about (2) _____ across or less. At this scale things that we (3) _____ can behave in very different ways.

One of the (4) _____ of nanotechnology can be seen in batteries. By making the granules inside the battery on a nanometer scale it's possible to recharge the battery (5) _____, and the battery'll (6) _____ longer.

Some of the more exotic ideas in nanotechnology involve new assembly methods. Scientists are

experimenting with new nanomaterials that can grow or (7) _____ themselves. (8) _____ are already able to do this. The goal is to find ways for human beings to do this as well.

7.12 Think of everyday products such as cars, computers, clothes. How can nanotechnology change them? Discuss your ideas with a partner.

7.13 Complete these predictions about nanotechnology. Use each verb in the list once.

~~construct~~ remove store wear replace resist
take send clean up perform stop

CARS Manufacturers will be able to construct cars from lightweight materials that are 50 times stronger than steel. Today's two-tonne Cadillac could weigh only 50 kg in the future. The materials used to build cars will be able to (1) _____ scratches, dents, and rust.

COMPUTERS We'll be able to (2) _____ trillions of bytes of information in a structure the size of a sugar cube.

MEDICINE Doctors will be able to (3) _____ broken human bones with artificial bones made with nanotechnology. Nanorobots will be able to (4) _____ surgery. We'll be able to (5) _____ pills containing nanorobots.

THE ENVIRONMENT We'll be able to (6) _____ nanorobots up into space to rebuild the ozone layer. Other nanorobots will be able to (7) _____ pollutants from water and (8) _____ oil spills.

CLOTHES Everyone will be able to (9) _____ computers and colour screens because they will be built into their clothes. We'll be able to (10) _____ our clothes from getting dirty by making them with stain repellent fabrics.

7.14 What might be the impact of nanotechnology? Think of the benefits and threats it can bring to people. Discuss your ideas with a partner.

The Complex Object

Verb	Complex Object	Translation
mental activity: <i>to know, to think,</i> <i>to consider, to find,</i> <i>to expect,</i> <i>to suppose</i>	We know engineers to use to be using to have used nanocrystals in order to make the engine parts more durable. We know nanocrystals to be used to have been used in order to make the engine parts more durable.	... что инженеры используют использовали что нанокристаллы используются ... использовались ...
wish, likes and dislikes: <i>to want, to like,</i> <i>to hate</i>	The developers of the engine <i>would like</i> the engineers to use nanocrystals in order to make the engine parts more durable. The developers of the engine <i>would like</i> nanocrystals to be used in order to make the engine parts more durable.	... чтобы инженеры использовали чтобы нанокристаллы использовались ...
order and permission: <i>to order,</i> <i>to ask (for),</i> <i>to offer,</i> <i>to tell, to allow,</i> <i>to enable,</i> <i>to encourage,</i> <i>to forbid</i>	The developers of the engine <i>asked</i> the engineers to use nanocrystals in order to make the engine parts more durable. The developers of the engine <i>asked for</i> nanocrystals to be used in order to make the engine parts more durable.	... инженеров использовать ... чтобы нанокристаллы были использованы ...
NB: to let, to make	The researchers <i>made</i> the metal particles form into nanocrystals.	... чтобы частицы металла сформировали ...
sense perception: <i>to see, to hear,</i> <i>to watch,</i> <i>to observe</i>	The researchers <i>saw</i> the metal particles form into nanocrystals. forming into nanocrystals. The researchers <i>saw</i> the nanocrystals formed.	... что частицы металла формируют как частицы металла формируют как формируются нанокристаллы

7.15 Fill in the blanks with the particle 'to' where necessary.

- Using this electronic microscope we can see carbon atoms _____ roll into nanotubes.
- The researchers wanted the nanomaterial _____ assemble itself but they couldn't make it _____ do that.
- Engineers found nanogranules _____ be extremely efficient in batteries.
- The students asked the lecturer _____ explain the mechanisms of using nanotechnology for drug delivery.

5. Visit <http://www.news.cornell.edu/releases/Nov03/NEMSguitar.ws.html>, and you'll hear a nanoguitar _____ sound.

7.16 Replace the following complex sentences or groups of sentences by simple sentences with the Complex Object.

Model: Scientists found that materials displayed special properties at the nanoscale.

Scientists found materials to display special properties at the nanoscale.

1. People used nanoscale-based processes as far back as the Middle Ages. We know about it.
2. Many researchers consider that the process of obtaining nanocrystals is very slow and complicated.
3. It would be really exciting to watch how atoms assemble themselves into nanostructures.
4. Students cannot experiment with nanotubes. The head of the laboratory has forbidden it.
5. No one had expected that the developments of nanotechnology would be used in such everyday products as sunscreens.
6. The nanostructures are self-replicating. I would like to see it.

7.17 Fill in the blanks with suitable words. Give several variants where possible.

1. The Organizing Committee of the conference _____ me to make a speech on the bottom-up approach in nanotechnology.
2. The designers _____ the engineers to use composite nanomaterials for the parts of the new engine.
3. I have never _____ a nanomotor operate.
4. No one had _____ scientists to make such a breakthrough in the sphere of nanotechnology.
5. The scientific supervisor _____ the research student to obtain nanocrystals of steel.
6. You can't _____ atoms bond together to form nanostructures if the temperature is too high.

7.18 Translate into English.

1. Современные электронные микроскопы позволяют увидеть, как атомы углерода соединяются между собой и образуют нанотрубки.
2. Студенты внимательно слушали, как лектор рассказывал о методах получения новых материалов с использованием нанотехнологий.
3. Ученые ожидают, что с развитием нанотехнологий произойдет прорыв в таких областях, как медицина, компьютерная техника, материаловедение, защита окружающей среды, а также в повседневной жизни.
4. Нам нужно, чтобы оборудование установили как можно скорее, так как без него мы не можем начать эксперименты с нанокристаллами.
5. Использование нанотехнологий позволит инженерам сделать детали машин более легкими и прочными и уменьшить их размеры.
6. Ученые пытаются не только собирать функциональные блоки на молекулярном уровне, но и сделать так, чтобы они воспроизводили себя сами, чем можно достичь чрезвычайно высокой эффективности.

7.19 You have probably heard of nanowires, but what about a nanoguitar? Find out more at <http://www.nanotech-now.com>. Prepare a short presentation of a nanoobject such as nanotube, nanobalance, etc. Your presentation should include information about the following:

1. The structure of the object.
2. How such an object may be obtained.
3. The properties of the object.
4. The uses of the object.

5. The possible future impact of the object.

Unit 8

Robotics

Vocabulary

1. boring (adj)	[ˈbɛːrɪŋ]	скучный
bored (adj)	[ˈbɛːd]	скучающий
2. capable (adj)	[ˈkeɪpəbl]	способный, умелый
capability (n)	[ˌkeɪpəˈbɪlɪti]	способность; производительность
3. count on sb/sth (v)		рассчитывать на, планировать
4. creature (n)	[ˈkriːtʃə]	создание, существо
5. dangerous (adj)	[ˈdeɪndʒərəs]	опасный
6. defuse (v)	[diːˈfjuːz]	снимать взрыватель (с бомбы)
7. event (n)	[ɪˈvent]	событие
8. explore (v)	[ɪkˈsplɔː]	исследовать
9. human (n, adj)	[ˈhjuːmən]	человек; человеческий
10. insert (v)	[ɪnˈsɪt]	вставлять, помещать
11. integrated circuit (n)	[ˈɪntɪɡreɪtɪd ˈsɪkt]	интегральная схема
12. load (n, v)	[ləʊd]	Груз; грузить
13. maintain (v)	[meɪnˈteɪn]	обслуживать, содержать в исправности
14. pallet (n)	[ˈpælət]	плита (конвейера)
15. perform (v)	[pəˈfɔːm]	делать, выполнять
16. pick up (v)		поднимать, подбирать
17. precise (adj)	[priˈsaɪz]	точный
18. pull (v)	[pʊl]	тянуть, тащить
19. reach (v)		достигать, доходить
20. reliable (adj)	[rɪˈlaɪəbl]	надежный
21. repetitive (v)	[rɪˈpetɪtɪv]	повторяющийся
22. salary (n)	[ˈsæləri]	зарплата
23. semiconductor (n)	[ˌsemɪkənˈdʌktə]	полупроводник
24. soccer (n)	[ˈsɔːkə]	футбол
25. solder (v)	[ˈsɔːldə]	паять, припаивать
26. supervise (v)	[ˈsuːpəˌvaɪz]	наблюдать, надзирать
27. surroundings (n)	[səˈraʊndɪŋz]	окрестности, окружение
28. tiny (adj)	[ˈtaɪni]	очень маленький, крошечный
29. tired (adj)	[ˈtaɪəd]	уставший
30. weld (v)	[weld]	сваривать(ся)

8.1 Read the words and guess their meaning.

robot [ˈrɒl,bɔːt]	automated [ˈɛːtəˌmeɪtɪd]
volcano [vɒlˈkeɪnə]	automaton [ˈɛːˌtɒmətən]

humanoid [ˈhju:mə,néɪd]	radioactive [ˌreɪdɪəˈæktɪv]
intelligent [ɪnˈtelɪdʒənt]	coordinate [kəˈé:dɪ,neɪt]
design [dɪˈzaɪn]	autonomous [é:ˈtɒnəməs]
imitate [ˈɪmɪ,teɪt]	mobile [ˈməʊbaɪl]
manipulate [məˈnɪpj ,leɪt]	android [ˈændréɪd]
qualify [ˈkwɒlɪfaɪ]	cyborg [ˈsaɪ,bé:g]

8.2 Match the words with similar meaning.

- | | |
|----------------|------------------|
| 1. autonomous | a) able |
| 2. capable | b) being |
| 3. clever | c) to carry out |
| 4. creature | d) exact |
| 5. environment | e) independent |
| 6. to maintain | f) intelligent |
| 7. to perform | g) to look after |
| 8. precise | h) surroundings |

8.3 Make up all possible word combinations. Make sentences with the combinations.

- | | |
|------------------|---------------|
| 1. common | a) a bomb |
| 2. dangerous | b) creature |
| 3. to defuse | c) definition |
| 4. to explore | d) job |
| 5. hard | e) machine |
| 6. intelligent | f) a mistake |
| 7. to make | g) objects |
| 8. to manipulate | h) space |
| 9. precise | i) task |
| 10. simple | j) work |

8.4 Read the text and choose the correct ending for the sentences below.

Robots in Perspective

If you think robots belong to space movies, think again. Right now, all over the world, robots are on the move. Putting chocolates into boxes, walking into live volcanoes, driving trains and defusing bombs are their common tasks. Today's robots are doing more and more things humans can't do or don't want to do.

The idea of creating an intelligent machine is very old. Homer described gold girls, mechanical helpers built by Hephaestus, the Greek god of smiths. In 1495, Leonardo da Vinci designed a mechanical man. But only the invention of transistors and integrated circuits in the 1950s and 1960s made real robots possible. Compact, reliable electronics and computers added brains to already existing machines. In 1959, researchers demonstrated the possibility of robotic manufacturing ashtrays.

The Czech word 'robota', meaning hard work, was first used by the writer Karel Čapek in the story where robots are invented to help people by performing simple tasks, but being used to fight wars, they turn on their human masters and take over the world.

There's no precise definition of a robot. It is normally defined as a programmable machine imitating an intelligent creature. Getting information from its surroundings and doing something physical (moving or manipulating objects) qualify a machine as a robot.

Name a boring or dangerous job. Somewhere, a robot is probably doing it. Robots are ideal for doing jobs that require repetitive, precise and fast movements. Robots are good at doing the same thing without asking for a safe working environment, salary, breaks, food and sleep, without getting bored or tired, without making mistakes. Factories are so highly automated that most human workers carry out only supervising and maintaining the robots.

People keep finding new uses for robots – making and packing drugs and foods, soldering tiny wires to semiconductor chips, inserting integrated circuits onto printed circuit boards used in electronics, working in radioactive 'hot zones', exploring space.

All work and no play make anyone dull – even a robot. Soccer-playing robots gather each year at RoboCup, an international event collecting over 100 teams from 35 countries. Robotic players use radio signals to coordinate their actions with their teammates. Teams are placed in divisions based on size, ranging from the size of a pizza box. By 2050, the organizers of RoboCup count on developing a team of fully autonomous humanoid robots that can beat the human world champion team in soccer.

1. The first real robots
 - a) were built by Hephaestus in ancient Greece.
 - b) were designed by Leonardo da Vinci in 1495.
 - c) were invented by the Czech writer Karel Čapek to help him by performing simple tasks.
 - d) were made possible after the invention of transistors and integrated circuits in the 1950s and 1960s.
2. A machine may be called a robot if it
 - a) can imitate intelligent creatures.
 - b) can get information from its surroundings and manipulate objects.
 - c) is built with compact, reliable electronics.
 - d) is capable of repetitive, precise and fast movements.
3. Robots make and pack drugs and foods, insert integrated circuits onto printed circuit boards used in electronics, walk in live volcanoes, defuse bombs, explore space because
 - a) they are on the move.
 - b) they took over the world.
 - c) they can do dangerous or monotonous things.
 - d) they are intelligent.
4. Most human workers in the modern highly automated factories
 - a) are good at doing the same thing.
 - b) ask for safer working environment.
 - c) get bored and tired very quickly.
 - d) only maintain and supervise the robots.
5. The divisions in RoboCup are based on
 - a) their size.
 - b) the way their actions are coordinated.
 - c) the countries where they were made.
 - d) whether they can beat humans.

8.5 Find in the text phrasal verbs that mean the following:

1. to be developing or progressing quickly
2. to suddenly attack someone, using physical violence or unpleasant words
3. to take control of sth
4. to be able to do sth well
5. to do a particular piece of work, research etc

6. to plan or expect that sth will happen

8.6 Translate into English.

1. Робот – это устройство, способное выполнять определенные действия самостоятельно.
2. Идея использовать роботов для выполнения монотонной или опасной работы появилась очень давно.
3. Сложно осуществить сварку под водой без роботов.
4. Современные промышленные роботы выполняют некоторые задачи даже лучше, чем люди, потому что они не ошибаются.
5. В Массачусетском технологическом институте (Massachusetts Institute of Technology, MIT) был разработан «роболобстер», имитирующий способность лобстера определять наличие химикатов в окружающей его воде.
6. Кроме футбольного Робокубка (RoboCup), существуют другие спортивные мероприятия для роботов, например Робоволейбол (Robot Volley Ball), организуемый Британской ассоциацией содействия развитию науки (The British Association for the Advancement of Science).

8.7 Discuss the following:

1. Why did people create robots?
2. Why are some people against robots?
3. Continue the sentence: "Robots are people's _____".

8.8 Read this short text, then match each robot type with the appropriate definition.

Classification of Types of Robot

One way of classifying robots is in terms of their similarity to humans. An automaton is any machine capable of operating independently, such as a clothes dryer. A flexible machine is a special case of an automaton with different capabilities, that can be programmed as the need arises. An example is a welding robot on the factory floor that can be programmed to participate in other production operations. A mobile robot is a flexible machine capable of moving freely in its own environment. It can partly select its own goals and communicates with other agents, including humans. An android or humanoid is a mobile robot whose structure approximately resembles a human structure. Finally, a cyborg is a humanoid with organic structures. Cyborgs have some physiological structures similar to those of humans.

- | | |
|---|---|
| 1. ☐ Mobile robot | a) Machine capable of independent operation following a predetermined series of behaviours, e.g. a cuckoo clock |
| 2. ☐ Cyborg | b) Flexible machine capable of moving and communicating with humans, e.g. a sentry robot |
| 3. ☐ Automaton | c) Humanoid having both organic and inorganic structures, with some physiological similarity to humans |
| 4. ☐ Flexible machine | d) Mobile robot of human proportions |
| 5. ☐ Android/ Humanoid | e) Versatile, programmable automaton, e.g. an assembly robot |

8.9 Now renumber the robot types, 1– 5 (1 = the most similar to humans; 5 = the simplest). What type of work can each of the types be used for? Provide examples.

8.10 What can these robots do? Say what you think. What type of robot do they belong to?


☐ Robug 3

☐ The Canada Arm (NASA)

☐ RL800

☐ IRB 840

☐ Sirius

☐ Sony's
Robot Dog

8.11 Listen to different people talking about the robots to check your answers and number the photos in the order you hear about them.

8.12 Listen again and say which robot:

1. is fully automatic.
2. can reach 15 metres.
3. is an electronic pet.
4. has vacuum gripper feet.
5. is the solution for dirty windows.
6. is designed to save floor space.

The Complex Subject

Verbs and Word Groups	The Complex Subject	Translation
Verb in the Passive: • sense perception: <i>to see, to hear, to notice</i>	An old man <i>was seen to walk and play</i> with AIBO like with a real dog.	Видели, как пожилой человек гулял и играл ...
• mental activity: <i>to think, to consider,</i>	Japanese engineers <i>are believed</i>	Считается, что японские

<i>to believe, to expect, to suppose, to know</i> • order and permission: <i>to order, to ask, to offer, to tell, to allow, to let, to encourage, to make</i> • reporting: <i>to say, to report, to announce</i> Pairs of synonyms: <i>to seem/to appear, to happen/to chance, to prove/to turn out</i> Word groups: <i>to be likely, to be unlikely, to be sure/to be certain</i>	to develop a new model of AIBO every year. to be developing a new model of AIBO now. to have developed AIBO as an electronic friend for old people. A new model of AIBO <i>is believed to be developed</i> every year. AIBO is believed to have been developed as an electronic friend for old people. The designer was asked to demonstrate the capabilities of the new model of AIBO. Japanese engineers are reported to develop a new model of AIBO every year. to be developing a new model of AIBO at the moment. to have developed AIBO as an electronic friend for old people. A new model of AIBO <i>is reported to be developed</i> every year. AIBO is reported to have been developed as an electronic friend for old people. The results of the work don't seem to satisfy the researchers. The researchers <i>seemed to be satisfied</i> with the results of their work. The two scientists happen to be working on similar projects. A group of first-year students turned out to have developed the robot which won the competition. The robot which won the competition <i>turned out to have been developed</i> by a group of first-year students. Electronic pets are not likely to replace real cats and dogs. Real cats and dogs are unlikely to be replaced by electronic	инженеры конструируют сконструировали ... Считается, что новую модель конструируют был сконструирован ... Разработчика попросили продемонстрировать ... Сообщают, что японские инженеры конструируют сконструировали ... Сообщают, что новую модель конструируют был сконструирован ... Кажется, результаты работы не устраивают ... Казалось, исследователи были удовлетворены ... Эти двое ученых случайно работают ... Оказалось, что студенты первого курса сконструировали ... Оказалось, что робот был сконструирован ... Электронные домашние любимцы вряд ли заменят ... Живых кошек и собак вряд ли заменят
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	pets. Engineers are likely to be developing robots for using in the home. The designers are sure to have created the robot in order to test their theory. The robot is certain to have been created in order to test some theory.	Инженеры, вероятно, конструируют ... Конструкторы наверняка создали ... Робот, несомненно, был создан ...
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8.13 Which is right?

1. Robots are supposed **to be used/to be using** for doing boring or dangerous jobs.
2. Engineers seem **to be working/to have worked** on new types of robots that will help doctors perform surgical operations.
3. Robots are known **to apply/to have been applied** in industry for about 50 years.
4. Scientists are expected **to develop/to be developed** robotic parts of the body for disabled people.
5. The programmer proved **to make/to have made** a mistake, that is why the robot soldered the wires in the wrong way.
6. People are not likely **to do/to have done** any manual work at the highly automated factories of the future.

8.14 Replace the following complex sentences by simple sentences with the Complex Subject.

Model: The developers of the robot dog AIBO say that it understands the name you give it.
AIBO is said to understand the name you give it.

1. People consider that Japanese companies make the most advanced humanoid robots in the world.
2. Aerospace engineers expect that robots will successfully perform different tasks in space.
3. It is likely that the robot being developed by the researches of our laboratory will be used for eye surgery.
4. The journal reports that scientists imitated muscle structure and movement of an elephant's trunk in order to create a robotic arm capable of lifting heavy objects.
5. It appears that the scientists of this research institute are designing nanorobots for drug delivery.
6. It turned out that robots are extremely good at inserting integrated circuits onto printed circuit boards used in electronics.

8.15 Translate the part of the sentence in brackets into English.

1. The idea of creating a mechanical helper seems (появилась) together with the mankind.
2. Robots proved (очень эффективны) in automobile industry.
3. The bomb was reported (была обезврежена) by a robot.
4. Scientists are considered (проектируют) robots that will be able to learn like children.
5. The trains of the future are likely (будут управляться) by robots.
6. By 2050 a team of fully autonomous humanoid robots is expected (смогут обыграть) the human world champion team in soccer.

8.16 Translate into English

1. Известно, что слово «робот» впервые использовал чешский писатель Карел Чапек, образовав его от чешского слова 'robota', означающего тяжелый принудительный труд.
2. Оказалось, что роботы прекрасно выполняют задачи, требующие точных и быстрых

повторяющихся движений.

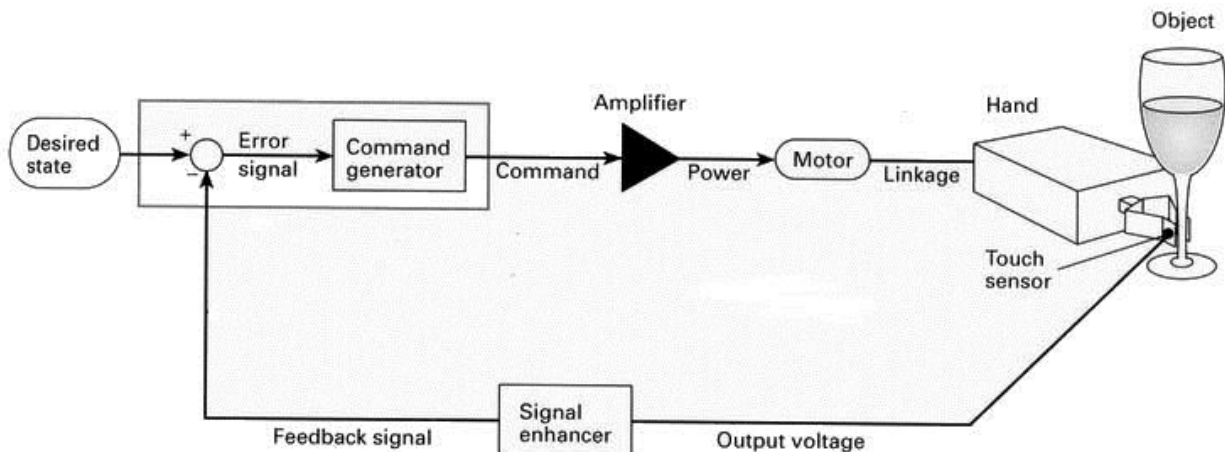
3. Сообщают, что в Массачусетском технологическом институте (Massachusetts Institute of Technology, MIT) разрабатывают роботов, способных учиться, как маленькие дети.
4. Проектируя вакуумные «ноги» этого робота, ученые, скорее всего, пытались имитировать способность ящерицы геккон (gecko) передвигаться по любым поверхностям, даже вертикальным и гладким.
5. Кажется, роботы нашли применение во всех сферах жизни: от упаковки конфет в коробки и сборки автомобильных двигателей до обезвреживания бомб и сложных хирургических операций.
6. В футболе современные роботы вряд ли смогут составить конкуренцию игрокам-людям.

8.17 Using the diagram to help you, fill in the gaps in the text with the words given. Use your dictionary if necessary.

Co-ordination of control in robots

The diagram shows a (1) _____ system for the force required to (2) _____ an object. The desired level of force is fed into the control module, which (3) _____ it with the actual amount of force as indicated by the feedback signal. The discrepancy enters the command generator, which determines the (4) _____ and extent of adjustment necessary. The resulting command passes into an amplifier which produces power (5) _____ to the level of the input signal. The power drives a motor (6) _____ to some linkage such as a set of gears. The mechanical linkage in the robotic hand ultimately (7) _____ the initial command signal into displacement at the fingertips.

proportional grasp attached closed-loop compares direction converts



8.18 Using the diagram and the explanation fill in the following table:

Element of the system	Function

8.19 Design a robot to do a dangerous or boring job for you. Draw a rough sketch and make notes about how it works.

Model:

What the robot is for *It is to pick up the socks in my bedroom*
 How it works *The sensor smells ..., the arm ...*

8.20 Discuss your ideas with a partner. Comment on your partner's idea.

Model:

What powers the robot? Where does it put the socks?

Unit 9

My Faculty

Vocabulary

1. enter the University (v)		поступить в университет
2. to take / to pass entrance exams	['entrəns]	сдавать / сдать вступительные экзамены
3. to be admitted to the faculty	[əd 'mitɪd]	быть принятым на факультет
4. full-time / part-time / extramural forms of education	[,ekstrə 'mj]ə rəl]	дневная / вечерняя / заочная формы обучения
5. to be set up (syn. to be founded, to be formed, to be organized)		быть основанным
6. to be situated (syn. to be located)		быть расположенным
7. teaching block		учебный корпус
8. dean		Декан
9. dean's office		деканат
10. to take office –		вступить в должность
11. academic staff (syn. teaching staff)	[stä:f]	профессорско-преподавательский состав
12. curriculum (pl. curricula)	[kə 'rɪkj]ləm]	учебный план
13. bias (syn. major, core) subjects	[baɪəs] ['meɪdʒə] [kɛ:]	профилирующие предметы
14. general (syn. minor) subjects	['maɪnə]	непрофилирующие предметы
15. elective courses	[ɪ 'lektɪv]	курсы по выбору
16. instructional laboratory	[ɪn 'strʃk(ə)l lə 'bɔːrət(ə)rɪ]	учебная лаборатория
17. to equip	[ɪ 'kwɪp]	оборудовать
18. to participate (syn to take part)	[pɑ: 'tɪsɪ,peɪt]	принимать участие
19. research	[rɪ 'sɪtʃ, 'ri:sɪ:tʃ]	исследование
20. career-oriented / research-oriented student	[kə 'rɪə 'é:riəntɪd]	студент, ориентированный на практическую / исследовательскую деятельность
21. to offer a multi-level education scheme	[ski:m]	предлагать многоуровневую систему образования
22. to award a degree	[ə 'wɛ:d]	присвоить степень
23. Bachelor's / Master of Science degree / Diploma in Engineering	['bætʃələ] [di 'plə mə]	степень бакалавра / магистра / диплом инженера
24. to take a postgraduate course	[pə st 'grædʒ ət]	учиться в аспирантуре
25. to have practical training		проходить практику
26. to graduate from the University	['grædʒu,eɪt]	окончить университет
27. graduate	['grædʒuət]	выпускник

9.1 Fill in the gaps with suitable necessary information about your faculty. For reference visit <http://www.nstu.ru>.

The students of our group _____ the University last year. There are _____ faculties at NSTU. I was admitted to _____. Our faculty was set up in _____. The dean's office is situated in teaching block _____. The dean of our faculty is _____. He took office in _____. The _____ includes _____ professors and teachers.

Minor subjects are studied in the first and second year. Students begin to study _____ in the third year. They can also choose _____ courses.

The faculty offers a _____ education scheme. It takes students four years to get a _____ degree. Research-oriented students can continue their studies, _____ in scientific research and be awarded a _____ degree. Graduates can take a _____ course.

Students have practical training in _____. After graduating from the University I am going to work in _____.

9.2 What are synonyms of the following words?

1. to be founded
2. to be situated
3. academic staff
4. general subjects
5. bias subjects
6. to participate

9.3 Match the items and their opposites

- | | |
|------------------------------------|---------------------------------|
| 1. to graduate from the University | a) research-oriented |
| 2. to fail the exams | b) to enter the university |
| 3. minor | c) multi-level education scheme |
| 4. career-oriented | d) major |
| 5. one-level education scheme | e) to pass exams |

9.4 Make up all possible word combinations. Make sentences with the combinations.

- | | |
|------------------|-----------------------|
| 1. academic | a) block |
| 2. to award | b) a course |
| 3. dean's | c) a degree |
| 4. to enter | d) an exam |
| 5. to have | e) laboratory |
| 6. instructional | f) office |
| 7. major | g) practical training |
| 8. to pass | h) staff |
| 9. to take | i) subject |
| 10. teaching | j) a university |

9.5 Read and translate the names of the faculties. Which of them do you study at?

Aircraft

[ˈeə,kɾä:ft]

Applied Mathematics and Information Science

[ə,plaid məθəˈmætiks ənd ˌɪnfəˈmeɪʃn ˈsaɪəns]

Automation and Computer Engineering

[ˌé:təˈmeɪʃn ənd kəmˌpjʊ:tə ˌendʒɪˈnærɪŋ]

Mechanics and Technology

[mɪˈkænɪks ənd tekˈnɒlədʒi]

Mechatronics and Automation

[ˌmekəˈtrɒnɪks ənd ˌé:təˈmeɪʃn]

Physical Engineering

[ˌfɪzɪkl ˌendʒɪˈnærɪŋ]

Business Administration

[ˈbɪznəs əd,mɪnɪ'streɪʃn]

Humanities

[hju:'mænətɪz]

Power Engineering

[.pa|ə ,endʒɪ'nɪərɪŋ]

Radio Engineering, Electronics and Physics

[,reɪdɪə| ,endʒɪ'nɪərɪŋ ,elek'trɒnɪks ənd 'fɪzɪks]

9.6 Answer the following questions.

1. How many faculties are there at NSTU?
2. Which faculty were you admitted to?
3. What forms of education does your faculty offer?
4. When was your faculty set up?
5. Where is your dean's office situated?
6. Who is your dean?
7. When did he take office?
8. What general subjects of the curriculum are studied by the first-year students?
9. When do students begin to study major subjects?
10. Are there elective courses at your faculty?
11. What are instructional laboratories equipped with?
12. What education scheme does your faculty offer?
13. Are you a research- or a career-oriented student?
14. How long does it take students to get a Bachelor's degree?
15. When is a Master's degree awarded?
16. Do students of your faculty participate in scientific research?
17. Where can you take a postgraduate course?
18. Where do students of your faculty have practical training?
19. Where do the graduates of your faculty work?
20. Where are you going to work after graduating from the University?

9.7 Translate into English. Fill in the gaps in Sentence 7 with information about your faculty and speciality.

1. Факультет готовит специалистов в широком спектре областей, так что каждый студент может легко выбрать область специализации.
2. Студенты учатся профессионально использовать и обслуживать современное оборудование, чтобы эффективно применять его в своей учебной, исследовательской и практической деятельности.
3. Студентам предоставляется возможность не только получить самые современные знания в выбранной области, но и выполнять исследования и участвовать в инженерных разработках.
4. В соответствии с многоуровневой системой образования, введенной на факультете, студентам, успешно окончившим курс обучения, присуждается степень бакалавра, магистра или диплом инженера.
5. Квалификация, полученная на факультете, позволит выпускникам найти хорошую работу в выбранной сфере.
6. Выпускники, имеющие степень магистра или диплом инженера и ориентированные на научную деятельность, могут поступить в аспирантуру и получить ученую степень кандидата наук.
7. Студенты, специализирующиеся в _____, обучаются _____, и после окончания университета смогут работать в сфере _____.

9.8 Match the words and their definitions.

1. day release

a) to make a judgment after considering carefully

- | | |
|----------------------|---|
| 2. to drop out | b) using combinations of the numbers 0 and 1 |
| 3. tough | c) a system by which workers spend one day a week at a college to study a subject related to their work |
| 4. mock | d) to leave before finishing what was intended to do |
| 5. binary | e) to be interested in sth and enjoy it |
| 6. to be keen on sth | f) not real but intended to look or seem real |
| 7. to assess | g) expecting people to obey rules completely |
| 8. strict | h) difficult |

9.9 You are going to hear an interview with Alan, a Scottish student of electronics at a college of higher education. Here are some of Alan's answers. What were the questions?

1. _____?
Nineteen.
2. _____?
It's a National Certificate in Information Technology.
3. _____?
Full-time.
4. _____?
A year. It finishes at the end of June.
5. _____?
Twelve.
6. _____?
Electrical Principles, Digital and Analogue Electronics. These are first thing in the morning. Then we've got Communications.

Listen to the interview and check. Answer the same questions about yourself.

9.10 Here is Alan's weekly timetable. Some of the information is missing. Listen to the interview and complete the timetable. What does Alan do during each of the classes?

	Monday	Tuesday	Wednesday	Thursday	Friday
8.45–10.15	Electrical Principles	Analogue Electronics	Analogue Electronics	Electrical Principles	(5) _____
10.45–12.15	(1) _____	(2) _____	Communications	Computing	(6) _____
1.15–2.45	Maths	(3) _____	(4) _____	Maths	Maths
3.00–4.30	Programmable Systems	(3) _____	(4) _____	Programmable Systems	Digital Electronics

9.11 Answer the following questions:

1. Why did so many students drop out of Alan's course?
2. What does he mean saying that Communications is not his scene? Why?
3. Why is it hard to use the indoor stadium?
4. Why is there a problem with Alan's motorbike?

9.12 Compare the course Alan studies with yours. Would you like to take such a course? Why? Why not?

Conditional Sentences.

Condition		Subordinate clause	Principal Clause	Translation
Real		If he works hard, If the equipment is delivered on time,	he will pass the exam well. we will start the experiment on the 1 st of October.	
Unreal	Present/ Future	If he worked hard, If the equipment were delivered on time,	he would pass the exam well. we would start the experiment on the 1 st of October.	бы
	Past	If he had worked hard, If the equipment had been delivered on time,	he would have passed his previous exam well. we would have started the experiment on the 1 st of October 2008.	

9.13 Which is right?

1. If you **study/will study** hard, you will pass your exam.
2. I will translate this text if I **get/will get** a dictionary.
3. If you **find/will find** the exact meaning of the word, you will understand the sentence.
4. The student will not make mistakes if he **observes/will observe** the rules.
5. I **finish/will finish** the work tomorrow if you help me.
6. If they **change/will change** some details, they will be able to improve the design.

9.14 Listen to Jenny and Mark and answer the following questions:

1. What are their goals?
2. What are they going to do to achieve them?
3. What are they going to begin with?

9.15 Think of what you want to achieve. Think how you could start. Write a similar chain of sentences (6–8) paying attention to the verb forms.

9.16 Match the beginnings and the endings of the sentences paying attention to the type of Conditional used.

- | | |
|--|--|
| 1. If I come home early, | a) they wouldn't have broken the new apparatus. |
| 2. If the books were available in the library, | b) they will be able to carry out their experiment. |
| 3. If we had been told about the lecture, | c) I would help you with pleasure. |
| 4. If I saw our lecturer, | d) we would have made our report in time. |
| 5. If theory is accompanied by practical training, | e) students could start this work right now. |
| 6. If we had had all the necessary books, | f) I would ask him to explain this difficult material again. |
| 7. If I were free, | g) students can apply their knowledge effectively. |
| 8. If the students had been more careful, | h) I'll be able to begin reading for my exam today. |
| 9. If they receive all the necessary equipment, | i) we would have come by all means. |

9.17 Rewrite each sentence with all possible types of condition.

1. If you (to be) busy, I (to leave) you alone.

2. If I (to live) in Moscow, I (to study) at MSU.
3. She (to try) to enter the university if she (to be good at) Maths.
4. If you (not to work) systematically, you (to fail) at the examination.
5. They all (to be surprised) if I (to make) such a mistake.
6. If no one (to come) to help, we (to have) to do the work ourselves.

9.18 Open the brackets using the appropriate form of the verb.

1. If he (to work) hard, he will achieve great progress.
2. I (to solve) the problem long ago if you had not disturbed me.
3. If she (not to be) so absent-minded, she would be a much better student.
4. If I (not to attend) the lecture, I would not have understood this difficult rule.
5. If he reads fifty page every day, his vocabulary (to increase) greatly.
6. I (not to do) it if you did not ask me.

9.19 Would you like to change something at your faculty? Imagine that you take part in the elections of the Dean. Write a speech to convince people to elect you the Dean of your faculty. Begin it like

If I were the Dean of the Faculty, I would

9.20 Write Conditional sentences.

Model: I came home early and was able to finish my report on time. If _____

If I hadn't come home early, I wouldn't have been able to finish my report on time.

1. You know the material well enough, but you are very absent-minded, and that's why you always make many mistakes. If _____
2. He always gets top marks in mathematics because it is his favourite subject and he works a lot at it. If _____
3. I did not translate the article yesterday because I had no dictionary. If _____
4. The girl did not study well last year and received bad marks. If _____
5. He speaks English badly: he has no practice. If _____
6. The students worked hard and did well in their examinations. If _____

9.21 Translate into English:

1. Ты успешно сдашь экзамены в конце семестра, если будешь посещать лекции, готовиться к практическим занятиям и вовремя выполнять лабораторные работы.
2. Если бы лаборатории не были оснащены современным оборудованием, студенты не смогли бы проводить исследования.
3. Если студент будет учиться четыре года, он получит степень бакалавра.
4. Тебе могли бы присвоить степень магистра, если бы ты учился по другой специальности.
5. Если бы он не был ориентирован на исследовательскую деятельность, он не поступил бы в аспирантуру, а начал бы работать инженером на заводе.
6. Тебе не пришлось бы уходить из университета, если бы ты сосредоточился на учебе и вовремя сдал экзамены.

9.22 Now you are a student of NSTU. But what if you hadn't entered the University and the faculty you study at? Write what you would have done if you hadn't entered the faculty you study at (about 50 words).

9.23 Make a presentation of your faculty for this year school-leavers who are going to enter NSTU, their parents and school career advisors. Your presentation should include information about the following:

1. When the faculty was founded.
2. The number of students and academic staff. Some information about the Dean of the faculty.
3. The departments and specialities.
4. The admission requirements.
5. The subjects studied.
6. The degrees awarded.
7. Research and development programs the Faculty participates in.
8. Career opportunities for the graduates.

Appendix

Realms of Engineering

Traditionally, engineering activities have been grouped into certain areas of specialization. These originated as civil and military engineering, catering to man's early needs. Scientific discoveries and their development gave birth to a variety of fields of application such as mechanical, chemical, and electrical engineering. Today the rapid rise of technology is bringing the adequacy of even these widely accepted designations into question in describing specialist areas within engineering. Several of the more commonly accepted categories are described below.

Aerospace Engineering combines two fields, aeronautical and astronautical engineering. The former is concerned with the aerodynamics, structure and propulsion of vehicles designed for flight in the Earth's atmosphere. The latter relates to flight above the Earth's atmosphere and involves the design of rockets and space vehicles incorporating sophisticated propulsion, guidance, and life support systems.

The days when one man drew his design in chalk on the floor and then proceeded to build it are long past. Today large teams of engineers are needed to cope with the complexity of modern flight vehicles. The design of an aircraft involves a multitude of specialty areas such as stress analysis, control surface theory, aircraft stability, vibration, production techniques and flight testing.

Agricultural Engineering is one of the earliest forms of engineering practiced by man. It uses agricultural machinery, irrigation, and surveying and deals with the many associated problems of crop raising and animal husbandry. Not only are the fundamental engineering subjects such as hydraulics, metallurgy, and structures of importance, but soil conservation, biology, and zoology are also necessary components. It is here that machines interface with the animal and plant kingdoms. Challenging problems occur in areas such as land reclamation and efficient utilization, and improved methods of food production and harvesting.

Chemical Engineering encompasses the broad field of raw material and food processing and the operation of associated facilities. It is mainly involved with the manufacture and properties of materials such as fuels, plastics, rubber, explosives, paints, and cleaners. The chemical engineer is well grounded in both basic and engineering chemistry and apart the production of special materials, may be involved in such areas as combustion, recycling of waste products, and air and water pollution.

Civil Engineering is one of the oldest branches of the engineering profession. It covers a wide field, and many subsidiary branches have grown from it. The civil engineer is mainly employed in the creation of structures such as buildings, bridges, dams, highways, harbors, and tunnels. He is usually knowledgeable in hydraulics, structures, building materials, surveying, and soil mechanics. One important area comprises water supply, drainage, and sewage disposal. More than any other branch of engineering, the results of the civil engineer's efforts are the most visible in a permanent form.

Electrical Engineering, in general, deals with the creation, storage, transmission, and utilization of electrical energy and information. Most of its activities may be identified with power or communications. Electrical engineering is of recent origin, dating back only to the eighteenth century, when electrical phenomena were first subjected to scientific scrutiny. After this, useful

applications were quickly identified. Today, the impact of a power failure graphically illustrates our dependence on electrical power. The field encompasses information systems, computer technology, energy conversion, automatic control, instrumentation, and many other specialties.

Industrial Engineering is mainly concerned with the manufacture of useful commodities from raw materials. Since most of the other engineering fields have a bearing on this activity, the industrial engineer requires a particularly broad view. The management of men, materials, machines, and money are all within his endeavor in achieving effective production. Plant layout, automation, work methods, and quality control are included, and, more than in most of the other traditional branches of engineering, the industrial engineer needs to have some grounding in psychology and dealing with personnel.

Mechanical Engineering develops machines for the generation and utilization of power. Mechanical engineers design turbines, engines, pumps, and their ancillary mechanisms and structures. Heating, ventilating, air-conditioning, transportation, manufacturing, and vibration are some areas falling within their domain. The art of mechanical engineering dates back to the labor-saving devices and military machines of ancient times, but it received its greatest boost in the eighteenth century with the invention of the steam engine and industrial machinery, which marked the onset of the industrial revolution.

Mining and Metallurgical Engineering, the production and use of metals, has two distinct branches. One deals with the location, extraction, and treatment of ores to obtain base metals, and the other with the transformation of these metals into useful forms and with the study of techniques for improving their performance in specific applications. The study of ceramics is often included in this field. Special topics range all the way from materials that may be used with living tissue to the development of composites for high-temperature applications such as in the heat shields used for satellite reentry.

In addition to the fields identified above, other categories of engineering are often encountered. These include architectural, ceramic, geological, naval and marine, nuclear, petroleum, sanitary, and textile engineering.

Module III Job-hunting

Unit 10 Finding a Job

Discuss the following:

1. Have you ever applied for a job?
2. What sort of job would you like to have in future?

Vocabulary.

1. advertisement (n)	[əd'vɪ:tɪsmənt]	реклама
2. advisory service (n)	[əd'vaɪzəri]	консультативная служба
3. applicant (n)	[ˈæplɪkənt]	тот, кто подает заявление, претендент
application (n)	[ˌæplɪ'keɪʃn]	заявление, заявка; применение
4. appointment (n)		назначение; должность; встреча
5. cancel (v)	[kænsəl]	отменять
6. counselor (n)	[ˈkɑʊns(ə)lə]	советник
7. deal with (v)		иметь дело с чем-то
8. employment (n)	[ɪm'plɔɪmənt]	работа по найму, занятость; наем работников
employee (n)	[ɪm'plɔɪi:, ˌemplɔɪ'i:]	рабочий, служащий
employer (n)	[ɪm'plɔɪə]	работодатель
9. fee (n)		гонорар, жалование
10. form (n)		бланк
application form (n)		бланк заявления
11. pay (v)		выплата, зарплата; платить
12. impression (n)		впечатление
13. insurance (n)	[ɪn'ʃʊərəns]	страховка
14. job (n)		работа
15. keep (v)		держать, хранить
16. non-profit (adj)		некоммерческий
17. notify (v)	[ˈnəʊtɪfaɪ]	извещать
18. obtain (v)		получать, добиваться
19. require (v)	[rɪ'kwaɪə]	требовать, нуждаться в чем-то
20. salary (n)	[ˈsæləri]	жалование, оклад
21. trade union (n)	[ˈtruːnjən]	профсоюз

10.1 Read the words and guess their meaning.

career [kə'riə]	private [ˈpraɪvət]
agency [ˈeɪdʒ(ə)nsɪ]	classified [ˈklæsɪfaɪd]
interview [ˈɪntəvju:]	company [ˈkʌmpəni]

10.2 Match the words with their definitions.

- | | |
|-------------|---|
| 1. employer | a) a written request for a job or a place at a college, university etc. |
| 2. employee | b) someone who applies for something, such as a job |

- | | |
|----------------|--|
| 3. salary | c) someone who is paid regularly to work for a person or an organization |
| 4. applicant | d) a fixed amount of money you earn from your job |
| 5. application | e) a person, company or organization that pays someone to work for them |

10.3 Match the words to make phrases.

- | | |
|------------------|-------------------|
| 1. interview | a) advertisement |
| 2. employment | b) techniques |
| 3. high-salaried | c) on time |
| 4. classified | d) a fee |
| 5. make | e) agency |
| 6. 10 minutes | f) employer |
| 7. possible | g) form |
| 8. to be | h) an appointment |
| 9. receive | i) late |
| 10. application | j) job |
| 11. possible | k) services |
| 12. cancel | |

10.4 Fill in the blanks with suitable words.

appointments applicant job-hunting jobs employer

1. Some employment agencies receive fees for finding _____.
2. You may use an employment agency when you are _____.
3. _____ are necessary in some agencies.
4. _____ should be on time for the appointment.
5. Your being late for the interview makes a negative impression on the _____.

10.5 Discuss with a partner the following:

- 1 Where do people get information about job vacancies?
- 2 How do employers choose employees?

10.6 Read the text and choose the appropriate title.

- a) Employment agencies
- b) Finding a job
- c) A job interview
- d) Applicants and employers

In Britain there is a special service for school leavers, the Careers Advisory Service, which helps young people who are looking for their first job. Careers Officers give practical advice on interview techniques, application forms, letters, pay, National Insurance and Trade Unions.

One business organization that you may use when you are job-hunting is an employment agency. There are the state employment services and non-profit agencies that do not receive fees for finding jobs for people. There exist also some private employment agencies which receive a fee. Some employment agencies see applicants without an appointment. These include the state employment services and non-profit agencies. Counsellors there may spend a few minutes with each applicant.

But an agency that deals with technical and higher-salaried jobs, spends much more time with each applicant. Appointments are necessary in this type of agency, where a counsellor may be able to see only a few applicants a day.

An interview for any kind of job, whether the interview is obtained through a friend, classified advertisement, or agency, generally requires an appointment. It is important to be on time for your appointment. If you have made an appointment and cannot keep it, or if you will be more than ten minutes late, you should always call the interviewer. If you do not cancel the appointment or notify the interviewer that you will be late, you will create a negative impression on your possible employer.

10.7 Choose the correct ending for the sentences below.

1. In Britain the Careers Advisory Service _____
 - a) helps the government choose the best employees.
 - b) writes classified advertisements for employers.
 - c) helps young people get a job.
 - d) makes appointments for applicants.
2. State employment services _____
 - a) deal with higher-salaried jobs.
 - b) receive a fee for finding jobs.
 - c) may be able to see only a few applicants a day.
 - d) generally spend a few minutes with each applicant.
3. If you cannot keep an appointment you should _____
 - a) notify the interviewer
 - b) create a negative impression on the interviewer
 - c) demand to cancel the interview.
 - d) spend much more time with your possible employer.
4. Agencies dealing with well-paid jobs, _____
 - a) pay much attention to their applicants.
 - b) See applicants without an appointment.
 - c) Do not receive fees for finding jobs.
 - d) Is a special service for school leavers.

10.8 Answer the questions.

1. What service helps school-leavers find a job?
2. What business organizations help people in job hunting?
3. Does one pay to get help from such organizations?
4. Should applicants make an appointment?
5. What agencies spend more time with their applicants?
6. If an applicant is late for the interview what should they do?
7. Why is it important to notify the interviewer that the applicant cannot come on time?

10.9 Translate into English.

1. Если вы ищете работу, вы можете воспользоваться услугами бюро по трудоустройству.
2. Существует два типа бюро по трудоустройству: государственные, не получающие плату за свои услуги, и частные, чьи услуги оплачиваются.
3. Не ждите, что вам уделят много внимания в государственном бюро по трудоустройству.
4. Вы можете узнать о вакансии от друзей, из объявления в газете, помещенного в специальной рубрике, или в бюро по трудоустройству.
5. Чтобы произвести благоприятное впечатление на потенциального работодателя, вы должны прийти на собеседование вовремя.
6. Если вы знаете, что опоздаете на собеседование, следует предупредить того, кто будет его проводить.

10.10 Discuss with a partner the following:

Your friend wants to find a part-time job. What can you advise him / her to do?

10.11 Use the questions of 10.9 as a plan for a short report on employment agencies in Britain.**10.12 How do people find jobs in Russia or any other country you know well (about 50 words)?**

Unit 11

Making a Choice

Vocabulary.

1. ability (n)	[əˈbɪləti]	способность, умение
2. accelerator (n)	[əkˈseləreɪtə]	ускоритель
3. annual (adj)	[ˈænjəl]	ежегодный
4. attraction (n)		притяжение, привлекательность
5. available (adj)	[əˈveɪləbl]	наличный, доступный
6. choice (n)	[tʃɔɪs]	выбор
7. citizen (n)	[ˈsɪtɪzn]	горожанин, гражданин
8. compare (v)	[kəmpeə]	сравнивать
9. desirable (adj)	[dɪˈzaɪərəbl]	желательный
10. duty (n)		обязанность
11. earn (v)	[ɜːn]	зарабатывать
earnings (n)		заработок
12. effort (n)	[ˈefət]	усилие
13. emphasis (n)	[ˈemfəsɪs]	подчеркивание, выделение
14. encourage (v)	[ɪnˈkʌrɪdʒ]	одобрять, поощрять
15. film (n)		фильм; пленка
16. team (n)		команда
17. guide (n)	[gaɪd]	экскурсовод; руководство; путеводитель
18. manual (adj)	[ˈmænjəl]	ручной; физический (о труде)
19. measure (v)	[ˈmeʒə]	измерять
measurement (n)		измерение, замер
20. novel (adj)	[nɒvl]	новый, новейшей конструкции
21. opportunity (n)	[ˌɒpəˈtjuːnəti]	удобный случай, благоприятная возможность
22. property (n)	[ˈprɒpəti]	собственность; свойство
23. range (n)		серия, сфера
24. recruit (v)	[rɪkˈruːt]	вербовать
25. related (adj)		связанный, родственный
26. superconducting (adj)		сверхпроводящий
27. waiter (n)		официант

11.1 Read the words and guess their meaning.

aerospace [ˈeəreɪspeɪs]	avenue [ˈævənjuː]
position [pəˈzɪʃn]	aviation [ˌeɪvɪˈeɪʃn]
résumé [ˈrezjuːmeɪ]	division [dɪˈvɪʒn]
metrology [meˈtrɒlədʒi]	administration [ədˌmɪnɪˈstreɪʃn]
colleague [ˈkɒliːg]	to create [kriˈeɪt]
group [gruːp]	business [ˈbɪznəs]

11.2 What sort of engineering job would you like to do in the future? What are the attractions of the job? Compare your answers with other students in your group.

11.3 What are the most important aspects of a job? Rank the following, 1-17 and compare your list with your partner's. Begin with the most important. Explain why.

- ✓ A good salary
- ✓ Nice colleagues
- ✓ An indoor job
- ✓ Working with a group of people
- ✓ To solve challenging problems
- ✓ To be able to travel
- ✓ To create something
- ✓ Helping other people
- ✓ To do business
- ✓ Security
- ✓ A lot of responsibility
- ✓ Teaching/guiding other people
- ✓ Working with young people
- ✓ Working with old people
- ✓ A lot of freedom
- ✓ Manual work
- ✓ Working on your own

11.4 If you were living in Britain, which of these jobs would you apply for? Write why.

Job Vacancies

Au-pair wanted

Au-pair¹/domestic help, live in, to look after two small children, some housework, 35 hrs per week², room, food and tube pass³ incl.⁴, \$20 per week, friendly atmosphere. Write or phone: Mrs Griebing 43 Saunders St., London NW6 7PB.Tel:0171 638 2897

Part-time Work

Newly opened restaurant in Chelsea⁵ requires waiters/waitresses. Any nationality welcome. Good earnings. Part-time work available. For more info⁶ write or phone: Maurizio's, 10 Sloane Sq., London. Tel: 0171 786 4325

FAA needs aerospace engineers

The FAA's Aircraft Engineering Division⁷ is seeking Aerospace Engineers with experience in the technical specialty area of Avionics Systems for positions in Washington DC. Demonstrated ability to work effectively in team efforts to solve technical problems is required. We are currently recruiting for several positions from the beginning engineer to the experienced engineer, salary range \$31,397 to \$101,742. Candidates for these positions must have engineering degrees. To learn more about these FAA job opportunities visit the FAA website at <http://jobs.faa.gov>. If you are a U.S. Citizen, send your resume to:

Federal Aviation Administration,
Aircraft Engineering Division
800 Independence Avenue, SW
Washington, DC 20591
Attn: AHP -500, Paula Chandler

Nanometrics, Milpitas, CA seeking

Applications scientists. MS/BS or equiv. & rel. work exp.⁸ Duties include: Performing precise measurement of very thin film properties of materials through automated computer controlled high-tech metrology equipment. Must be willing to travel & relocate as reqd. Fwd resume: 1550 Buckeye Drive, Milpitas, CA 95035-7418.

Accelerator engineer

Jefferson lab, located in Newport News, is a world-class scientific laboratory which provides a unique capability for nuclear physics research. Currently we have excellent opportunities for two Accelerator Engineers

The successful candidates will work as team members, developing innovative solutions towards improving the performance of superconducting accelerators. Emphasis of the work will be in the RF⁷ and electronic area (design and development of RF power schemes, testing,), but interest and participation in other aspects of the accelerator technology will be encouraged. The minimum qualifications for this position are a BS in mechanical Engineering, Materials Science or related field with a minimum of three years experience developing creative design solutions to novel problems. Experience with novel fabrication techniques and materials, unusual mechanical properties, rf hardware is highly desirable.

The starting annual salary range is \$53,000-\$83,900. Please send resume and salary history to: Jefferson lab, ATTN: employment Manager, 12000 Jefferson avenue, Newport News, VA 23606.

- ¹au-pair [ə | 'peə] – девушка, которая изучает язык, проживая в чужой семье и ухаживая за детьми и/или помогая по дому в другой стране
- ²hrs per week – часов в неделю
- ³incl. – сокр. от included – включен в состав
- ⁴tube pass – проездной билет на метро
- ⁵Chelsea – фешенебельный район в Лондоне
- ⁶info – сокр. от information
- ⁷division – отдел
- ⁸equiv. & rel. work exp. – опыт подобной работы
- ⁹RF – сокр. от radio frequency – радиочастота

Unit 12

Working Life

Vocabulary.

1. ambitious (adj)	[əm'biʃəs]	честолюбивый
2. benefit (n)	['benɪfɪt]	преимущество, привилегия, пособие
3. challenging (adj)	[ˈtʃælɪndʒɪŋ]	стимулирующий, побуждающий, требующий напряжения сил
4. checkout (n)	[ˈtʃekɑʊt]	контроль
5. claim (v)		требование, претензия
6. customer (n)	['kʌstəmə]	клиент, потребитель
7. day off (n)		выходной день, отгул
8. dole (n)	[dəʊl]	пособие
9. enquiry (n)	[ɪn'kwɪəri]	запрос, исследование
10. income (n)	['ɪnkʌm]	доход
11. law (n)	[lé:]	закон
12. overtime (n)	[ˈəʊvətaɪm]	сверхурочное время
13. perk (n)	[pɜːk]	дополнительная оплата, преимущество, льгота
14. private (adj)	['praɪvət]	частный
15. promotion (n)	[prə'məʃn]	продвижение по службе
16. reward (v)	[rɪ'weɪd]	награда, премия

	rewarding (adj)	[rɪ'wé:dɪŋ]	вознаграждающий, приносящий удовлетворение
17.	staff (n)	[stäf]	штат сотрудников
18.	steady (adj)	[ˈstedi]	постоянный
19.	support (n, v)	[sə'pé:t]	поддержка; поддерживать

12.1 Read the words and guess their meaning.

bonus [ˈbəʊnəs]	concentration [ˌkɒnsn'treɪʃn]
qualification [ˌkwɒlɪfɪ'keɪʃn]	glamorous [ˈglæməərəs]
junior [ˈdʒu:nɪə]	modelling [ˈmɒdlɪŋ]
politics [ˈpɒlɪtiks]	pension [penʃn]

12.2. Match each verb with a group of nouns.

- | | |
|--------------|---|
| 1. arrange | a) a problem, an enquiry, a customer |
| 2. make | b) a letter, a fax, an email, a copy |
| 3. do | c) a meeting, a date, accommodation |
| 4. send | d) paperwork, the accounts, the filing |
| 5. deal with | e) a phone call, some photocopiers, the arrangements, a complaint |

12.3 Discuss the following:

1. At what age can you get a part-time job in your country?
2. Have your parents ever been unemployed?

12.4 Read the text and fill in the blanks with a-n.

- | | |
|-------------------------|----------------------------|
| a) Unemployment Benefit | h) on Income Support |
| b) laws for equal pay | i) is paid less per hour |
| c) claim this money | j) full-time worker |
| d) full-time jobs | k) is offered to |
| e) on the dole | l) without qualifications |
| f) take part-time jobs | m) unskilled people |
| g) must earn enough | n) enough money to live on |

Finding a Job

A In 1994, for the first time in British history, more women than men had jobs. Over 200,000 part-time jobs were created in 1993 and most of them went to women. At the same time, 100,000 (1) _____ disappeared in Britain and it was mostly men who lost their jobs. Many women with children (2) _____. Some of these women may want to work full-time, but cannot do so because it is difficult for them to find someone to look after their children. In Britain there are very few nurseries for young children. Partners often have to look after the children while women work part-time in the early morning or in the evening. It is more difficult for single mothers to take on even part-time work because they (3) _____ to pay someone to look after their children. There are more part-time jobs in Britain than in any European country. Ninety per cent of part-time jobs are done by women. A part-time worker (4) _____ than a (5) _____.

B There are now fewer jobs for (6) _____ in Britain. In 1977, 88 per cent men without qualifications had jobs; in 1991, only 67 percent of men (7) _____ had jobs. If there is any unskilled work, it (8) _____ women because, despite (9) _____, women are still paid less than men. Even if you have qualifications it is still difficult to find permanent, full-time work.

C People in Britain who are unemployed sign on every two weeks and claim their Unemployment Benefit. When people say that they are (10) “_____”, it means that they are receiving (11) _____. Some people cannot (12) _____, even though they do not go out to work: single parents, for example. Instead of receiving Unemployment Benefit, they receive Income Support. People (13) _____ receive less money than those on Unemployment Benefit. Between 1991 and 1994, the number of people receiving Income Support rose from 4.1 million to 5.6 million, or 10 per cent of all Britons. Many experts know that people on Unemployment Benefit or Income support do not have (14) _____.

12.5 Read the text again and choose headings for the parts A-C.

1. No qualifications, no job
2. Without work and poor
3. Part-time work

12.6 Is the idea positive or negative?

1. My job is so boring. It's the same thing day after day.
2. It's so repetitive. I just sit there all day filling in forms.
3. Knowing that I might have saved somebody's life is very rewarding.
4. I find it very challenging. It requires a lot of concentration and determination.
5. This job is so stressful. It's making me ill.
6. I wish I could do something glamorous like acting or modeling.
7. It's a very friendly place to work. All the staff were really helpful when I joined the firm a couple of months ago.

12.7 Here are some things you might look for in a job. Match the beginnings and endings. Which of the things are the most important for you?

- | | |
|--------------------------------------|-----------------------------------|
| 1. I need to be doing | a) part of a team. |
| 2. I like to know that I'm helping | b) behind a desk all day. |
| 3. It's important to feel that I'm | c) the same thing day in day out. |
| 4. I need to be given | d) something useful. |
| 5. I don't want to find myself doing | e) responsibility. |
| 6. I don't want to be stuck | f) people |

12.8 Read the sentences and then put the phrases into the correct list of job aspects below.

- a) They give us a bonus at Christmas.
- b) I work very long hours.
- c) It isn't very well-paid.
- d) I get a company car.
- e) They've got a good pension scheme.
- f) I get six weeks' paid holiday.
- g) I'm on a pretty good salary.
- h) I'm hoping to get promoted next year.
- i) I can do overtime if I like.
- j) You can work your way up quite easily.
- k) They run a system of flexi-time.
- l) I get a regular pay rise.
- m) I get private health insurance.
- n) I'm taking a few days off next week.
- o) I'm ambitious. I want to move up the career ladder.

Money	Hours	Benefits/perks	Promotion	Holiday
1. _____	1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____	
4. _____	4. _____			

12.9 Job or career? Complete with *job* or *career*:

1. Jack started as the office junior. Now he's MD. He's had a very successful _____.
2. I work in advertising. The pay's pretty good but there isn't much _____ security.
3. I'd go mad if I had to do a boring _____ like working on a supermarket checkout.
4. Ronaldo was the best footballer in the world until a bad knee injury ended his _____.
5. Don't you think you should stop travelling and get yourself a steady _____?
6. Janet's planning a _____ in politics when she leaves university.

12.10 Translate into English:

1. Многие матери работают неполный рабочий день, потому что им не с кем оставить детей.
2. Неквалифицированную работу скорее всего предложат женщине, потому что такая работа хуже оплачивается. Считается, что женщинам платят меньше, чем мужчинам, несмотря на закон о равной оплате труда.
3. Безработные в Британии каждые две недели регистрируются на бирже труда, чтобы получать пособие по безработице.
4. Многие предпочитают иметь постоянную работу с полной занятостью, однако некоторые считают это скучным.
5. Он сделал успешную карьеру, пройдя путь от младшего клерка до управляющего.
6. Если бы она не работала сверхурочно, ей не на что было бы жить.

12.11 Do a survey in the class "Benefits and doles in Russia". You may use the following questions as a plan:

- a) How many people have mothers who work?
- b) Do they work full-time or part-time?
- c) Who receives unemployment benefits and income support in Russia?
- d) Compare the situation with what you know Britain.

Unit 13 Employment

Vocabulary.

- | | | |
|----------------------------|------------|--------------------------|
| 1. accept (v) | [ək'sept] | принять |
| 2. accounts department (n) | [ə'ka nts] | бухгалтерия |
| 3. challenge (n) | | сложная задача |
| 4. be in charge of (v) | | возглавлять; отвечать за |
| 5. day off sick (n) | | больничный лист на день |
| 6. dozen (n) | [dʒzn] | дюжина |

7. fill in (v)		заполнить
8. flexible (adj)		гибкий
9. be keen on doing / be keen to do smth (v)		интересоваться, увлекаться
10. lazy (adj)		ленивый
11. look through (v)		просматривать
12. offer (v)		предлагать
13. previous (adj)	[ˈpri:vɪəs]	предыдущий
14. prospect (n)	[ˈprɒspɛkt]	перспектива
15. promote (v)		продвигать по службе
16. referee (n)	[ˌrefəˈri:]	арбитр; лицо, дающее рекомендацию
reference (n)	[ˈref(ə)rəns]	ссылка, рекомендация, отзыв
17. rely on (v)	[riˈlaɪ]	полагаться на
18. reply (n)	[riˈplaɪ]	ответ
19. resign (v)	[riˈzaɪn]	отказаться от должности
20. retire (v)	[riˈtaɪə]	выйти на пенсию
21. be sacked (v)		быть уволенным
22. satisfactory (adj)	[ˌsætɪsˈfæktəri]	удовлетворительный
23. self-confidence (n)	[ˈkɒnfɪdəns]	уверенность в себе
24. stall (n)	[sté:l]	киоск, прилавок
25. take over (v)		принять на себя руководство делом
26. tidy (n)	[ˈtaɪdi]	опрятный
27. be on top of one's work (v)		успешно справляться с работой
28. trainee (n)	[ˌtreɪˈni:]	стажер

13.1 Read the words, guess their meaning.

punctual [ˈpʌŋktʃəl]	situation [ˌsɪtʃuˈeɪʃn]
to adapt [əˈdæpt]	banking [ˈbæŋkɪŋ]
official [əˈfɪʃl]	junior [ˈdʒuːniə]

13.2 Use the words below to complete the text.

Looking for a Job

qualifications application experience interview section CV

I thought it would be quite easy to find a job when I left school, but it's been really difficult. I look through the job (1) _____ in the local paper every week, but everybody seems to want people with lots of (2) _____ and I didn't do very well at school. I've sent my (3) _____ to dozens of companies in the local area but nobody has got back to me. I must have filled in at least thirty (4) _____ forms and I've only had one reply. I went for an (5) _____ last week but it didn't go very well – they said they wanted someone with more (6) _____, but I've never had a job! Sometimes I wonder if I'll ever find anything.

13.3 Use the correct form of these verbs to complete the sentences.

offer go into send it off fill in find apply for

- I left university six months ago and I still haven't _____ a job. It's more difficult than I thought it would be.
- I've _____ a part-time job. I hope I get it – it's four afternoons a week.

3. I'm really sure what I want to do when I leave school. I might _____ banking like my Dad.
4. I've _____ an application and _____, so now I've just got to wait until I hear from them.
5. I can't believe it. They've _____ me that job in New York. They want me to start next month.

13.4 What do you think of these personal qualities? Mark them P (positive) or N (negative). Explain why.

1. She's very ambitious. I'm sure she'll be very successful one day.
2. He isn't very reliable. He takes a day off sick every two weeks.
3. She's a bit lazy. She doesn't do anything if she doesn't have to.
4. She's very flexible. She can adapt to most situations.
5. He hasn't got much self-confidence. He worries about what people think of him.
6. He's very punctual. He's never late for meetings.
7. She's always on top of her work. Her desk is always tidy.

13.5 Match the first parts of the sentences with the endings.

- | | |
|---|---------------------------|
| 1. I wish he were more independent. He tends to rely on | a) his initiative. |
| 2. I have to keep telling him what to do. He doesn't really ever think | b) much common sense. |
| 3. Whatever you ask him to do, he does it wrong. He seems to have | c) his mind. |
| 4. He's just so flexible. He'll adapt | d) for himself. |
| 5. You have to tell him what to do and when to do it. He never seems to use | e) to any situation. |
| 6. You can always depend on him for an honest opinion. He's not afraid to speak | f) other people too much. |

13.6 Read the text and choose the headings for the parts A-E. One heading is extra.

- a) Moving up
- b) Hard times
- c) Getting a job
- d) Happier times
- e) High salary
- f) Leaving the company

The Career Ladder

A

When Paul left school he **applied for** a job in the accounts department of a local engineering company. They gave him a job as **a trainee**. He didn't earn very much but they gave him a lot of training, and sent him on **training courses**.

B

Paul worked hard at the company and his **prospects** looked good. After his first year he got a pay rise, and after two years he was **promoted**. After six years he was **in charge of** the accounts department with five other **employees** under him.

C

By the time Paul was thirty, however, he decided he wanted a **fresh challenge**. He was keen to work abroad, so he **resigned** from the company and started looking for a new job with a bigger company. After a couple of months he managed to find a job with an international company, which **involved** a lot of foreign travel. He was very excited about the new job and at first he really enjoyed the traveling, but...

D

After about six months, Paul started to dislike the constant moving around, and after a year he hated it; he hated living in hotels, and never really made any friends in the new company. Unfortunately his work was not satisfactory either and finally he was **sacked** a year later. After that, Paul found things much more difficult. He was unemployed for over a year. He had to sell his car and move out of his new house. Things were looking bad and in the end he had to accept a part-time job on a fruit and vegetable stall in a market.

E

To his surprise, Paul loved the market. He made lots of friends and enjoyed working in the open air. After two years, he **took over** the stall. Two years later he opened a second stall, and after ten years he had fifteen stalls. Last year Paul **retired** at the age of 55, a very rich man.

13.7 In the text, find words in bold type which have a similar meaning to the following.

1. told to leave the company –
2. out of work –
3. left the company –
4. was given a better position in the company –
5. future possibilities in a job –
6. stopped working for ever –
7. workers in a company –
8. wrote an official request for –
9. responsible for/the boss of –
10. a very junior person in a company –
11. working only some of the day or some of the week –
12. took control of –
13. it needs a lot of skill, energy and determination to deal with –
14. include smth as a necessary part of an activity or situation –

13.8 Find the logical answer for each of the questions.

- | | |
|----------------------------------|--|
| 1. Why did they sack him? | a) Because he was nearly 65. |
| 2. Why did they promote him? | b) Because he was late for work every day. |
| 3. Why did he apply for the job? | c) Because he needed more training. |
| 4. Why did he retire? | d) Because he was out of work. |
| 5. Why did he resign? | e) Because he was the best person in the department. |
| 6. Why did he go on the course? | f) Because he didn't like his boss. |

13.9 Translate into English.

1. Кажется, всем нужны высококвалифицированные работники, так что у меня мало шансов получить работу, поскольку у меня нет опыта.
2. Если вы пройдете курсы повышения квалификации, вас назначат начальником бухгалтерии.
3. Хорошо работать не значит сразу же получить повышение.
4. Она была недостаточно гибкой, чтобы адаптироваться ко всем трудностям своей работы. Она решила, что подвергается слишком большому стрессу, и уволилась.
5. Я хочу чего-то нового, что потребует от меня приложения всех моих сил и способностей. Поэтому я решил подать заявление о приеме на работу, связанную с заграничными командировками.
6. Он начинал стажером, но через несколько лет сумел взять компанию под свой контроль и ушел на пенсию в 70 лет, будучи очень богатым и влиятельным человеком. Смог бы он этого добиться, если бы не был честолюбив и не работал усердно?

Unit 14

A Job Interview. CV. A Letter of Application

Vocabulary.

1. asset (n)	[ˈæsət]	имущество, ценное качество
2. average (adj)	[ˈæv(ə)rɪdʒ]	средний
3. the Cambridge First Certificate (n)	[səˈtɪfɪkət]	сертификат FCE
4. take care of smb, smth (v)		заботиться о
5. convenient (adj)	[kənˈviːniənt]	удобный
6. current (adj)	[ˈkʃrənt]	текущий, нынешний
7. curriculum vitae (CV)/resume (n)	[kəˈrɪkj ləm ˈviːtaɪ]	биография
8. driving licence (n)	[ˈlaɪsəns]	водительское удостоверение
9. enclose (v)		вкладывать (в письмо)
10. first aid (n)		первая помощь
11. fluent (adj)	[ˈfluːənt]	беглый (о речи)
12. fly (v)		летать
13. hard-working (adj)		трудолюбивый
14. hesitate (v)	[ˈhezɪteɪt]	сомневаться, колебаться
15. literate (adj)	[ˈlɪt(ə)rət]	грамотный
16. look forward to (adj)		с нетерпением ожидать
17. response (n)	[rɪsˈpɑːns]	ответ
18. responsible (adj)	[rɪsˈpɑːnsəbl]	ответственный
19. thorough (adj)	[ˈθʊrə]	тщательный, основательный
20. tour guide (adj)		гид

14.1 State the difference between the following:

1. an employer / an employee
2. an interviewer / an interviewee
3. an application form / a CV
4. experience / qualifications
5. a salary / a bonus
6. a company / a factory

14.2 Which is right?

1. Most of our **employees** / **employers** have been with the company since we started last year.
2. A good **interviewer** / **interviewee** knows how to ask good questions to find out about people.
3. I'm afraid we need someone for this job with much more **experience** / **qualifications**.
4. If we reach our sales targets, we will get a 20 percent **salary** / **bonus**.
5. I must fill in **the application form** / **CV** for that job at CoffeeCo. today.
6. Children used to have to work in terrible conditions, in **companies/factories** and mines.

14.3 Discuss with a partner the following:

1. What qualities make a good interviewer / engineer / scientist?
2. What information should you include in a CV?
3. What is a typical salary in Russia for an engineer? What about other countries you know well?

4. Would you rather have a high salary and no bonus, or an average salary and possible bonuses?
5. Have you ever been an interviewee? What questions were you asked?

14.4 Read the Letter of application and define each part of it. Compare it with A formal letter given below.

Letter of Application

Dear Ms Brown,

I am writing to apply for the position of Tour Guide with your company. I saw your advertisement in the *Buenos Aires Daily Planet* and I would like to be considered for the job.

I believe I am suitable for this post as I already have experience working with young people. I worked at a summer camp in the United States last summer. I was responsible for a group of six children, and my duties also included taking care of basic first aid. I found the job very rewarding and I would like to work with this age again. I feel that my experience would be an asset as a tour group leader.

In addition, I am hard-working and responsible. I passed my high school diploma with a distinction, and have recently passed the Cambridge First Certificate, so you can see that I have the language skills needed for this job. I speak Spanish fluently and have a good working knowledge of French. I have a clean driving licence and have always been interested in British culture.

I would like to work for your company as it would give me an opportunity to develop my English skills further.

I am enclosing a copy of my CV with this letter. I would be available for an interview at any time convenient to you. Please do not hesitate to contact me if you have any further questions.

I look forward to hearing from you.

Yours,

Cesar Villaraga

Cesar Villaraga

a Write your address here, NOT your name.	8, Avenue Gaston Berger 35043 Rennes Haute Bretagne France
b Write the name (if you know it) and the address of the person you're writing to.	Ms M Dorcey Box 398 County Mayo Ireland
c Write the date under your address.	16th November 1997
d Begin <i>Dear</i> + name, or <i>Dear Sir / Madam</i> , if you don't know it.	Dear Ms Dorcey,
e Don't use contractions in a formal letter.	I am writing to apply for the job as an _____ which you advertised in <i>In Britain</i> magazine on November 7th. I am twenty five years old, from La Baule in north west France, and I have a degree in psychology from the University of Nantes. I am unemployed at the moment so I would like to spend a year in England to improve my English. I can read and write English quite well, but I need to practise speaking and listening. I have some experience of working with children. I have worked as a baby-sitter and often have to look after my younger brothers and sisters too. I can drive and I can cook quite well. Could you please send me more details about the salary and conditions? For example, how many hours a day do I have to work? Would it be possible for me to go to English classes?
f Always write this here.	I look forward to hearing from you.
g Finish <i>Yours faithfully</i> , or <i>Yours sincerely</i> ,	Yours _____,
h Sign your name.	Corinne Ferrer
i Write your name in capital letters here.	CORINNE FERRER

1 Say why you're writing.

2 Talk about your qualifications and why you want the job.

3 Talk about your experience.

4 Ask some questions if you want to.

14.5 Before you write your own letter of application study the following:

Structure and useful phrases in a letter of application

Introduction	I am writing in response to the job which I saw advertised in the _____ I would like to be considered for the position of _____ I heard about this position through my careers officer at school. I am writing to apply for a place on your work training scheme. I believe that I have all the necessary skills and qualifications for this post. I believe that I would be suitable for this post.
Qualifications and experience	I have two years' experience working in this field. I have had considerable experience working with _____ I have been a qualified _____ for three years. I am a fully qualified _____ I have passed the _____ (licence). I have taken the course in Exel. I graduated from university with a Grade Point Average of 4,5 (6.0 scale). I am currently studying on a Master's Degree Programme at _____ (name of the University)
Personal qualities and additional skills	I enjoy working in a team. I enjoy the challenge of meeting targets. I am patient and thorough in my work. I am able to carry out most tasks in French.

Say why you want the job	I am fluent in German. I am computer literate. I have a good working knowledge of Excel. I would like the opportunity to learn more about _____ I would like the opportunity to work for a large, international company like _____ This job would offer me more experience in my chosen field.
End the letter	You will find a copy of my CV enclosed. I would be happy to attend an interview at a time convenient to you. Please do not hesitate to contact me if you require any further information. I look forward to hearing from you soon.

14.6. Learn how to write your Curriculum vitae (CV).

Your curriculum vitae (CV) should be:

1. Word processed
2. Laser printed on good quality paper
3. No longer than two pages of A4 paper

Your CV should include the following:

1. Personal details

The employer wants to know who you are and how to contact you (essential information only).

2. Education

3. Work experience

Don't just describe the job – stress what you achieved and what you learnt.

4. Positions of responsibility

If you do not have a lot of work experience, this section will show employers your potential.

5. Skills

Be positive about your ability – never undersell your experience.

6. Interests

Stress any significant achievements related to your interests.

7. Referees

Current students and recent graduates should choose an academic referee and a personal one (this could be an employer).

CV /Resume/

Put your most recent education first Don't go far back in	Personal details Melanie Henderson 99 Newlands Park London SE 30 8U Date of birth 30.05 1978 Education 2000 present Degree in French and film studies, University of London Specialist subjects: British cinema 1995 – 2000
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time or leave any gaps.	Royal Latin School, Aylesbury 4 A Levels: French (B), (German) (C), English B). History (B), Art (A), Maths (B), Economics (B)
Put your most recent experience first.	Work experience 2002 Information officer Futuroscope, France Responsible for dealing with enquiries in a busy office, responding to 2,000 enquiries a week. This demonstrated my ability to retain a professional approach and a sense of humour while working under pressure.
Give more detail about more relevant experience.	2003 Customer Services Assistant Provided support for customer enquiries. Dealing with customers' complaints demonstrated my ability to remain calm under pressure. Explaining complex issues simply and clearly helped me to develop my communication skills.
Miss this section out if you haven't had a position of responsibility.	Positions of responsibility In my final year at school, I helped organize a careers fair for all final year students.
Don't just list your interests – add a few details.	Skills Good working knowledge of Microsoft Word and Excel Spreadsheets Working knowledge of French and Italian Current clean driving license.
Give two referees.	Interests Travel: I have traveled extensively and independently in Europe. Music: I play the guitar in a semi – professional band and played at student clubs. Referees Hamish Roberts (Tutor at University of London) 17 Woodland Avenue Oxford OX11 7GGR Richard Gayle (Customer Services Manager/DAT) 31 Pleasant Street London SE18 3LSR

14.7 Write your own letter of application and CV to 'apply' for the job you are interested in. This site may help in finding a suitable job:

www.connexions.gov.uk/jobs4u

14.8 Here is some advice for those who are unemployed and looking for a job. With a partner, decide whether you think each point is good or bad advice.

1. Take a holiday before you start looking for a new job.
2. Looking for a job is the same as *doing* a job – you need to work full-time on it.
3. Give yourself a little free time every week to relax.
4. Use all possible sources of information about job offers.
5. Apply for as many jobs as possible – even jobs you don't really want.
6. Phone all the companies whose numbers are in the Yellow Pages and ask if they have a job for you.

14.9 What other advice would you give to someone looking for a job?

14.10 Now listen to the interview, where Bruce Kulp, an American manager, gives his own opinions. What does he think about points 1–6 above? Put T (True) if Bruce agrees with the advice, F (False) if he disagrees and N (Not mentioned) if he doesn't speak about it.

14.11 Read the passage and answer the questions.

Interview

Interviewers are trained to ask you 'open' questions rather than 'closed' or 'Yes/No/' questions. Open questions begin with words like 'Why', 'What' and 'How' or with phrases like 'Tell me/us about...' and 'Describe...'. Here are a few examples.

1. Tell me about yourself.
2. What are your strengths?
3. What are your weaknesses?
4. What do you do in your spare time?
5. What do you think you can bring to this position?
6. Why did you leave your last job?
7. What were some of the most important things you learned in that job?
8. How well do you work in a team?
9. Tell us something about your previous experience and the other jobs you have had.
10. How have you changed over the last three years?
11. What sort of salary are you expecting?
12. What was your best subject at school/university?
13. What did you like most about that subject?
14. Tell us about your ambitions.
15. What would you like to be doing five years from now?
16. What attracts you about this kind of work?
17. Why did you apply to us?
18. How did you find out about this job?

Questions.

1. Which questions in the passage do you find most difficult to answer yourself? Ask someone three questions you find easy to answer.
2. Which of the eighteen questions would you probably not ask a very young person who is applying to your company for his or her very first job?
3. Are there any questions here which you think are strange or which would be unusual in a job interview in your country? Explain why you think they are strange or unusual.
4. Why do you think open questions are usually better than closed questions at an interview?

14.12 Match the exchanges.

- | | |
|--|---|
| 1. So, why do you want to work for us? | a) Well, I'm very creative. I mean, I always manage to come up with original ideas. |
| 2. Why do you think you'd be good at this job? | b) That sounds fine. Thank you. |
| 3. I see. When would you be able to start? | c) Because it's a large company and I'm very interested in advertising. |
| 4. Is there anything you would like to ask? | d) Yes. I'd like to know what the salary is. |
| 5. Certainly. It's \$ 1,650 a month. | e) I could start any time after 1 st September. |

14.13 Use *Why*, *What*, *How* or some other word to make these questions open.

Example: Do you know anything about this company?

>What do you know about this company?

1. Do you know anything about this kind of work?
2. Were you good at any subjects at school?
3. Do you want to work for us?
4. Are you interested in this kind of work?
5. Have you done something before that will help you to do this job?
6. Do you think you would be good at this kind of work?

14.14 What should you do to be successful in a job interview? Make a list under these headings the following:

1. Before the interview
2. During the interview
3. After the interview

14.15 Compare your list with other students. Do you have the same points?

14. 16 Read the advice. Tick the points in your list that are mentioned.

How to Get that Job

Before the interview

1. Find out as much as you can about the company.
2. Think about questions which the interviewer might ask you. Plan how to answer them.
3. Dress smartly.
4. Don't be late. If you are very early, have a coffee at a local café and look at your notes.
5. Switch off your mobile and take two or three slow, deep breaths before you go in.

During the interview

1. When you walk in, shake hands firmly with the interviewer, look them in the eyes, and say 'Pleased to meet you'.
2. Answer the questions in a confident, firm voice. Don't speak too quietly, too quickly or be too hesitant.
3. Answers should not be one word or one sentence, but also should not be too long.
4. When answering questions, maintain eye contact with the interviewer. If there is more than one interviewer, give them equal attention.
5. Give clear, direct answers to questions. If you don't know something, say so.
6. Don't lie.
7. At the end of the interview you might be asked: "Are there any questions that you would like to ask us?" Make sure you have one or two good questions ready.
8. Above all be positive and show enthusiasm for the job.

After the interview

If you don't answer a question well in the interview, don't be afraid to phone up soon afterwards and say something like: "I don't think I explained myself very well in the interview. What I wanted to say was..." This will show enthusiasm and it will remind them of you.

14.17 Read the advice again. Answer the questions:

1. What research do you need to do before the interview?
2. What kind of clothes should you wear to the interview?
3. What should you do if you arrive very early?
4. What should you do just before you enter the interview room?

5. What should you do and say when you meet the interviewer?
6. How long your answers to questions should be?
7. How should you answer questions?
8. Where should you look when you answer questions?
9. What should your general attitude in the interview be?
10. What should you do after the interview?

14.18 Discuss the following:

1. Do you disagree with any of the points? If so, which ones? Why?
2. Do you think you are good or bad at job interviews? Why

14.19 You want a job. Answer the following questions:

1. Have you decided what sort of job you really want?
2. Have you spoken to anyone who does the sort of job you would like to do?
3. Have you found out anything about the companies you would like to work for?
4. Have you spoken to anyone who works for these companies?
5. Have you done anything in the last year which has developed your skills?
6. Do you regularly read the business pages of newspapers or professional journals?
7. Have you talked to a recruitment agency that specializes in your area of work?
8. Have you written or updated your Curriculum Vitae in the last six months?

14.20 Act out a dialogue *A job interview*.

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