МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА
И ПРОДОВОЛЬСТВИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

Учреждение образования
«БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ
АГРАРНЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»

Кафедра иностранных языков № 2

З.М. Горощеня, Н.В. Сысова, Т.В. Мороз

АНГЛИЙСКИЙ ЯЗЫК

Учебно-методический комплекс
для студентов агроэнергетического факультета
дневной формы обучения

Модуль 4

Учебно-профессиональное общение

Часть 1

Минск
БГАТУ
2011

УДК 811.111(07)
ББК 81.2Англя7
Г70

Рекомендовано научно-методическим советом
агроэнергетического факультета БГАТУ.
Протокол № 8 от 16 мая 2011 г.

Горощеня, З. М.

Г70 Английския язык : учебно-методический комплекс. Модуль 4. Ч. 1. Учебно-профессиональное общение / З. М. Горощеня, Н. В. Сысова, Т. В. Мороз. – Минск : БГАТУ, 2011. – 36 с.

Модуль 4 учебно-методического комплекса включает в себя учебный материал, направленный на формирование и развитие профессиональных компетенций студентов. Цель обучения состоит в овладении студентами знаниями особенностей системы изучаемого иностранного языка в его лексико-грамматическом аспекте; социокультурными нормами производственного общения, структурой и характером профессиональной деятельности, что позволит специалисту эффективно использовать иностранный язык как средство общения в профессиональной сфере. Содержит сведения теоретического характера, аутентичные тексты и комплекс упражнений, как тренировочной, так и коммуникативной направленности по тематике модуля.

Составлен в соответствии с требованиями типовой учебной программы для высших учебных заведений по иностранному языку, утвержденной Министерством образования Республики Беларусь. Предназначен для студентов второго курса агроэнергетического факультета БГАТУ.

УДК 811.111(07)
ББК 81.2Англя7

СОДЕРЖАНИЕ

ВВЕДЕНИЕ

Главной целью обучения иностранному языку является формирование иноязычной коммуникативной компетенции специалиста, позволяющей использовать иностранный язык как средство профессионального и межличностного общения.

В русле современной образовательной идеологии иностранный язык рассматривается не только в качестве средства межкультурного общения, но и средства формирования личности как субъекта национальной и мировой культуры. Предполагается, что мировоззрение, включающее в себя ценности личности, общества, государства, а также более широкого сообщества (европейского, мирового), способствует большему взаимопониманию и сближению народов в современном поликультурном мире, а, следовательно, стабильности и устойчивости его развития.

В качестве стратегической интегративной компетенции в процессе обучения иностранным языкам выступает коммуникативная **(КК)** в единстве всех составляющих: – языковой, речевой, социокультурной, компенсаторной, учебно-познавательной компетенций.

Языковая компетенция **(ЯК)** – совокупность языковых средств (фонетических, лексических, грамматических), а также правил их использования в коммуникативных целях.

Речевая компетенция **(РК)** – совокупность навыков и умений речевой деятельности (говорение, письмо, аудирование, чтение), знание норм речевого поведения, способность использовать языковые средства в связной речи в соответствии с ситуацией общения.

Социокультурная компетенция **(СК)** – совокупность знаний о национально-культурной специфике стран изучаемого языка и связанных с этим умений корректно строить свое речевое и неречевое поведение.

Компенсаторная компетенция **(КомпК)** – совокупность умений использовать дополнительные вербальные средства и невербальные способы решения коммуникативных задач в условиях дефицита имеющихся языковых средств.

Учебно-познавательная компетенция **(УПК)** – совокупность общих и специальных учебных умений, необходимых для осуществления самостоятельной деятельности по овладению иностранным языком.

В процессе социально-гуманитарной подготовки выпускник должен развить такие метапредметные компетенции **(МПК)**, как владение методами системного и сравнительного анализа; сформированность критического мышления; умение работать в команде; владение навыками проектирования и прогнозирования; сформированность личностных качеств: самостоятельность, ответственность, организованность, целеустремленность, а также мотивационно-ценностные ориентации; умение учиться, постоянно повышать квалификацию.

В соответствии с целями и принципами социально-гуманитарной подготовки выпускник высшего учебного заведения при подготовке по образовательной программе первой ступени (специалист) должен приобрести следующие социально-личностные компетенции:

- компетенции культурно-ценностной и личностной ориентации **(ККЦЛО)**,
- компетенции гражданственности и патриотизма **(КГП)**,
- компетенции социального взаимодействия **(КСВ)**,
- компетенции коммуникации (**КК** = ЯК + РК + СК + КомпК + УПК),
- компетенции здоровьесбережения **(КЗ)**,
- компетенции самосовершенствования **(КС)**.

В результате изучения дисциплины студент должен **знать**:

- особенности системы изучаемого иностранного языка в его фонетическом, лексическом и грамматическом аспектах (в сопоставлении с родным языком);
- социокультурные нормы бытового и делового общения, а также правила речевого этикета, позволяющие специалисту

эффективно использовать иностранный язык как средство общения в современном поликультурном мире;

- историю и культуру стран изучаемого языка.

Студент должен **уметь**:

- вести общение социокультурного и профессионального характера в объеме, предусмотренном настоящей программой;
- читать и переводить литературу по специальности обучаемых (изучающее, ознакомительное, просмотровое и поисковое чтение);
- письменно выражать свои коммуникативные намерения в сферах, предусмотренных настоящей программой;
- составлять письменные документы, используя реквизиты делового письма, заполнять бланки на участие и т.п.;
- понимать аутентичную иноязычную речь на слух в объеме программной тематики.

В соответствии с учебной программой по иностранному языку изучение дисциплины «Иностранный язык» рассчитано на 150 аудиторных часов.

УМК составлен в соответствии с требованиями Типовой учебной программы для высших учебных заведений по иностранному языку, утвержденной Министерством образования РБ и предназначен для студентов агроэнергетического факультета БГАТУ. В основу структурирования содержания учебного материала положен принцип модульного похода, который предполагает разбивку учебного материала на относительно самостоятельные модули (разделы) курса. Цель модульного обучения состоит в овладении студентами знаниями особенностей системы изучаемого иностранного языка в его лексико-грамматическом аспекте; социокультурных норм бытового и делового общения, правил речевого этикета, позволяющих специалисту эффективно использовать иностранный язык как средство общения в современном поликультурном мире; истории и культуры стран изучаемого языка.

Модуль 4 «Учебно-профессиональное общение» включает в себя тексты и упражнения, как тренировочной, так и коммуникативной направленности по тематике модуля, направленные на формирование и развитие профессиональных компетенций студентов.

Содержание учебного модуля **«М-4. Учебно-профессиональное общение. Ч. 2»** представлено в таблице:

Тема модуля	Содержание	Кол-во час.	Формируемые компетенции
Учебно-профессиональное общение **Студент должен**: **знать**: социокультурные нормы делового общения; **уметь**: в письменной и устной форме аргументировано представить свою точку зрения по темам «Предмет и содержание специальности», «Развитие сельского хозяйства», «Развитие сельского хозяйства Беларуси и зарубежных стран», «Сельское хозяйство будущего»; владеть всеми видами чтения, сочетать диалогическую и монологическую формы речи, участвовать в дискуссии по изучаемым проблемам.	Предмет и содержание специальности инженера-электрика, структура и характер профессиональной деятельности специалистов в сфере АПК. ***УСРС:***. Информационный поиск (мультимедиа проект)	12	**КК** **МПК** **КГП** **КСВ** **КЗ** **КС**

МОДУЛЬ 4

УЧЕБНО-ПРОФЕССИОНАЛЬНОЕ ОБЩЕНИЕ

4.1 - 4.2 ПРЕДМЕТ И СОДЕРЖАНИЕ СПЕЦИАЛЬНОСТИ

Text 1 **Electrical engineering speciality**

READING

Read the information below, make your own vocabulary of special terms and do the tasks that follow.

Electrical or power engineering, also called power systems engineering, is a subfield of engineering that deals with the generation, transmission and distribution of electric power as well as the study and application of electricity, electronics and electromagnetism and also the electrical devices connected to power systems including generators, motors and transformers.

Electrical engineers design, develop, test, and supervise the manufacture of electrical equipment. Some of this equipment includes electric motors; machinery controls, lighting, and wiring in buildings; radar and navigation systems; communications systems; and power generation, control, and transmission devices used by electric utilities. Electrical engineers also design the electrical systems of automobiles and aircraft.

Engineers should be creative, inquisitive, analytical, and detail oriented. They should be able to work as part of a team and to communicate well, both orally and in writing. Communication abilities are becoming increasingly important as engineers interact more frequently with specialists in a wide range of fields outside engineering.

Like any other kind of scientist, electrical engineers must also know how to communicate their ideas to others in their field. A successful electrical engineer possesses not only an understanding of his area of concentration, but also a broad grasp of engineering in general. This is why most electrical engineering degree programs begin with the fundamentals of engineering itself. Once the student has mastered these fundamentals, he can start to focus on a specialty.

Electrical engineering students learn through a combination of design and lab work. This mix of theory and practical application allows students to think things through and then apply their ideas in a variety of real life situations. Students also learn to diagnose problems and develop a variety of solutions.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

power engineering; deals with; devices connected to power systems; supervise the manufacture; this equipment includes; electric utilities; creative, inquisitive, analytical, and detail oriented; communication abilities; interact more frequently; in a wide range of fields; to communicate their ideas; a broad grasp; to focus on a specialty; learn through a combination; to think things through; to diagnose problems.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) Electrical or power engineering is a subfield of engineering that deals with the generation, transmission and distribution of electric power.
2) Electrical engineers also design the electrical systems of automobiles and aircraft.
3) They should be able to work as part of a team and to communicate well, both orally and in writing.
4) Communication abilities are becoming increasingly important as engineers interact more frequently with specialists in a wide range of fields outside engineering.
5) Like any other kind of scientist, electrical engineers must also know how to communicate their ideas to others in their field.

6) A successful electrical engineer possesses not only an understanding of his area of concentration, but also a broad grasp of engineering in general.
7) This is why most electrical engineering degree programs begin with the fundamentals of engineering itself.
8) Once the student has mastered these fundamentals, he can start to focus on a specialty.
9) This mix of theory and practical application allows students to think things through and then apply their ideas in a variety of real life situations.
10) Students also learn to diagnose problems and develop a variety of solutions.

C *Answer the following questions.*

1) What does power engineering deal with?
2) What do electrical engineers do?
3) What equipment do they deal with?
4) What should electrical engineers be like?
5) Why are their communication abilities becoming increasingly important?
6) Why do most electrical engineering degree programs begin with the fundamentals of engineering itself?
7) How do the electrical engineering students learn?
8) What does the mix of theory and practical application allow the students?
9) What do the students also learn to do?

D *Make a summary of the text.*

Text 2 **Electrical engineer careers opportunities**

READING

Read the information below, make your own vocabulary of special terms and do the tasks that follow.

A degree in electrical engineering can qualify you to pursue a job in almost any industry you can think of. After all, nearly everyone uses electricity and electrical devices, so industries demand skilled professionals to build, repair, and improve these devices. Electrical engineers work in businesses such as:

- scientific, research and development firms;
- electrical component manufacturing companies;
- power generation, distribution, and transmission;
- manufacturers of navigation controls, medical equipment, and measurement devices;
- architectural firms.

Although these industries employ the most engineers, they may not be right for everyone. Electrical engineering majors enjoy many options, more than enough for any student to find a job in a field he loves. The following job titles represent only a handful of the choices available:

1. Research engineers work in the lab, testing and inventing. This job requires a high level of creativity on the part of the engineer, as well as a great deal of patience. Whether inventing a new optoelectronic device or simply designing a better electric can opener, research engineers are responsible for the discovery-stage technology behind any new electronic product.

2. Once a new technology is invented, it must be applied. The design engineer uses computer simulations and models to turn innovations like wireless technology into the tiny parts that make up an actual cell phone. Design engineers must visualize how the insides of a future product could look, while inventing several possible scenarios for the applications of new technologies.

3. The project engineer oversees many specialist engineers throughout the construction of a working prototype of a new product or technology. The project engineer must have natural leadership ability, as well as a high proficiency in a variety of electrical engineering disciplines.

4. Test engineers design programs to check the functions of electronic devices and to troubleshoot those devices where things go wrong. They keep technology working properly, and understand which elements to test and in what order. Successful test engineers remain sharp, even after long hours on the job.

5. Power grids, phone lines, and wireless networks all require the skills of a system engineer for proper installation and maintenance. Keen attention to details is important for graduates who enter this profession. Experienced system engineers rely on their ability to think holistically about the systems they create.

6. Application engineers work with whatever resources are available, adapting existing equipment and technologies to fulfill the needs of their employers. They need to be resourceful, while counting on their deep understanding of the capabilities and the potential modifications of existing equipment.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

to pursue a job; skilled professionals; not be right for everyone; a handful of the choices available; a great deal of patience; to turn innovations; leadership ability; to check the functions; installation and maintenance; experienced system engineers; deep understanding of the capabilities.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) A degree in electrical engineering can qualify you to pursue a job in almost any industry you can think of.
2) Electrical engineering majors enjoy many options, more than enough for any student to find a job in a field he loves.
3) This job requires a high level of creativity on the part of the engineer, as well as a great deal of patience.
4) The design engineer uses computer simulations and models to turn innovations like wireless technology into the tiny parts that make up an actual cell phone.

5) The project engineer oversees many specialist engineers throughout the construction of a working prototype of a new product or technology.
6) Test engineers design programs to check the functions of electronic devices and to troubleshoot those devices where things go wrong.
7) Successful test engineers remain sharp, even after long hours on the job.
8) Keen attention to details is important for graduates who enter this profession.
9) Experienced system engineers rely on their ability to think holistically about the systems they create.
10) Application engineers work with whatever resources are available, adapting existing equipment and technologies to fulfill the needs of their employers.

C *Match the sentence beginnings to the correct endings:*

a) Research engineers ....
b) The design engineer ..... …..
c) The project engineer ..... …..
d) Test engineers ..... …..
e) System engineers ..... …..
f) Application engineers ..... …..

1) ……..…….. need to be resourceful.
2) ……..... must have natural leadership ability.
3) ……... understand which elements to test and in what order.
4) ……..... work in the lab.
5) ……. must visualize how the insides of a future product could look.
6) ……..…. are responsible for proper installation and maintenance.

D *Answer the following questions.*

1) What are skilled professionals in electrical engineering demanded for?
2) In what businesses do Electrical engineers work?
3) When were any advances made in the knowledge and treatment of plant diseases?
4) What role of bacteria was found out in the chemical changes occurring in the soil and in dairy processes?
5) What reduced greatly the need for farm labor?

E *Make a summary of the text.*

4.3 УСРС № 5: ИНФОРМАЦИОННЫЙ ПОИСК

Рекомендуемое задание: Подготовить мультимедийный проект по тематике модуля, используя материалы интернет-ресурсов.

Рекомендуемая форма контроля: Защита подготовленного мультимедийного проекта.

4.4 ОБЩЕЕ ПРЕДСТАВЛЕНИЕ О СТРУКТУРЕ И ХАРАКТЕРЕ ПРОФЕССИОНАЛЬНОЙ ДЕЯТЕЛЬНОСТИ СПЕЦИАЛИСТА: РАЗВИТИЕ СЕЛЬСКОГО ХОЗЯЙСТВА

Text 1 **Ancient Origins**

READING

Read the information below, make your own vocabulary of special terms and discuss in class which facts from the text you know and which you don't.

Agriculture is the world's most important and one of the world's oldest industries. It provides us with almost all our food. It also supplies materials for two other basic human needs – clothing and shelter. In addition, agriculture provides materials used in making many industrial products, such as paints and medicines. About half the world's workers are employed in agriculture – far more than in any other industry.

The word "agriculture" is the English adaptation of Latin *agricultura,* from *ager,* "a field", and *cultura,* "cultivation" in the strict sense of "tillage of the soil". Thus, a literal reading of the word yields "tillage of a field or fields".

For hundreds of thousands of years prehistoric people lived by hunting, fishing, and gathering wild plants. Then about 9000 B.C., people took the first steps towards agriculture. Some tribes discovered that plants can be grown from seeds. They also learned that certain animals could be tamed and then raised in captivity. These two discoveries marked the beginning of the domestication of plants and animals.

Agriculture developed in the Middle East and Egypt, when people discovered the possibilities of growing crops and domesticating animals,

gave up being wandering hunter-gatherers, and adopted a more settled life. Farming communities soon became the base for society in China, India, Europe, Mexico, and Peru, and then spread throughout the world. Neolithic farmers lived in village communities, sometimes built on stilts over lakes; they knew how to spin, weave, and make pots; they kept domesticated dogs, horses, oxen, sheep, goats, and pigs; crops included wheat, barley, and beans.

These prehistoric beginnings ultimately led to the evolution of the village system. The houses of the villagers clustered together in the centre of an area consisting partly of pasture, but to a larger extent of arable land, usually divided into three fields: one under grain, a second under peas, beans, or grain, and the third fallow (without a crop) and in a state of preparation for receiving one in its turn.

Farmers provided more food than hunters and gatherers could supply. But for many centuries, improvements in agriculture came slowly. Farming depended heavily on human and animal labor, and farmers had few tools to make their land and labor more productive.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

human needs; in addition to; to provide smb with smth; prehistoric people; to be tamed and raised in captivity; the domestication of plants and animals; to keep domesticated animals; arable land; to depend on smth/smb for smth; to make land and labor more productive; hunter-gatherers; Neolithic farmers.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) Agriculture provides materials used in making many industrial products, such as paints and medicines.
2) For hundreds of thousands of years prehistoric people lived by hunting, fishing, and gathering wild plants.
3) These two discoveries marked the beginning of the domestication of plants and animals.
4) People discovered the possibilities of growing crops and domesticating animals.

5) People gave up being wandering hunter-gatherers, and adopted a more settled life.
6) Neolithic farmers knew how to spin, weave, and make pots.
7) Farmers provided more food than hunters and gatherers could supply.
8) Farming depended heavily on human and animal labor.
9) The houses of the villagers clustered together in the centre of an area consisting partly of pasture, but to a larger extent of arable land, usually divided into three fields.
10) Farming depended heavily on human and animal labor, and farmers had few tools to make their land and labor more productive.

C *Answer the following questions.*

1) What does the word "agriculture" mean?
2) When and where did agriculture begin to develop?
3) What were the first steps towards agriculture?
4) How did people discover the possibilities of growing crops and domesticating animals?
5) Where were the first farming communities organized?
6) Why was it necessary to divide the land into three fields?
7) Why did farming depend heavily on human and animal labour?

D *Make a summary of the text.*

Text 2 **The Agricultural Revolution**

READING

Read the information below, make your own vocabulary of special terms and discuss in class which facts from the text you know and which you don't

.

During the early 1700's, a great change in farming called the Agricultural Revolution began in Great Britain. The revolution resulted from a series of discoveries and inventions that made farming much more productive than ever before. By the mid-1800's. the Agricultural Revolution had spread throughout much of Europe and North America.

One of the revolution's chief effects was the rapid growth of towns and cities in Europe and the United States during the 1800's. Because fewer people were needed to produce food, farm families by the thousands moved to the towns and cities.

The Agricultural Revolution was brought about mainly by three developments. They were improved crop-growing methods; advances in livestock breeding; and the invention of new farm equipment.

Reorganization along more scientific and productive lines took place in Europe in the 18th century with improved crop rotation. The large-scale cultivation of turnips and other root crops from the 18th century made it possible to feed cattle through the winter, whereas they had previously had to be slaughtered and the meat preserved by salting.

The introduction of potatoes, red clover, and turnips in the 17th century had marked a considerable advance, and the next century was epoch-making in several ways. Jethro Tull. an English gentleman farmer, demonstrated the advantage of thorough cultivation of the soil and initiated the planting of seed in regular rows (drilling) as against throwing it across the ground in handfuls (broadcasting), thus allowing the spaces between the rows to be stirred and cleaned by horse-hoeing. Tull built the first seed drill that worked. Actually, it was the first successful farm machine with inner moving parts and so became the ancestor of all modem farm machinery. Over the years, farm machinery was steadily improved.

The 18th century witnessed great improvements in farm animals, due to the pioneer work of Robert Bakewell. an English farmer, who showed how livestock could be improved by intensively breeding animals with desirable traits. He produced improved breeds of cattle, horses, and sheep. Bakewell became best known for developing a breed of sheep that could be raised for meat as well as for wool. He improved the quality of homed stock and sheep, largely by means of inbreeding.

The improvement of wheat by crossing was begun towards the end of the 18th century. Practically all kinds of crop plants were improved on similar lines. During the 19th century also the necessity of using clean seed, first realized in Denmark, was increasingly recognized. Reaping machines and other devices for harvesting and after-treatment of crops were developed, and different forms of power were employed for working many of them.

During the 18th century advances were also made in the knowledge and treatment of plant diseases, especially those due to parasites. The rapid development in biological appliances (especially microscopes) and technique not only placed the study of fungi on a scientific footing, but also enabled the science of bacteriology to be created, largely as a result of the pioneer work of Pasteur. Bacteria were found not only to be agents of infectious disease, but also to play an important part in the chemical changes occurring in the soil and in dairy processes.

Equally valuable progress was also made in respect of livestock. Many breeds were improved or established on Bakewell's lines, and the formation of numerous breed societies in the latter part of the century secured the maintenance of high standards. Biological advances led to improvement in the treatment of animal diseases, while at the same time the importance of farm hygiene came to be realized. Concentrated foods, of which linseed cake was the first (1795), gradually came to play an important part in winter feeding and the promotion of early maturity.

In the 19th century came improved methods of draining land. Mechanization made considerable progress in the USA and Europe. Crops were improved by means of artificial fertilizers (dung and waste materials had been the only kinds of fertilizer previously employed) and pesticides. All these improvements greatly reduced the need for farm labor and enormously increased farm output.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

to make farming more productive; the rapid growth of towns and cities; to bring about; to improve crop-growing methods; the invention of new farm equipment; large-scale cultivation; to preserve something by salting; farm machinery; to develop a breed of sheep; to raise animals for meat; reaping machines; devices for harvesting; to make advances in smth; to play an important part in smth; a plant disease; a biological appliance; the treatment of animal diseases; an artificial fertilizer; farm output.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) The revolution resulted from a series of discoveries and inventions that made fanning much more productive than ever before.

2) One of the revolution's chief effects was the rapid growth of towns and cities in Europe.
3) Bakewell became best known for developing a breed of sheep that could be raised for meat as well as for wool.
4) Biological advances led to improvement in the treatment of animal diseases.
5) All improvements greatly reduced the need for farm labor and enormously increased farm output.
6) Crops were improved by means of artificial fertilizers and pesticides.
7) Bacteria were found not only to be agents of infectious disease, but also to play an important part in the chemical changes occurring in the soil and in dairy processes.
8) All the improvements greatly reduced the need for farm labor and enormously increased farm output.

C *Match the sentence beginnings to the correct endings:*

a) By the mid-1800's, the Agricultural Revolution had spread.....
b). He improved the quality of horned stock and sheep .....
g) Crops were improved by means of.....
h) Mechanization made considerable progress .....
i) All these improvements greatly reduced the need.....
j) The improvement of wheat by crossing was .....
k) Over the years, farm machinery was .....
h) Practically all kinds of crop plants .....

1)…….in the USA and Europe.
2) ……... begun towards the end of the 18th century.
3) ……..for farm labor and enormously increased farm output.
4) ……..steadily improved.
5) ……...throughout much of Europe and North America.
6) …….of artificial fertilizers and pesticides.
7) …….were improved on similar lines.
8) ……, largely by means of inbreeding.

D *Answer the following questions.*

2) What is the Agricultural Revolution?
3) What marked a considerable advance in agriculture in the 18th century?

3) When were any advances made in the knowledge and treatment of plant diseases?
6) What role of bacteria was found out in the chemical changes occurring in the soil and in dairy processes?
7) What reduced greatly the need for farm labor?

Text 3 **The 20th Century**

READING

Read the information below, make your own vocabulary of special terms and discuss in class which facts from the text you know and which you don't.

By the 1890s the gasoline tractor had been invented, providing power to do in minutes what took horses and farmers days. In time, the number of certain farm machines that came into use skyrocketed and changed the nature of farming.

Gregor Johann Mendel, an Austrian botanist and monk, discovered the principles of heredity. Mendel thus laid the groundwork for genetics – the science that explains how characteristics are inherited. The development of genetics during the 1900's made it possible to breed plants and animals scientifically.

Agriculture continued to make considerable advances during the 20th century. After World War II, there was an explosive growth in the use of agricultural chemicals: weedkillers, insecticides, fungicides, and fertilizers.

The development in the 1960s of improved grain-crop varieties with higher yields, stronger pest resistance, and greater response to fertilizers has improved productivity throughout much of the world. In many areas of the Tropics, the new developments triggered the so-called green revolution, a dramatic increase in grain production. More work was needed, however, to adapt superior varieties to local conditions and to solve human problems associated with the distribution of their benefits.

In the 1980s, hybridization by genetic engineering methods and pest control by the use of chemicals plus pheromones were developed. However, there was also a reaction against some forms of intensive agriculture because of the pollution and habitat destruction caused. One result of this was a growth of alternative methods, including organic farming.

From the 1970s there has been a movement towards more sophisticated natural methods without chemical sprays and fertilizers. These methods are desirable because nitrates from fertilizers have been seeping into the ground water, insecticides are found in lethal concentrations at the top of the food chain, some weedkillers are associated with human birth defects, and hormones fed to animals to promote fast growth have damaging effects on humans.

The greater efficiency in agriculture achieved since the 19th century, coupled with post-World War II government subsidies for domestic production in the USA and the European Union (EU), led to the development of high stocks, nicknamed 'lakes' (wine, milk) and 'mountains' (butter, beef, grain). There is no simple solution to this problem, as any large-scale dumping onto the market displaces regular merchandise. Increasing concern about the starving and the cost of storage led the USA and the EU to develop measures for limiting production, such as letting arable land lie fallow to reduce grain crops.

The USA had some success at selling surplus wheat to the USSR when the Soviet crop was poor, but the overall cost of bulk transport and the potential destabilization of other economies acted against high producers exporting their excess on a regular basis to needy countries. Intensive farming methods also contributed to soil erosion and water pollution.

In the second half of the 20th century agriculture was further revolutionized by scientific and technological advances, and, in particular, by the widespread use of chemical fertilizers and pesticides. Agricultural technology developed more rapidly in the 20th century than in all previous history.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

the principles of heredity; to lay the groundwork for genetics; agricultural chemicals; engineering methods; pest control; intensive farming methods; habitat destruction; chemical sprays; a food chain; government subsidies; domestic production; to breed plants and animals scientifically; to be revolutionized by scientific and technological advances.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) The development of genetics during the 1900's made it possible to breed plants and animals scientifically.

2) After World War II, there was an explosive growth in the use of agricultural chemicals: weedkillers, insecticides, fungicides, and fertilizers.
3) One result of this was a growth of alternative methods, including organic farming.
4) There is no simple solution to this problem, as any large-scale dumping onto the market displaces regular merchandise.
5) Some weedkillers are associated with human birth defects, and hormones fed to animals to promote fast growth have damaging effects on humans.
6) Intensive farming methods also contributed to soil erosion and water pollution.

C *Answer the following questions.*

1) What is genetics?
2) Why was there a reaction against some forms of intensive agriculture in the 1980s?
3) Why are some sophisticated natural methods without chemical sprays and fertilizers more desirable?
4) How did agriculture affect the development of civilization?
5) What methods would you like to use on your farm if you were a farmer?

4.5 РАЗВИТИЕ СЕЛЬСКОГО ХОЗЯЙСТВА В ЗАРУБЕЖНЫХ СТРАНАХ И В РЕСПУБЛИКЕ БЕЛАРУСЬ

Text 1 **Agricultural development in Belarus and the United Kingdom**

READING

Read the information below, make your own vocabulary of special terms and discuss in class which facts from the text you know and which you don't.

Agriculture in Belarus is a shrinking sector of the Belarusian economy. The share of agriculture in GDP (gross domestic product) declined from 11.6% in 2000 to 7.4% in 2007, while the share of agriculture in total employment dropped from 14.1% to 9.9% over the same period. The decrease in agricultural employment is a long-term

trend and back in the early 1990s agriculture's share was as high as 19% of the number of employed. The decrease of agricultural labour parallels the general urbanization trends, as the share of rural population in Belarus steadily declines over time.

Crop production slightly outweighs livestock production in the country's product mix, accounting for around 55% of gross agricultural output since 1995.

Belarus's main agricultural products are barley, rye, oats, and wheat, as well as potatoes, flax, rapeseed, and sugarbeets. Cereals and legumes (mainly barley and rye) take up 41% of sown area and other 43% are under crops used for animal feed. Potatoes and vegetables take up 11% of sown area and industrial crops (sugarbeets, flax, and some rapeseed) the remaining 4%. Products of animal origin are mainly pork, beef, and poultry. Belarus has about 1.5 million cows, but the milk yields are relatively low (less than 3,000 kg per cow per year).

Agriculture in the United Kingdom uses around 71% of the country's land area and contributes about 0.6% of its gross value added. The UK produces less than 60% of the food and the industry's share of the national economy is declining. Despite skilled farmers, high technology, fertile soil and subsidies, which primarily come from the European Union, farm earnings are low and falling, mainly due to low prices at the farm gate. With each generation, fewer young people can afford the increasing capital cost of entry into farming and more are discouraged by low earnings. The average age of the British farm holder is now 59.

Recently there have been moves towards organic farming in an attempt to sustain profits, and many farmers now supplement their income by diversifying activities away from pure agriculture. Now, biofuels present new opportunities for farmers against a background of rising fears about fossil fuel prices, energy security, energy sustainability, and climate change. There is increasing awareness that farmers have an important role to play as custodians of the British countryside and wildlife.

The high cost of entry into farming presents a significant barrier. Land prices in the United Kingdom are high. Local authorities recognize this and some offer smallholdings intended to allow those with skill or training but little capital to set up as tenant farmers. Nevertheless, this provision is shrinking and there is an increasing shortage of farmland.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

a shrinking sector, the decrease in agricultural employment, the share of rural population, sown area, of animal origin, the industry's share, farm earnings, the increasing capital cost, the average age, supplement their income, increasing awareness, the high cost of entry into farming, shortage of farmland.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) The decrease of agricultural labour parallels the general urbanization trends, as the share of rural population in Belarus steadily declines over time.
2) Crop production slightly outweighs livestock production in the country's product mix.
3) Cereals and legumes (mainly barley and rye) take up 41% of sown area and other 43% are under crops used for animal feed.
4) Belarus has about 1.5 million cows, but the milk yields are relatively low (less than 3,000 kg per cow per year).
5) Farm earnings are low and falling, mainly due to low prices at the farm gate.
6) Recently there have been moves towards organic farming in an attempt to sustain profits.
7) There is increasing awareness that farmers have an important role to play as custodians of the British countryside and wildlife.
8) Local authorities recognize this and some offer smallholdings intended to allow those with skill or training but little capital to set up as tenant farmers.

C *Answer the following questions.*

1) How did the share of Belarusian agriculture in GDP and in total employment change over the period from 2000 to 2007?
2) When did the decrease in agricultural employment in Belarus begin and why?
3) What are Belarus's main agricultural products?
4) Draw the diagram and say under what crops is the smallest sawn area and so on.

5) What are the main products of animal origin in Belarus?
6) What are the distinctive signs of the British agriculture?
7) What is the main reason of the low farm earnings in the United Kingdom?
8) Why do fewer young people enter the farming in the United Kingdom with each generation?
9) Why do British farmers prefer biofuels?
10) Do British local authorities help farmers?

D *Make a summary of the text.*

Text 2 **Agricultural development in foreign countries**

READING

Read the information below, make your own vocabulary of special terms and do the tasks that follow.

A highly mechanized agricultural sector of **the Netherlands** employs 4% of the labour force but provides large surpluses for the food-processing industry and for exports. The Dutch rank third worldwide in value of agricultural exports, behind the United States and France, with exports earning $55 billion annually. A significant portion of Dutch agricultural exports are derived from fresh-cut plants, flowers and bulbs, with the Netherlands exporting two-thirds of the world's total. The Netherlands also exports a quarter of all world tomatoes, and one-third of the world's exports of chilis and cucumbers. The Netherlands also exports one-fifteenth of the world's apples.

Agriculture in Germany is a small sector of the German economy. It has declined in importance during the 20th century and by 1989 amounted to only 1.6 percent of the West German GDP. Although agriculture's share of East German GDP was twice as high as in the west, even after the two economies are completely united, agriculture's share of GDP is expected to amount to only about two percent. However, despite the sector's small size, it remains politically important.

Although the number of farms has declined, production has actually increased through more efficient production methods. By the early 1990s, a single farmer could produce enough food for seventy-five people, far more than was the case in the 1950s or 1960s.

Agricultural products vary from region to region. Germany, known for the great population of 82.5 million people, consists mostly of great lands of agriculture. In the flat terrain of northern Germany and especially in the eastern portions, cereals and sugar beets are grown. Elsewhere, with the terrain more hilly and even mountainous, farmers produce vegetables, milk, pork, or beef. Almost all large cities are surrounded by fruit orchards and vegetable farms. Most river valleys in southern and western Germany, especially along the Rhine and the Main, have vineyards. Beer is produced mainly, but not exclusively, in Bavaria.

France is the world's second largest agricultural exporter, world's sixth-largest agricultural producer and European Union's leading agricultural power, accounting for about one-third of all agricultural land within the EU.

Northern France is characterized by large wheat farms. Dairy products, pork, poultry, and apple production are concentrated in the western region. Beef production is located in central France, while the production of fruits, vegetables, and wine ranges from central to southern France. France is a large producer of many agricultural products and is currently expanding its forestry and fishery industries.

As the world's second-largest agricultural exporter, France ranks just after the United States. The destinations of 70% of its exports are other EU member states. France also provides agricultural exports to many poor African countries (including its former colonies) which face serious food shortage. Wheat, beef, pork, poultry, and dairy products are the principal exports.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

highly mechanized, food-processing, a significant portion, twice as high as in the west, through more efficient production methods, flat terrain, fruit orchards, river valleys, leading agricultural power, is currently expanding, the destinations of its exports, former colonies, food shortage, dairy products.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) Agricultural sector of the Netherlands employs only 4% of the labour force but provides large surpluses for the food-processing industry and for exports.
2) A significant portion of Dutch agricultural exports are derived from fresh-cut plants, flowers and bulbs.
3) Agriculture in Germany has declined in importance during the 20th century.
4) However, despite the sector's small size, it remains politically important.
5) By the early 1990s, a single farmer could produce enough food for seventy-five people, far more than was the case in the 1950s or 1960s.
6) France is the world's second largest agricultural exporter.
7) France is a large producer of many agricultural products and is currently expanding its forestry and fishery industries.
8) France also provides agricultural exports to many poor African countries which face serious food shortage.

C *Answer the following questions.*

1) What makes it possible to provide large food surpluses in the Netherlands?
2) What agricultural products do they export?
3) What forms the largest part of Dutch agricultural exports?
4) What can you say about German agriculture sector's size and importance?
5) What allows Germany to increase farm production?
6) What agricultural products do they produce and where?
7) What agricultural products are different French regions characterized by?
8) Where is the largest part of French agricultural exports directed to?
9) Why does France provide agricultural exports to many poor African countries?

4.6 СЕЛЬСКОЕ ХОЗЯЙСТВО БУДУЩЕГО

Text 1 **Agriculture and Science**

READING

Read the information below, make your own vocabulary of special terms and do the tasks that follow.

Although there is plenty of food in the world, a lot of it is in the wrong place – most of the food exists only in developed countries. In order to feed all the people in the world, farmers have to find more efficient ways of farming. Farming is hard work. It is also a science. Farmers benefit from the research and discoveries of scientists. Scientists, over the years, have helped farmers by breeding better livestock, improving farming equipment and machinery, creating more effective fertilizers, and crossbreeding crops in order to improve them. Scientists conduct their research in laboratories, factories, universities, and on farms. What is eaten and how farming is done in the future depends largely on science. It also depends on governments in different parts of the world.

Plant breeders are constantly finding new crops developed to suit all types of soil and climate. Research into new varieties of crops is going on all over the world. This type of science is called crossbreeding. This process produces new types of food. It also allows the good traits from two different crops to be combined to form better and much stronger offspring. This can make crops more resistant to hot climates, cold climates, dry climates, poor soils, insects, and many other things.

The advances are made in communication, information, and transportation technologies; their effect has been to 'shrink' the globe, making goods and services more readily available to everyone on a worldwide basis. The effects of this also affect food and agriculture. State-of-the-art scientific techniques now exist to study the need for nutrients over the entire human life cycle. Unraveling the human genome may spur the development methods to identify the nutritional needs of individuals. Upcoming technological advances in understanding the plant and animal genome sequences provide a way to improve not only nutritional needs, but also process-related and environmental needs.

Agricultural biotechnology – the manipulation, through genetic engineering, of living organisms to produce commodities like pest resistant crops and stronger agricultural products – is also being used to develop crops with enhanced yields, built-in insect resistance, and other special traits, such as improved fiber cotton and improved protein corn, or corn that contains biodegradable plastic polymers. Farmers have been battling pests in their fields for centuries. They have used everything from conventional plant-breeding techniques to chemicals, such as pesticides and herbicides.

Now scientists are using advanced molecular biology as a tool to improve plants by inserting genes that enable them to naturally be more resistant to pests. Although traditional plant breeding practices have existed and been used for many years, scientists are now able to pinpoint specific beneficial genes from one species and transfer those genes into another crop's genetics so that it can benefit from them, as well. For many countries, a major challenge for sustainable development will be finding ways to link conservation and biotechnology to increase agricultural production on less land, with lower pesticide use.

So far today, most genetically modified technology has been developed primarily for large-scale agriculture in the industrialized world in order to make certain crops more resistant to certain insects or viruses. Currently, almost 100 million acres of genetically modified crops have been grown worldwide. While many people favor scientific advances, others have concerns about genetically modified crops. There has been no evidence of human health problems associated specifically with these crops or food products, but some people are concerned about the potential for these crops to cause allergic reactions or produce toxic compounds.

Agricultural resource concerns are different today than they were 75 years ago, so scientists ask different questions and develop different techniques. We are fortunate to have the benefits of modern technology to guide us. In the future, our grandchildren may ask questions that we have not even thought of: they may use technologies we can only imagine. That is why continued learning of agricultural issues is so important in our complex landscape.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

efficient ways of fanning; to benefit from smth; to improve fanning equipment and machinery; to crossbreed crops; to make crops more resistant to hot climates; to make smth available to smb; technological advances; to develop crops; to enhance yields; to improve fiber cotton; sustainable development; genetically modified crops; to cause allergic reactions.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) In order to feed all the people in the world, farmers have to find more efficient ways of farming.
2) While many people favor scientific advances, others have concerns about genetically modified crops.
3) Crossbreeding produces new types of food.
4) Agricultural biotechnology is used to develop crops with enhanced yields, built-in insect resistance, and other special traits, such as improved fiber cotton.
5) Now scientists are using advanced molecular biology as a tool to improve plants by inserting genes that enable them to naturally be more resistant to pests.
6) Although traditional plant breeding practices have existed and been used for many years, scientists are now able to pinpoint specific beneficial genes from one species and transfer those genes into another crop's genetics so that it can benefit from them, as well.
7) For many countries, a major challenge for sustainable development will be finding ways to link conservation and biotechnology to increase agricultural production on less land, with lower pesticide use.
8) There has been no evidence of human health problems associated specifically with genetically modified crops or food products, but some people are concerned about the potential for these crops to cause allergic reactions or produce toxic compounds.
9) That is why continued learning of agricultural issues is so important in our complex landscape.

C *Answer the following questions.*

1) What does farming depend on?
2) What does the term 'crossbreeding' mean?
3) Why is biotechnology so widely used in agriculture?
4) Why do scientists develop genetically modified technology?
5) Why has the cost of running a farm risen rapidly since the mid-1900's?

D *Write a resume of 60-70 words of the text.*

Text 2 **Biotechnology for Plants, Animals, and the Environment**

READING

Read the information below, make your own vocabulary of special terms and do the tasks that follow.

Along with the multitude of different farming options and techniques, another issue that affects farmers is biotechnology. As producing food efficiently becomes more critical, scientists and farmers have turned to the science of genetic engineering. Modern biotechnology is a refinement of the breeding techniques that have been used by farmers to improve plants for thousands of years. Scientists have improved plants since the late 1800s by changing their genetic makeup. This has been accomplished through techniques such as crossbreeding and hybridization, where two related plants are cross-fertilized and the resulting offspring have characteristics of both parent plants.

Many foods already commonly available that are products of these techniques include hybrid maize, nectarines (genetically altered peaches), and tangelos (a hybrid of tangerine and grapefruit). Today, by inserting one or more genes into a plant, scientists can produce a plant with new, advantageous characteristics. Because of the increased precision offered by bioengineered methods, the risk of introducing negative traits is likely to be lessened. Genetic engineering can be used to modify the genetic compositions of plants, animals, and microorganisms.

Currently, technology is used mainly to modify crops. Genetically engineered products must go through a period of research and development before they can be used. Many products never make it past the research stage - they never get developed for use. During the past decade, biotechnology has made available genetically engineered crops – corn, soybean, and cotton – that have been altered to control insects and weeds.

Crops are being engineered to better tolerate the effects of herbicides, insects, and viruses. Food animals, such as engineered fish, are also being studied. Biotechnology can also affect medicine and industry. Recently, corn has been engineered to produce pharmaceuticals (medicine and drugs) as well as industrial and research chemicals. Scientists are working on developing corn-based drugs and vaccines.

Some scientists are concerned that engineered products might be harmful to people's health or to the environment. Common concerns include the possibility that engineered crops might contaminate the food supply with drugs, kill beneficial insects along with harmful ones, cross-pollinate with wild species, or otherwise impact natural resources. Some worry that engineered fish could alter native ecosystems, even killing off native species. Other scientists disagree, saying that traits developed by modern biotechnology are more predictable and controllable than the hybrid methods used in the past and that we have a better understanding of the changes being made and are in a better position to understand safety issues.

Scientists are also experimenting with ways to delay the ripening of tomatoes. They are working on methods to increase dairy cows' milk production. Currently, a product called bovine growth hormone (BGH) is being used on about 10% of the daily cows in the United States to achieve this goal. Plants and foods produced using biotechnology are put through strict testing procedures before being offered to the public. In the future, scientists may find ways to engineer animals to produce leaner meat, engineer chickens and turkeys to resist avian diseases, and produce plants that are not vulnerable to insects. New developments and discoveries are being made all the time in this fast-paced branch of science and technology.

COMPREHENSION

A *Give the Russian equivalents for the following word combinations:*

farming options; refinement of breeding techniques; to improve plants; beneficial insects; to cross-pollinate with wild species; a fast-paced branch of science and technology; to alter smth; to contaminate (smth) with smth; to insert one or more genes into a plant; advantageous characteristics; to be (not) vulnerable to insects; strict testing procedures.

B *Translate the following sentences into Russian paying attention to the underlined phrases.*

1) Along with the multitude of different fanning options and techniques, another issue that affects farmers is biotechnology.
2) Many foods already commonly available that are products of these techniques include hybrid maize and nectarines.
3) During the past decade, biotechnology has made available genetically engineered crops - corn, soybean, and cotton - that have been altered to control insects and weeds.
4) Because of the increased precision offered by bioengineered methods, the risk of introducing negative traits is likely to be lessened.
5) Recently, corn has been engineered to produce pharmaceuticals (medicine and drugs) as well as industrial and research chemicals.
6) Common concerns include the possibility that engineered crops might contaminate the food supply with drugs, kill beneficial insects along with harmful ones, cross-pollinate with wild species, or otherwise impact natural resources.

C *Match the sentence beginnings to the correct endings:*

a) Scientists have improved plants since the late 1800s by.....
b) Food animals, such as engineered .....
c) Biotechnology can also affect .....
d) Scientists can produce a plant with new, advantageous .....
e) Modern biotechnology is a refinement of the breeding techniques that have been used by farmers.....
f) Scientists are working on.....
g) Genetically engineered products must go through a period .....

h) Scientists are concerned that engineered products might.....

1)..... …….to improve plants for thousands of years.
2)..... …….developing corn-based drugs and vaccines.
3)..... ……..characteristics by inserting one or more genes into a plant.
4)..... ……..of research and development before they can be used.
5)..... ……medicine and industry.
6)..... ……changing their genetic makeup.
7)..... …….fish, are also being studied.
8)..... ……..be harmful to people's health or to the environment.

D *Answer the following questions.*

1) Why do farmers have to turn to such new method of farming as biotechnology?
2) What is crossbreeding and hybridization?
3) What is genetic engineering used for?
4) Why are some scientists concerned that engineered products might be harmful to people's health or to the environment?

E *Write a resume of 60-70 words of the text.*

ДЛЯ ЗАМЕТОК

Учебное издание

Горощеня Зоя Михайловна, **Сысова** Наталья Викторовна,
Мороз Татьяна Валентиновна

АНГЛИЙСКИЙ ЯЗЫК

Учебно-методический комплекс

Модуль 4

Учебно-профессиональное общение

Часть 1

Ответственный за выпуск *Н. В. Дорошко*
Компьютерная верстка *А. И. Стебуля*

Подписано в печать 26.10.2011 г. Формат $60\times84^{1}/_{16}$. Бумага офсетная.
Ризография. Усл. печ. л. 2,09. Уч.-изд. л. 1,63. Тираж 30 экз. Заказ 951.

Издатель и полиграфическое исполнение:
учреждение образования
«Белорусский государственный аграрный технический университет».
ЛИ № 02330/0552984 от 14.04.2010.
ЛП № 02330/0552743 от 02.02.2010.
Пр-т Независимости, 99-2, 220023, Минск.