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ИНОСТРАННЫЙ ЯЗЫК

*Методические рекомендации к практическим занятиям
для студентов всех специальностей и направлений подготовки
дневной и заочной форм обучения*

**УСТНЫЕ ТЕМЫ И ЗАДАНИЯ ПО РАЗВИТИЮ РЕЧИ
НА АНГЛИЙСКОМ ЯЗЫКЕ
(ПРОФЕССИОНАЛЬНО ОРИЕНТИРОВАННОЕ
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Careers in Engineering and Economics

Unit 1. What is Engineering?

1 Study the following words.

1	maintenance	техническое обслуживание
2	application	применение
3	development	разработка
4	solid mechanics	механика твердого тела
5	fluid mechanics	механика жидкости
6	transfer	перенос
7	manufacture	производство
8	assembly	сборка
9	to design	проектировать, конструировать
10	to forecast	прогнозировать
11	Behavior	поведение

2 Read the following text.

Engineering refers to any type of science concerned with the design, construction and **maintenance** of machines, systems and structures. It is a vast field that has **applications** in nearly every industry. Engineers of various types were likely involved in the home you live in, the building you work at, the bridges you drive over and the products you buy. If you are interested in problem solving, experimentation and machine **development**, a career in engineering may suit you.

Engineering is based principally on physics, chemistry, mathematics, science, **solid** and **fluid mechanics**, thermodynamics, energy **transfer** processes, and systems analysis.

Engineering as a profession involves different tasks. It can refer specifically to the **manufacture** or **assembly** of engines, machine tools and machine parts. It is also used more generally to describe the creative application of scientific principles **to design**, develop, construct and **forecast** the **behavior** of structures, apparatus, machines, and manufacturing processes.

Unit 2. Careers in Engineering

1 Answer the following questions.

1. Why is engineering a good career?
2. Who makes a good engineer?
3. Why do you think that the career in engineering is the right one for you?
4. Are you interested in making technologies and production more efficient?
5. Are you good in maths and science?
6. Are analyzing and evaluating your strong points?

7. Why is it important for an engineer to be a problem solver, to be able to multitask, meet deadlines, and work productively in a team environment?
8. What are the job opportunities for engineers in the near and far future?

2 Read the following text.

Who makes a good engineer? Well, if you are an analytical problem-solver, like a **challenge**, have a passion for innovation and **possess** critical thinking skills, then engineering may be the right **career** field for you. The best engineers really like to solve complex problems. They are true **inventors** and they are always **curious** about how things work.

Most engineers work as a team; therefore, you should be a **team player** and possess great **communication skills**. This will be highly important when planning and creating new projects. They really want **to make a difference in the world**. Many innovative technologies created by engineers help make the world safer and healthier. They help people improving **the environment**.

Careers in engineering are popular among young people. Engineering provides a large number of **job opportunities** and specialties but it is not for everyone. One must have strong math and science skills. Therefore, if you struggled through your algebra, this career may not be the right fit for you. It requires the ability to perform complex computations quickly, to be creative and innovative and to be ready to take **responsibility** for the safety of others.

All industries today need well-trained and qualified professionals. The Belarussian-Russian University is a good institution for getting a University and Engineer diploma. Students learn the latest practices and specialize in one or more areas. The University also offers courses that teach the skills necessary for a managerial role in the specific industry. Before graduation, engineering students will have firm knowledge of computer applications to be used in the chosen engineering career field.

There is a number of engineering fields to choose from, like mechanical engineering, electrical engineering, civil engineering, computer science, computer engineering, automotive engineering, welding engineering, quality control engineering, etc., depending on young people's interests and abilities.

3 Match the following words and word combinations with their definitions. Skim the text and see how these words/word combinations are used in the text. Use them in sentences of your own.

A	B
1. challenge	a) ability to share or exchange information by speaking or writing
2. career	b) a person who works well with other people in order to achieve things
3. to possess	c) who invents things as an occupation
4. inventor	d) a chance for employment/promotion
5. curious about	e) the job or profession someone does for a long period of their life
6. team player	f) something that needs mental or physical effort to be done successfully
7. communication skills	g) a duty to deal with something or to have control over someone

A	B
8. to make a difference in the world	h) eager to know or learn something
9. environment	i) own, have
10. job opportunities	j) to change the world
11. responsibility	k) the natural world in which people, animals and plants live

4 Choose the right answer.

An automotive engineer is

1. an engineer who designs and constructs bridges, water and sewage facilities, roads and streets, tunnels, and other critical systems our society needs.
2. an engineer who deals with the design, development, testing, and manufacturing of vehicles.
3. an engineer who designs new mechanical prototypes, or investigates equipment failures and breakdowns finding the causes of these failures.
4. an engineer who deals with electrical and electronic parts and components, from radar, navigation, and communication systems to the electrical systems inside cars and airplanes.

A mechanical engineer is

1. an engineer who designs and tests computer hardware and ensures that hardware and software work together smoothly.
2. an engineer who designs construction plans and oversees progress at construction sites.
3. an engineer who designs and builds machinery and supervises its maintenance.
4. an engineer who needs a strong understanding of vehicle construction.

A civil engineer is

1. an engineer who creates and improves mechanisms and designs within the automotive field.
2. an engineer who plans, designs, and supervises the construction and maintenance of building and infrastructure projects.
3. an engineer who is concerned with the production of electricity.
4. a specialist who is responsible for designing, testing, and installing various operating systems and software to improve the efficiency of organizations.

An electrical engineer is

1. an engineer who is responsible for building tunnels and motorways.
2. an engineer who deals with the production and distribution of electricity to homes and businesses.
3. an engineer who determines the best way how to use a piece of machinery and to maximize efficiency of the assembly line.
4. an engineer who develops and tests the software to make our computers work.

5 Here is an extract from a speech made by a career advisor to a group of students choosing their future courses of study at university. Complete the speech by choosing one of the words from the box.

a) deal with; b) design; c) electricity; d) homes; e) highway; f) environment; g) mechanical; h) civil; i) electrical; j) science; k) manufactures; l) electronic; m) performance

Engineering is about putting ideas into action. If you enjoy problem solving and have a passion for innovation, this career field may be for you. Engineering students should have an understanding of math, (1. ...) and chemistry. There are lots of fields to choose from. A (2. ...) engineer designs, develops, (3. ...) machines and different processing equipment and supervises their (4. ...). He develops creative (5. ...) projects at an economical price paying concern to the (6. ...). If you want to (7. ...) the design, construction, and maintenance of the natural and built structures, (8. ...) engineering is the right fit for you. If your interest is in road building then you may decide to follow a course in (9. ...) engineering. By studying electrical and (10. ...) engineering you learn about the design of complete systems, such as computers, power and transport systems. (11. ...) engineering is also about the generation and distribution of (12. ...) and its many applications. Electrical engineers provide lighting, heating, air-conditioning, ventilation, and lift operation in our (13. ...) and places of work.

6 Questions and tasks.

1. Can you say now that the career in engineering is the right one for you?
2. Describe various aspects of the work of an engineer.
3. Write a paragraph about the duties of an engineer (70 100 words).

Unit 3. An Automotive Engineer Career

Majors: 6-05-0715-03 Vehicle, Tractors, Mobile and Technological Complexes,
6-05-0715-07 Operation of Ground Transport and Technological Machines and Complexes,
23.03.02 Ground Transport and Technological Complexes

1 a) Ask your partner the following questions to evaluate his potential to become an automotive engineer.

1. Are you interested in engineering careers in general?
2. Is automotive engineering the industry that interests you most?
3. What automotive engineering career path interests you (vehicle design engineer, vehicle manufacturing engineer, vehicle performance engineer, vehicle safety engineer, vehicle electronics engineer)?
4. Are you a natural problem solver?
5. Do you communicate well with others?
6. Can you work productively in a team environment?
7. Are you able to multi-task and meet deadlines?
8. Are you willing to constantly learn new things?
9. Are analyzing and evaluating your strong points?

b) If the answers are "yes" and your partner does not struggle with math and science, he has made the right decision to pursue a major in automotive engineering, hasn't he? Write down your arguments.

2 Study the following words.

1	design	проектирование, конструирование
2	vehicle	автомобиль, транспортное средство
3	challenging	сложный, требующий усилий
4	rewarding	приносящий удовлетворение, стоящий
5	performance	характеристики автомобиля
6	computer-aided design	автоматизированное проектирование
7	to manufacture	производить
8	to assemble	производить сборку, собирать
9	maintenance	техническое обслуживание
10	suspension	подвеска
11	steering	рулевое управление
12	powertrain	силовая передача, трансмиссия
13	anti-skid braking system	антиблокировочная система колес
14	to dismantle	демонтировать
15	lubricant	смазочный материал, смазка
16	coolant	охлаждающая жидкость
17	wheel alignment	регулировка углов установки колёс (развал-схождение)
18	exhaust	выхлопные газы
19	hardware	аппаратные компоненты, оборудование
20	to troubleshoot	устранять неполадки
21	to debug	наладить

3 Read the following text.

If you are passionate about cars, technology, and innovation, a career in automotive engineering is the right one for you. Automotive engineering deals with the **design**, development, testing, and manufacturing of **vehicles** and their components. Automotive engineer careers are exciting, **challenging**, **rewarding** and good careers to pursue. Automotive engineers work on various aspects of vehicle **performance**, safety, efficiency, and environmental impact. Here are some of the automotive engineering career paths that you can choose from.

Option 1 – Vehicle Design Engineer. Vehicle design engineers create the overall concept, appearance of a vehicle, and its functional details. They use **computer-aided design (CAD)** software, models, and prototypes to visualize and test their ideas. Vehicle design engineers ensure that their designs meet the technical specifications and customer requirements. They need a solid understanding of engineering principles, materials, and manufacturing processes.

Option 2 – Vehicle Manufacturing Engineers. They are responsible for the production process of vehicles and their components. They design and optimize manufacturing methods, tools, and equipment that are used to **manufacture** and **assemble** the vehicles. They also monitor and control the quality, cost, and efficiency of the production process, as well as the safety and environmental impact of the

manufacturing operations.

Option 3 – Vehicle Performance Engineers. They are focused on optimizing the performance of a vehicle. They evaluate behavior of different vehicle components and systems, such as **suspension**, brakes, **steering**, **powertrain**, **anti-skid braking systems**, and analyze fuel economy. They must know how to **dismantle** or repair faulty engines; how to change vehicle **lubricants** (such as oil) and **coolants** (such as radiator water). They tune engines so that vehicles run smoothly or may specialize in **wheel alignment**, air conditioning, transmissions and **exhausts**. They inspect vehicles to diagnose faults and diagnose what is causing these faults. Also, experience in using computer diagnostic equipment is very important and computers are widely used in automotive service stations now.

Option 4 – Vehicle Electrical/Electronics Engineers. They develop electric and electronic systems and devices that control and monitor various functions of a vehicle. They design **hardware** components of these systems, and program software for them. Hardware components include different controllers and related electronics, such as the engine controller, controllers for safety systems like air-bags and anti-lock brakes, navigation systems, electric locks, windows and windshield wipers, door sensors, different indicators. They also **troubleshoot** and **debug** any issues that arise during the operation of all electric systems, including controls, safety systems, and vehicle-to-vehicle communication. Vehicle electronics engineers need to have a proficient background in computer science, electrical engineering, and software engineering.

About 4.5 million motor vehicles are registered in Belarus, which carry out more than 55 % of cargo volumes. Vehicle maintenance accounts for 95 %...98 % of the costs for their entire life cycle, which indicates the importance of training highly qualified specialists in the automotive profile. Motor transport enterprises (operational, maintenance and repair) need various employees, both managers and specialists.

4 Complete the text by choosing one of the words from the box.

budget, design, training, researchers, marketing, components, manufacturers, prototypes, consumers, drawing board, activities, crashes

Building a car takes a long time – from research, through design to final development. First, (1. ...) need to determine what (2. ...) want, and then suggest what kind of automobile to make. During the (3. ...) phase, new ideas are converted into tangible parts or products. At the same time engineers modify existing parts and features for the new model. Then (4. ...) begin to construct a few (5. ...) (a working example of a new design). These are tested in wind and dust tunnels, heat and cold, and (6. ...).

At the next stage a plant is set up to produce the new model and the necessary (7. ...). Product planners monitor the process to finish the new car program on time and within (8. ...). Managers must also coordinate different (9. ...) – producing the cars, purchasing materials, and (10. ...) the workers. (11. ...) teams must then sell the car. Every year the major car manufacturers launch their new models, but a single car design can take several years from the (12. ...) to the showroom floor.

5 Test your knowledge of the terms for car components/parts and match them with the functions they perform.

1. engine	a) carries waste gases away into the air
2. battery	b) cools water from the engine
3. steering wheel	c) provides the power
4. fuel tank	d) used by the driver to turn the car
5. suspension	e) ensures that the rear wheels turn at a different speed to each other when a car corners
6. exhaust pipe	f) makes the car go faster when it is pressed
7. accelerator	g) prevents wheels from locking to avoid skidding while braking
8. differential	h) stores electricity
9. radiator	i) provides a smooth ride, absorbs energy from road bumps
10. ABS	j) holds fuel

6 Speak about the career of an automotive engineer using the following phrases to describe duties involved in this job.

1. to have a deep interest in motor vehicles.
2. to use computer-aided design (CAD) packages to develop ideas and to produce new products.
3. to modify existing ones.
4. to solve engineering problems based on mechanical, electrical, hydraulic, thermodynamic or pneumatic principles.
5. to test the performance of vehicles and their safety.
6. to predict, analyze, troubleshoot mechanical failures or unexpected maintenance problems.
7. test drive vehicles and check for faults.
8. to understand safety standards and to keep to them.
9. to analyze their safety and environmental impacts.

7 Can you say now that the career in automotive engineering is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Are job chances for automotive engineers good in the near and far future?

Unit 4. A Mechanical Engineer Career

Majors: 6-05-0611-01 Information Systems and Technologies,
 6-05-0722-05 3D Technology for Product Manufacturing,
 6-05-0713-04 Automation of Technological Process and Production,
 6-05-0714-02 Mechanical Engineering Technology, Metal-Cutting Machines and Tools,
 15.03.06 Mechatronics and Robotics

1 a) Ask your partner the following questions to evaluate his potential to become a mechanical engineer.

1. Are you interested in a career in engineering?
2. Is mechanical engineering the industry that interests you most?

3. Are you interested in machines and equipment of any kind and in the way they operate?

4. What mechanical engineering career path interests you most (Design Engineer, Automation and Mechatronics Engineer, IT Systems Engineers, Additive Manufacturing Engineer)?

5. Are you a natural problem solver?

6. Do you communicate well with others?

7. Can you work productively in a team environment?

8. Are you able to multi-task and meet deadlines?

9. Are you willing to constantly learn new things?

10. Are analyzing and evaluating things your strong points?

b) If the answers are "yes" and your partner does not struggle in math and science, can he pursue a career in mechanical engineering? Say what you think about it. Write down your arguments.

2 Study the following words.

1	to design	проектировать, конструировать
2	installation	установка
3	drawing	чертёж
4	to manufacture	производить
5	challenging	сложный, требующий усилий
6	rewarding	полезный, стоящий
7	in demand	быть востребованным
8	to assess	оценивать
9	to enhance	улучшать, усиливать
10	interaction	взаимодействие
11	computer-aided design (CAD)	автоматизированное проектирование
12	prototype	опытный образец
13	computer aided manufacturing (CAM)	автоматизированное производство
14	maintenance ['meɪnt(ə)nəns]	техническое обслуживание
15	debugging	наладка, отладка
16	troubleshooting	устранение неполадок
17	cause	причина

3 Read the following text.

Mechanical engineering is one of the broadest disciplines in the engineering field. It deals with the **design**, **installation** and operation of mechanical systems and machinery. Mechanical engineers develop new ideas, improve designs, prepare **drawings**, and **manufacture** anything that has moving parts. They focus on creating efficient and reliable machines and systems which keep the world safe and moving smoothly. They apply principles of physics, mathematics, and material science to design and manufacture mechanical systems and devices. Mechanical engineer careers are exciting, **challenging**, **rewarding** and good careers to pursue. Good engineers are

in demand, and jobs are plentiful.

Here are some of the mechanical engineering career options available at the Belarussian-Russian University.

Option 1 – Design Engineers. They find innovative ideas to develop new products and systems. They analyze and improve existing projects or components and **assess** their efficiency and safety. They widely use **computer-aided design (CAD)** software. With CAD programs, design engineers do complex simulations to determine how objects work. With computers, a design can be put through simulations with different stresses, to determine how a device would react to the situation. They analyze **prototype** data, retest if needed, and find solutions to improve production efficiency.

Option 2 – Automation and Mechatronics Engineers. They combine mechanical, electronic and software engineering with computer science and robotics. They design, test and optimize automated systems in various mechanical and digital environments. No doubt that automation and robotics are essential components of the manufacturing sector now. These engineers create automated systems and the software to control them. They construct and operate robots, **enhancing** automation and human-machine **interaction**. They are involved in all stages of product development, from conception to manufacturing. They use CAD (Computer Aided Design) and CAM (**Computer Aided Manufacturing**) software widely. There is no need now to design a part on paper and then write the program to manufacture it. CAD/CAM software does the two stages directly on the computer. One more responsibility is **maintenance** of various automated systems. **Debugging**, repairing, **troubleshooting** and analysis of causes are regular tasks of these engineers.

Option 3 – IT Systems Engineers. They work to integrate the entire manufacturing process using the latest computer technology. Generally, they are responsible for a project from start to finish, rather than focusing on one particular part of the process. Tasks typically include designing, developing and installing plant control system by using computer-aided design/manufacturing (CAD/CAM) software to build 3D models.

Option 4 – Additive Manufacturing Engineers. They develop manufacturing process plans for additive manufacturing. Additive manufacturing (AM) may be called a revolution in manufacturing. It is the industrial name for 3D printing, a computer controlled process, which creates three dimensional objects. Advanced printing techniques are used to build up models making it layer by layer. It is the opposite of traditional manufacturing, in which an object is created by cutting away material until the final product is complete. Machinery, computer, numerical control, and materials are integrated in the digital manufacturing field.

4 Replace the words in bold with the synonyms in the box.

a) trainability; b) on the edge; c) checking; d) highly developed; e) abilities;
f) used successfully; g) people; h) affordable; i) miniature; j) adapting; k) features

Industrial robots are (1. ...) **on the verge** of revolutionizing manufacturing. As they become smarter, faster and (2. ...) **cheaper**, they are being called upon to do more. They are taking on more “human” (3. ...) **capabilities** and (4. ...) **traits** such as sensing, memory and (5. ...) **ability to learn quickly**. As a result, they are taking on

more jobs – such as picking and packaging, testing or (6. ...) **inspecting** products, or assembling (7. ...) **minute** electronics.

For decades, advanced industrial robotics have been chiefly pioneered and (8. ...) **deployed** by the automotive industry. New technologies are making robots smarter including greater computing power, a wider range of different tasks, vision recognition, more (9. ...) **sophisticated** sound and movement detection, ability to sense the environment and to interact with (10. ...) **humans**. Advanced robots are equipped with sensors and cameras for detecting the operator's presence and (11. ...) **adjusting** their movements to avoid any type of accident.

5 Finish the sentences.

1. An industrial robot is a robot system used for
2. They have some capabilities attributed to humans, such as
3. Typical applications of robots include
4. Thanks to new technologies robots have
5. They can prevent

6 Match the phrases 1–10 with a–j to make sentences. Pay attention to the definitions of the three types of 3D modeling CAD: *каркасное моделирование, моделирование поверхности, твердотельное моделирование.*

1. A CAD system is composed of ...	a) available
2. The primary function of the CAD system is ...	b) to allow the drafter, engineer, designer to solve graphic problems and produce accurate and legible drawings
3. There are different types of 3D-modeling CAD: ...	c) hardware (the computer and associated peripheral equipment) and the software
4. <i>Wire-frame modeling</i> , ...	d) where physical properties such as mass and volume can be established
5. <i>Surface modeling</i> , ...	e) where the object is represented by a series of contour lines, creating a form of mesh
6. <i>Solid modeling</i> , ...	f) where the surface finish can be added to produce a more realistic effect
7. CAD system can be used ...	g) they are widely used in industry because of the possibilities that they offer
8. A virtual prototype can be provided ...	h) to test more design alternatives and to make changes at the design stage
9. This simulation is ...	i) and visualized from different angles and in different working situations
10. Although CAD systems can be very expensive to install and update, ...	j) very quick and accurate

7 Complete the sentences using the words from the box.

designs, maintenance, in demand, troubleshooting, simulation, prototype,
assess, enhance, challenging

1. There is a shortage of qualified professionals, which occupations are (...) in some industries.
2. The consultant was hired to (...) possible risks and hazards.

3. Some of the tasks can be very (...) but with the proper education, an engineer will be able to perfectly solve every problem.

4. (...) is a first or preliminary version of a device or vehicle from which other forms are developed.

5. To (...) means to improve the quality, amount, or strength of something.

6. Good (...) helps to avoid having numerous failures.

7. When someone (...) a machine, or other object, he makes a detailed drawing of it from which it can be built or made.

8. The production of a computer model of something, especially for the purpose of study, is called (...).

9. (...) is a form of problem solving, often applied to repair failed products or processes on a machine or a system.

8 Speak about the career of a mechanical engineer using the following phrases to describe duties involved in this job.

1. to develop new product concepts and prototypes.

2. to design, produce, install mechanical and electronic systems.

3. to maintain and inspect them.

4. to modify and improve existing ones.

5. to read technical drawings, to analyze specifications and maintenance requirements.

6. to select the required tools and materials for the manufacturing process.

7. to analyze breakdowns and faulty operation, to provide technical information.

8. to develop automated systems and the software to control them.

9. to be familiar with computer design software to create 3D models and detailed drawings of mechanical components and assemblies.

10. to understand safety standards and to keep to them.

11. to have strong communication skills.

9 Can you say now that the career in mechanical engineering is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job chances for design engineers, automation and mechatronics engineers, IT systems engineers, and additive manufacturing engineers be good in the near and far future?

Unit 5. A Civil Engineer Career

Majors: 7-07-0732-01 Construction of Buildings and Structures,
6-05-0732-02 Real Estate Expert Assessment and Management

1 a) Ask your partner the following questions to evaluate his potential to become an automotive engineer.

1. Are you interested in engineering careers in general?

2. Is civil engineering the field that interests you most?

3. What field in civil engineering are you most interested in (construction of buildings and structures, road construction, real estate assessment and management)?

4. Are you a natural problem solver?
5. Do you communicate well with others?
6. Can you work productively in a team environment?
7. Are you able to multi-task and meet deadlines?
8. Are you willing to constantly learn new things?
9. Are analyzing and evaluating your strong points?

b) If the answers are "yes" and your partner does not struggle with math and science, he has made the right decision to pursue a major in civil engineering, hasn't he? Write down your arguments.

2 Study the following words.

1	employment	занятость, работа
2	placement	трудоустройство
3	facility	сооружение
4	residential	жилой, жилищный
5	to maintain	обслуживать, поддерживать в работоспособном состоянии
6	utilities [ju:'tɪlɪtɪz]	коммунальные предприятия, инженерные сети
7	water-supply	водоснабжение
8	sewage ['s(j)u:ɪdʒ]	канализация
9	real estate	недвижимость
10	expert assessment	экспертиза
11	feasibility study	технико-экономическое обоснование
12	site investigation	обследование площадки (строительной)
13	load-bearing quality	несущая способность
14	multitasking	многозадачность, многопрофильность
15	maintenance	обслуживание (зданий)
16	to troubleshoot	отыскивать, устранить неисправность
17	to damage	повреждать, наносить ущерб
18	to withstand	выдерживать (неблагоприятные условия среды)
19	surveying	геодезия

3 Read the following text.

A Civil Engineer career is a very good career to pursue. Construction engineering is one of the oldest engineering specialties and construction is one of the most important industries in any country. It is, perhaps, the only sector in the economy in which **employment** is projected to grow. As the population grows, the need to build more structures also grows, and more civil engineers are needed. New graduates can expect 100 % **placement**.

Civil engineers plan, design and construct many types of **facilities**: commercial (office buildings and shopping centers), institutional (hospitals and schools), industrial (factories and refineries), **residential** (homes and apartments), They also construct, **maintain**, or repair **utilities**, such as gas, **water supply and sewage systems**.

Highway engineering is a branch of civil engineering, and highway engineers deal

with planning, designing, construction, operation, and maintenance of roads, highways, streets, and bridges.

Graduate civil engineers are also needed in **real estate expert assessment** and management. The real estate market is developing, new technologies and software products improve buildings, smart homes and cities are built. It increases the need for professionals with knowledge and skills in real estate assessment and management.

These are the options in the construction field, in which the Belarussian-Russian University offers training – civil engineering, including highway construction, and real estate expert assessment and management.

Any construction project starts with a **feasibility study**, which assesses its engineering and financial aspects, and **site investigation**. Then dimensions are analyzed, calculations are performed, detailed technical drawings are done and specifications are prepared. The **load-bearing qualities** and stability of the ground are evaluated. This field is called soil mechanics. A finished design is developed based on these drawings, and construction can begin. During the construction phase, civil engineers monitor the construction project. They coordinate with various teams, manage resources, and ensure that all specifications are met and safety regulations are followed.

Civil engineers may also be involved in building **maintenance**. These are efforts and tasks to keep a building or facility in good condition and to ensure the safety, comfort, and functionality of the structure.

Construction activity is **multitasking**. Civil engineers usually work in offices creating designs and structural plans. However, they also work at construction sites to monitor workers and **troubleshoot**.

Construction engineers must do their job well as they are directly responsible for the health of people. They should build things that will not **damage** the planet. Buildings and structures should **withstand** outside forces like wind and their own weight and they should be safe. Becoming a good construction engineer isn't simply getting a Diploma in construction.

Civil engineering, like all engineering disciplines, is a science. Therefore, the student who wants to be a civil engineer needs to study math and the sciences. The civil engineer needs deep knowledge of **surveying**, of the properties and mechanics of construction materials, of the mechanics of structures and soils, and of hydraulics and liquid mechanics.

4 Match the words in A with the words/phrases in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

A) 1) pursue; 2) maintain; 3) many types of; 4) feasibility; 5) load-bearing; 6) multitasking; 7) site; 8) knowledge of; 9) responsible for; 10) withstand; 11) meet.

B) a) investigation; b) activity; c) a career; d) surveying; e) health of people; f) study; g) outside forces; h) water/sewage system; i) specifications; j) qualities; k) facilities.

5 Match the words/phrases in A with their definitions in B.

A	B
1. facilities	a) to keep equipment, structures, public highway, etc. in an appropriate condition or operation
2. feasibility study	b) dimensions and measurements
3. site investigation	c) buildings, pieces of equipment, or services provided for a particular purpose
4. to maintain	d) a study to assess both financial and engineering aspects of a project
5. soil mechanics	e) a survey of the location where a structure will be built to assess geology of the area
6. technical drawing	f) art and science which makes accurate measurements of Earth's surfaces
7. specifications	g) structures, systems and equipment that provide such services as gas, water, light, heat, sanitary sewer
8. utilities	h) the ability to support the weight of a structure and the support can be provided by the earth or by a wall
9. load-bearing quality	i) to trace and correct faults in a mechanical or electronic system
10. to troubleshoot	j) a branch of mechanics that evaluates the load-bearing qualities and stability of the ground
11. surveying	k) a detailed diagram or plan that presents information about how an object functions or is constructed

6 Complete the sentences using the words from the box.

employment, sewage, placement, utilities, troubleshoot, damage, surveying, withstand

- The project could seriously (...) the environment.
- The structure was designed to (...) winds of more than 100 mph.
- A fall in full-time (...) has been observed.
- Public (...) such as gas, electricity and phones are an important part of any city's infrastructure.
- (...) is waste matter from homes and factories, flowing away through sewers.
- We speak about a job (...) program to help those who are unemployed when we mean finding them a job.
- To (...) means to find and correct faults in a mechanical or electronic system.
- (...) is used to establish the conditions of the future construction site, including topography, existing buildings, infrastructure, as well as underground infrastructure.

7 Complete the text using the words from the box.

architect, surveyor, foundation, load-bearing, roofers, carpenters, masons, painters, plumbers, plasterers, electricians

There are two main methods of building houses. In one, solid walls known as (1. ...) walls are constructed. They support the floors and the roof of the building. In the other, depending on the type of building, a framework of steel, timber or concrete is constructed.

When building a house, the (2. ...) first of all, examines the site and makes a plan of the size and shape of the plot of land. Next, an (3. ...) makes a detailed drawing of the building, gives information about the materials which are to be used and how much

of these materials will be needed for the building. Then, the ground is dug out and the (4. ...) is laid. During building, (5. ...) make the wooden structures, (6. ...) place stone, (7. ...) construct the roof and (8. ...) cover walls and ceilings with plaster. Once the building has been completed, (9. ...) lay meters of electrical cable, and (10. ...) install pipes for heating and water. Finally (11. ...) paint the walls and ceilings of the building.

8 Write down the functions of a civil engineer at each phase of construction.

1. before construction.
2. during construction.
3. after construction.

9 Study the following road construction terms.

1	pavement	дорожное покрытие
2	carriageway	проезжая часть дороги
3	pavement base	основание дорожного покрытия
4	surfacing	покрытие
5	sub-base	дополнительный слой основания
6	subgrade	грунт земляного полотна
7	wearing course	слой износа
8	course	основной слой покрытия
9	roadbed	земляное полотно
10	rigid	жесткий
11	abrasion	износ
12	drainage	дренаж

10 Complete the sentences by the words from the task above.

The carriageway is covered with a (1. ...). The pavement resists traffic stresses and climatic factors, and consists of the following layers: *the surfacing, the pavement base, the sub-base and the subgrade.*

(2. ...) is the upper and most (3. ...) layer of the pavement. It is comparatively thin, but resists well the (4. ...), and the effect of weather conditions. Surfacing usually comprises two courses – a course and (5. ...).

Below the surfacing is the pavement base made of stone with a binding matrix.

The (6. ...) is a layer of materials resistant to moisture. The sub-base is made of gravel, slag, sand, etc. It is often the main load-bearing layer of the pavement. The primary functions of the sub-base are to provide structural support and improve (7. ...).

The subgrade is the native material underneath a constructed road. It is the thoroughly compacted upper layers of the roadbed.

11 Say if the sentences concerning the text above are true or false.

1. The pavement resists only traffic stresses.
2. The surfacing is the less rigid layer of the pavement and cannot resist abrasion.
3. The pavement base is laid directly on the surface of the roadbed.
4. The subgrade consists of a course and a wearing course.
5. The pavement base contains stony material or stone with a binding matrix.

6. The sub-base layer is not always necessary.
7. The subgrade is subjected to the direct actions of wheels.

12 Speak about the duties of an engineer in the chosen field of civil engineering. Use the following phrases to describe these duties.

1. creating, managing and developing construction projects.
2. planning, designing, and constructing different facilities.
3. conducting on site investigation and analyzing data (maps, tests, drawings, etc.).
4. carrying out feasibility studies and preparing drawings that meet technical specifications.
5. assessing potential risks, materials and costs.
6. directing and coordinating activities in the field of civil engineering.
7. monitoring workers and troubleshooting.
8. understanding safety standards and keeping to them.
9. designing local road schemes and maintaining the road network.
10. finding new solutions to transport problems.
11. planning for highway maintenance and inspecting road surfaces for hazards.
12. ensuring that projects are completed on time and within budget.
13. providing engineering expertise on buildings, and all kinds of major construction projects.
14. having a solid understanding of the local real estate market, trends, and laws.
15. using computer software, property management software, and online platforms.

13 Can you say now that this career is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job chances for civil engineers be good in the near and far future?

Unit 6. A Career in Computer Science

Majors: 6-05-0612-03 Information Management Systems,
 09.03.01 Computer Science and Computer Engineering,
 09.03.04 Software Engineering,
 01.03.04 Applied Mathematics,
 15.03.03 Applied Mechanics

1 a) Say what you think about.

1. Job chances for IT specialists will be good in the near and far future.
2. It is the fastest growing sector of the economy.
3. Developments in IT will greatly affect the following areas of life in the next ten years – work, commerce, the relationship between humans and computer. Do you agree with it?

b) To evaluate your partner's potential to become a computer or IT engineer ask him the following questions.

1. what attracts him most – computer science or IT engineering.
2. what he would choose – to work in the field of (a) computer science and

computer technology and deal with automated information processing and control systems, or (b) in software engineering, or (c) in computer engineering.

3. whether he has a passion for programming and creating software applications.

4. whether he has critical thinking and strong analytical skills.

5. whether identifying, evaluating and solving complex problems are his strong points.

6. whether he is a natural problem solver and a strong communicator.

7. whether he can work productively in a team environment, multi-task and meet deadlines.

c) Your partner has made the right decision to pursue a major in computer science, hasn't he? Write down your arguments.

2 Study the following words.

1. distinct	различный, разный
2. similarity	сходство, подобие
3. designing	проектирование
4. maintaining	обслуживание
5. troubleshooting	устранение неполадок
6. to ensure	обеспечивать, убеждаться
7. to make sure	убедиться, удостовериться
8. hard and soft skills	жесткие и гибкие навыки
9. to be in charge (of)	руководить, отвечать за что-либо
10. implementing	осуществление, реализация
11. customer	клиент, покупатель
12. to be familiar (with)	быть знакомым с чем-либо
13. equation	уравнение
14. to verify	подтверждать

3 Read the following text.

Nowadays, you can find computers anywhere and because of their global use, career opportunities in computer science and information technology are great. Computer science and information technology (IT) are two **distinct** subjects, despite their many **similarities**. Generally, computer science refers to **designing** and building computers and computer programs. Information technology, on the other hand, refers to **maintaining** and **troubleshooting** those computers and their networks, systems, and databases **to ensure** that they run smoothly. So, working in a computer science-based job might mean you create software, design websites, or gather information on visitors to a website. A career in IT can mean you **make sure** computers are functional and secure. Careers in both fields span many different areas, from computer hardware and software development to networking, computer repair, technical support, cybersecurity, cloud computing, **and a lot more**.

Computer and IT engineers need certain **soft and hard skills**, namely.

Project management. They are **in charge of** managing a team in **implementing** new projects and may work on multiple projects at one time.

Problem-solving. Good problem-solving skills are a must, as computer and IT engineers are often tasked with providing solutions to computer problems.

Communication. They have to communicate with employees of all levels and also often work closely with **customers**. Written and verbal communication skills are important, as is the ability to communicate technical ideas to people who may not be **familiar with** systems.

Mathematics. Good mathematical skills provide a baseline for programming skills. Understanding how to analyze **equations** are also important in designing and developing new programs.

Programming. Programming is an important part of working in both fields. IT engineers will usually need to **verify** and handle the functions of different computer programs.

Computers have dramatically changed the world over the last decades and they are expected to continue to grow in popularity.

The industry is growing rapidly, new opportunities are emerging every day and its future looks very bright. The Belarusian Russian University offers training through a wide range of programs, such as computer science, computer engineering, software engineering, applied mathematics, applied mechanics, the latter referring to the realm of computer engineering.

4 Match the words in A with the words/phrases in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

A) 1) despite ... ; 2) to ensure ... ; 3) maintaining and troubleshooting ... ; 4) computer science-based ... ; 5) to provide s ... ; 6) to create s... ; 7) to need ... ; 8) to design w... ; 9) in charge of ... ; 10) to implement ... ; 11) to verify p ... ; 12) to work on

B) a) computers and networks; b) similarities; c) managing a team; d) smooth operation; e) hard and soft skills; f) new projects; j) websites; h) jobs; i) software; j) multiple projects; k) solutions; l) programs.

5 Match the words/phrases in A with their definitions in B.

A	B
1. opportunities	a) information stored in a computer in an organized structure so that it can be searched in different ways
2. network	b) the machines or equipment that the computer system is made from, not the programs
3. databases	c) computers connected together so that they can share information and programs
4. website	d) the delivery of computing services – including servers, storage, databases, networking, software, analytics, and intelligence – over the internet ("the cloud")
5. hardware	e) a mathematical statement that shows two amounts are equal using mathematical symbols
6. software	f) personal behaviors that enable someone to interact effectively

A	B
7. equation	g) a set of digital instructions that guide the hardware components of a computer to carry out various operations and processes
8. cloud computing	h) a chance to take advantage of an event, or situation that can bring about some benefit
9. hard skills	i) to prove that something is true, or do something to discover if it is true
10. soft skills	j) an area on the Internet where information about a particular subject, organization, etc. can be found
11. to verify	k) allow you to perform job-specific tasks and responsibilities

6 Complete the sentences using the words from the box.

software, applications, schedule, layman (someone who does not have special knowledge of a subject), developing, clients, operating, skills, team, computers, tasks, computer-related, office, engineers

A computer engineer, also called a (1. ...) engineer, is responsible for (2. ...), testing and evaluating the software that makes our (3. ...) work. They may develop new computer games, business (4. ...) or even entirely new (5. ...) systems. A computer engineer may also be responsible for constructing and managing an organization's computer system and providing technical support. A computer engineer typically works in an (6. ...) or laboratory environment as part of a (7. ...) and enjoys a traditional work (8. ...). People who enjoy a career in computer engineering usually have strong analytical (9. ...) and are able to focus on many (10. ...) at once. Because computer (11. ...) must work with customers and (12. ...), the ability to express (13.) information in (14. ...) terms is also valued.

7 Here are descriptions of the most common jobs in the field of computer science. Match job titles with their descriptions.

A	B
1. Computer Hardware Engineer designs and	a) responsible for the operation of an organization's network, installs, maintains network hardware and software, troubleshoots any issues that may arise
2. System Engineer develops	b) IT support to an organization or customers, and diagnoses and repairs problems with hardware and software
3. Network and Computer Systems Administrator is	c) operates the existing database systems
4. Computer Support Specialist provides	d) develops computer systems and their physical components
5. Database Administrator and Architect plans,	e) computer systems for clients or employers
6. Database Administrator maintains and	j) creative ways of accomplishing what the user wants, being a go-between among users and programmers; creates new software; improves existing applications
7. Software Developer finds	g) designs, and develops the architecture of a database system.
8. Computer Programmer writes	h) models that demonstrate complex processes or solve problems
9. Mathematical Modeling Specialist creates	i) modifies and tests code and scripts that allow computer software and applications to function properly

8 Match the sentence beginnings with the correct endings.

What Do Systems Engineers Do?

A	B
1. Systems engineers design, test, and install	a) you need strong critical thinking and problem-solving skills, excellent verbal communication skills, and exceptional analytical skills
2. To be an effective systems engineer,	b) with hardware/software engineers, system administrators, programmers, and product developers
3. System engineers are responsible	c) various operating systems and software to enhance the efficiency of organizations
4. They work extensively	d) computer systems which are purchased from vendors
5. System engineers may also customize	e) to troubleshoot computer problems, ensure that firewall software is up-to-date
6. They work closely	f) for developing computer systems for clients or employers based on their particular needs
7. They must be able	g) with hardware and software vendors in order to define the overall architecture of their employers' computer systems
8. They also review and approve changes to computer systems,	h) with minimal supervision as well as in a team environment, and are to keep their skills up-to-date by attending training classes and reading professional journals
9. They must be able to work	i) and ensure that these modifications are implemented timely

9 Complete the following text using the words from the box.

combination, differential, models, application, linear, code, engineering, intelligence, networks, debugging, problem-solving, computing

Applied mathematics

Applied mathematics involves the (1. ...) of mathematics to problems in science, (2. ...), and society. It is a (3. ...) of mathematical science and specialized knowledge and plays a vital role in understanding engineering problems mathematically. It is used to solve practical problems by formulating and studying mathematical (4. ...). The applied mathematics major offers a strong program in mathematical techniques and ways of thinking that can be used in a wide variety of IT fields.

Students majoring in applied mathematics study a wide variety of courses in classical mathematical disciplines, such as (5. ...) algebra, (6. ...) equations, probability theory, mathematical statistics, and numerical methods. Specialized disciplines include object-oriented programming, (7. ...) writing, databases, development, testing and (8. ...) of software, Web technologies, etc. There are also disciplines at the intersection of sciences, namely mathematical modeling, quantum (9. ...), methods for analyzing big data, artificial (10. ...), machine learning, and neural (11. ...). If you want to have a successful career, you must possess the ability to process things mathematically. For example, programming is deeply linked with mathematics, as a framework for (12. ...), algorithm design, and creating efficient software.

10 Can you say now that this career is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job chances in computer science and computer engineering be good in the near and far future? What is the difference between these two fields?

Unit 7. A Career in Electrical Engineering

Major: 6-05-0714-03 Engineering design and manufacture of materials and products

1 a) To evaluate your partner's potential to become an electrical engineer ask him the following questions.

1. if he is interested in electrical devices and how they work.
2. if he is interested in making technologies and production more efficient.
3. whether he has critical thinking and strong analytical skills.
4. whether identifying, evaluating and solving complex problems are his strong points.
5. whether he is a natural problem solver and a strong communicator.
6. whether he can work productively in a team environment, multi-task and meet deadlines.

b) If the answers are "yes" and your partner does not struggle with math and science, he has made the right decision to pursue a major in electrical engineering, hasn't he? Write down your arguments.

2 Study the following words.

1	power supply	электропитание, энергоснабжение
2	to design	проектировать, конструировать
3	to supervise ['s(j)u:pəvaɪz]	руководить, наблюдать, управлять
4	electric drive	электропривод
5	to troubleshoot	отыскивать/устранить неисправность
6	maintenance	(техническое) обслуживание
7	electric circuit	электрическая цепь
8	digital	цифровой, дискретный
9	construction	строительство, сооружение, здание
10	manufacturing	производство, изготовление
11	vehicle	транспортное средство
12	sensitive	чувствительный
13	reliable	надежный
14	infotainment (information+entertainment)	информационно-развлекательный
15	plug-in	подключаемый
16	electric grid	электрическая сеть
17	challenging	приносящий удовлетворение, стоящий

3 Read the following text.

Electrical Engineering is one of the biggest engineering fields. Electrical engineering deals with the practical application of the theory of electricity to the construction and manufacture of systems, devices and assemblies that use electric power and signals.

The future of electrical engineering looks very bright. Every industry deals with electricity and it means that electrical engineers will always be needed. Therefore, this is a great career to go into and it will be for many years to come.

Electrical engineers are experts in electricity, electro-magnetism and electronics. They learn how to use and control electricity. They specialize in **power supply** and generation. They **design**, develop and **supervise** manufacturing of electrical devices of all kinds, including large-scale electrical systems, generators, transmission lines, transformers, motors, **electric drives**, lighting systems, and different domestic appliances. They monitor and control equipment, **troubleshoot** problems, and perform routine **maintenance**. They are also trained how to handle **wiring** and lighting installations in buildings, and different equipment. Therefore, they study DC and AC fundamentals, electromagnetic induction, **electric circuits**, electric machines, electronics, **digital** systems, electrical safety, etc.

What is great about being an electrical engineer is that graduates may find a job in many industries such as design, **construction, and manufacturing**. The electrical engineer may do research and come up with new ideas.

The automotive industry is one more industry that needs electrical engineers in ever-increasing numbers to deal with the growing amount of electronics and controls in the modern car. These engineers design hybrid and electric **vehicles** and autonomous vehicles. The power control system is of particular importance to the electric vehicles. Autonomous vehicles will require more **sensitive** and compact sensors, and fast, **reliable** wireless communications between cars and the infrastructure around them. The engineers working in automotive electrical engineering also deal with the safety systems, **infotainment systems**, and vehicle-to-vehicle communication. An increasing number of **plug-in** electric vehicles means an increasing load on the **electric grid**.

The job will require the electrical engineer to use science and technology to solve problems. Some of the tasks can and will be very **challenging** but with the proper education an electrical engineer will be able to perfectly solve every problem. Electric engineers perform their duties in offices and laboratories but may also be sent to work sites to **supervise** and **troubleshoot**. This is especially true for those who work in companies that manufacture complex equipment.

4 Match the words in A with the words/phrases in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

A) 1) power; 2) electric (x3); 3) domestic; 4); transmission; 5) troubleshoot; 6) sensitive; 7) reliable; 8) to perform.

B) a) lines; b) appliances; c) supply; d) drives; e) routine maintenance; f) grid; g) problems; h) circuits; i) sensors; j) communications.

5 Match the sentence beginnings with the correct endings in the text about automotive electrical and electronics engineers.

1. The auto industry needs	a) with the electronics, controls, safety systems, infotainment systems, and vehicle-to-vehicle communication
2. Vehicle electronics engineers are involved	b) the software and hardware components of these systems, such as sensors, actuators, microcontrollers, and networks
3. These engineers deal	c) hybrid and electric vehicles and autonomous vehicles
4. They design and program	d) electrical and computer engineers in ever increasing numbers
5. They also design	e) is the power control module
6. Autonomous vehicles require more sensitive sensors, and reliable wireless communications	f) acting as the brain of vehicle's engine management system
7. Of particular importance to these electric vehicles	g) between cars and the infrastructure around them
8. The power control module, also known as the Engine Control Unit (ECU), is an electronic component	h) in the development of electronic systems to control various vehicle functions – navigation, security, entertainment, communication, and diagnostics

6 Match the words/phrases in A with their definitions in B.

A	B
1. Electro-magnetism is	a) electrical energy into mechanical energy
2. Electric drive converts	b) processes, and communicates information in digital form
3. Wiring is	c) the path for transmitting electric current
4. Electric circuit is	d) an interaction between particles with electric charge via electromagnetic fields
5. Digital system stores,	e) a device that converts mechanical energy to electrical energy
6. A generator is	f) a system of wires providing electric circuits for building or device
7. Electromagnetic induction produces	g) three main sections – electricity generation, transmission lines and distribution centers
8. A plug-in electric vehicle (PEV) is	h) an electromotive force (emf) across an electrical conductor in a changing magnetic field
9. Maintenance ensures	i) a device that detects and responds to some type of input from the physical environment
10. Electric grid has	j) keeping property or equipment in good condition by making repairs, correcting problems, etc.
11. A sensor is	k) any vehicle with rechargeable battery packs that can be charged from the electric grid

7 Complete the sentences using the words from the box.

power supply, electric drive, wiring, electric circuit, digital systems, supervise, challenging, troubleshoot, renewable

1. The invention concerns electric ... for homes and industrial areas by using power sources.
2. represent information using a binary system, where data can assume one of only two possible values: zero or one.
3. A ... experience is difficult in a way but interesting or enjoyable.

4. is a set of devices to convert electric energy into mechanical energy.
5. To ... is to observe and direct the work of someone or something.
6. The membrane is connected to an external through copper wire.
7. A system of wires providing electric circuits for a building is called
8. To ... means to find and correct faults in a mechanical or electrical system.

8 Complete the text with words from the box.

transmission lines, power, transformers (x2), turbine, generators, cable(s) (x2), fuse

In power stations, high pressure steam, gas, water or wind is used to drive (1. t...), which turn huge (2. g...). Large power stations generate electricity at 25,000 volts. This is then stepped up to 275,000 or 400,000 volts using (3. t...) before being fed into a network of (4. c...) known as the Grid. Electrical (5. p...) is then carried across the country by overhead (6. t...). The Grid voltage is reduced by stepping down (7. t...) at substations before it is used in homes and factories. Some industrial plants take electrical energy from the Grid system at 33,000 or 11,000 volts, but for use in homes and offices it is stepped down to a lower level.

In the home, supply from the mains (8. c...) passes through a main (9. f...) and then to a fuse box. The fuse box is a distribution point for the electricity supply to the house.

9 Speak about the career of an electrical engineer using the following phrases to describe duties involved in this job.

1. to design, develop, test and supervise electrical equipment.
2. to create and maintain different electrical devices.
3. to deal with wiring and lighting systems in buildings, automobiles and different equipment.
4. to supervise and troubleshoot.
5. to understand safety standards and to keep to them.
6. to know the concept of energy management and its conservation.
7. to define energy efficiency.
8. to identify the role of non-conventional energy resources in environmental protection.

10 Can you say now that the career in electrical engineering is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career. Will job chances for electrical engineers be good in the near and far future?

Unit 8. A Career in Welding Engineering

Majors: 6-05-0714-03 Engineering Design and Manufacture of Materials and Products,
15.03.01 Mechanical Engineering

1 a) To evaluate your partner's potential to become a welding engineer ask him the following questions.

1. if he agrees that welding offers many career opportunities.

2. if it is true that the importance of welding grows with increases in construction, and manufacturing, and discoveries of new sources of energy that require pipelines.

3. whether he has critical thinking and strong analytical skills.

4. whether identifying, evaluating and solving complex problems are his strong points.

5. whether he is a natural problem solver and a strong communicator.

whether he can work productively in a team environment, multi-task and meet deadlines.

b) If the answers are "yes" and your partner does not struggle with math and science, he has made the right decision to pursue a major in welding engineering, hasn't he? Write down your arguments.

2 Study the following words.

A	B
1. rewarding [rɪ'wɔːdɪŋ]	приносящий удовлетворение, стоящий
2. structural steel	конструкционная сталь
3. vehicle	транспортное средство, автомобиль
4. appliance [ə'plaɪəns]	прибор, приспособление, устройство
5. ever-increasing	все возрастающий
6. assembly line	сборочный конвейер
7. antique [æn'ti:k]	старый, старинный
8. to perform	делать, выполнять
9. reliable [rɪ'laɪəbl]	надежный
10. up-to-date	новейший, отвечающий современным требованиям
11. troubleshoot	искать, диагностировать неисправности
12. mindset	менталитет, мышление

3 Remember the names of some welding procedures.

A	B
1. oxy-acetylene gas welding	кислородно-ацетиленовая сварка, газовая сварка
2. gas metal arc welding (GMAW) or MIG (wire-fed) welding	сварка металлическим электродом в среде инертного газа
3. tungsten inert gas welding or TIG (heli-arc) welding	сварка вольфрамовым электродом в среде инертного газа
4. shielded metal arc welding (SMAW)	дуговая сварка металлическим покрытым электродом
5. submerged arc welding [səb'mɜːdʒd]	дуговая сварка под флюсом
6. electron-beam welding	электронно-лучевая сварка

4 Read the following text.

Careers in Welding Engineering are very **rewarding**. Welding is a process very important to technical progress, though we don't understand how much we depend on welding even in our everyday life. Welding has **ever-increasing** usage in industry now. It is a fundamental part of building bridges, **vehicles**, houses, **appliances** and a lot more.

Welding is an important part of construction, repair and maintenance work. All large buildings are built with a «skeleton» of welded **structural steel**. Welders are employed in pipeline work, **assembly lines** at automaking plants, vehicle repair, race car fabrication and **antique** car restoration. Welding is used in nuclear power industry, aviation, and aerospace work. And it is impossible to make **household appliances** without welding.

Welding has been compared to playing a musical instrument. In the same way that anyone can make sounds with a harmonica, anyone with a little practice may use modern welding equipment for non-critical jobs. But learning how to make music with the harmonica or to make good, strong, clean welds will take time. The more you practice, the better your results will be.

There is a real difference between a weld that looks good and a weld that **performs** well. The task of any welding engineer is to get a weld that will be strong and **reliable**. There are lots of welding procedures and the **up-to-date equipment** for them. The main procedures are **oxy-acetylene gas welding** and cutting, **arc welding**, **MIG (wire-fed) welding**, **TIG (heli-arc) welding**, **submerged arc welding**, plasma-arc welding and cutting, electron-beam welding. Each process requires special knowledge, special skills and special equipment.

To be successful as a welding engineer, you should be computer literate, possess an understanding of mechanical and structural components, and possess good team working and organizational skills, and possess a safety-orientated **mindset**.

5 Match the words in A with the words/phrases in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

A) 1) up-to-date; 2) household; 3) structural; 4) welding; 5) vehicle; 6) nuclear power; 7) maintenance; 8) safety-oriented; 9) non-critical; 10) race car; 11) assembly; 12) arc; 13) require.

B) a) lines; b) steel; c) appliances; d) repair; e) work; f) procedures; j) fabrication; h) equipment; i) jobs; j) welding; k) industry; l) knowledge; m) mindset.

6 Complete the sentences using the words from the box.

flame, arc, eyes, helmet, sparks, goggles, gas, electrode, welding, tungsten, metals, bright
--

There are many kinds of (1. ...), including arc welding, resistance welding and gas welding. The most common type is (2. ...) welding. Anyone who is near arc welding needs to wear a special ... or ... because the arc is very (3. ...). Looking at the arc will hurt your (4. ...). It is also important to cover all your skin because hot (5. ...) from the weld can burn it. Arc welding heats (6. ...) by making an electric arc between the piece of metal and an (7. ...) .

There are different kinds of arc welding – shielded metal arc welding (SMAW) is a common type. Another common one is gas metal arc welding (GMAW). Another type of arc welding that is less common is gas ... arc welding (also known as tungsten inert gas welding or TIG welding). One kind of welding that does not use an arc is (8. ...) welding. It uses a (9. ...).

7 Speak about the career of a welding engineer using the following phrases to describe duties and responsibilities involved in this job.

1. to know how to weld different metals.
2. to perform welding using different types of welding equipment.
3. to know what technology to use.
4. to know what amount of heat is required and for how long.
5. to evaluate welds.
6. to supervise welding operations in accordance with codes, contracts or drawings.
7. supervise welding teams.
8. to troubleshoot.
9. to understand safety standards and to keep to them.

8 Can you say now that the career in welding engineering is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job chances for welding engineers be good in the near and far future?

Unit 9. A Career in Non-Destructive Testing and Quality Control

Major: 6-05-0716-03 Information and Measuring Devices and Systems

1 a) Ask your partner the following questions to evaluate his potential to become a quality control engineer.

1. whether he has critical thinking and strong analytical skills.
2. whether identifying, evaluating and solving complex problems are his strong points.
3. whether he is a natural problem solver and a strong communicator.
4. whether he can work productively in a team environment, multi-task and meet deadlines.
5. if he is interested in making technologies and production more efficient.
6. if he wants to make a difference in the world.
7. if he values continually learning and staying up-to-date with technology trends.

b) If the answers are "yes" and your partner does not struggle with math and science, he has made the right decision to pursue a major in in quality control engineering, hasn't he? Write down your arguments.

2 Study the following words.

A	B
1. to affect	оказывать воздействие
2. evaluation [ɪˌvælju'eɪʃ(ə)n]	оценка, анализ
3. reliability	безотказность, надёжность
4. accuracy	точность, достоверность
5. measurement	измерение, размер
6. inventory	материально-производственные запасы

A	B
7. wastewater	сточные воды
8. hazardous ['hæzədəs]	опасный
9. water supply	водоснабжение
10. waste disposal	удаление отходов, сброс

3 Match the following words and word combinations with their definitions.

A	B
1. evaluation	a) the quality of being correct or precise, even in details
2. reliability	b) results, expressed in numbers, you obtain by measuring
3. accuracy	c) a list of materials, components and finished products
4. measurements	d) a judgment about the quality, amount or value of things
5. inventory	e) something good in quality that can be trusted to work well
6. wastewater	f) action or process of getting rid of something (wastes ...)
7. hazardous	g) water that has been negatively affected in quality by a combination of domestic, industrial and other activities
8. water supply	h) something dangerous, especially to people's health or safety
9. waste disposal	j) water passed through pipes to buildings for people to use

4 Read the following text.

Quality Control and Non-Destructive Testing Engineer Jobs

Careers in quality control (QC) and non-destructive testing (NDT) are good careers to pursue. Many companies want to manufacture their products more efficiently, at a lower cost, and with better quality. They need engineers for quality control and non-destructive testing and even more jobs will be available. This is a great career to go into and will be for many years to come.

These engineers are responsible for the development and application of quality standards for industrial processes, materials, and products. They monitor the quality of a product, analyze what **affects** its quality, and choose the best techniques for the optimal end results. QC and NDT engineers use quality standards for inspection, testing, and **evaluation**. For this they need knowledge in chemical, electrical, or mechanical engineering fields.

They also develop instructions for recording, evaluating, and reporting quality and **reliability** data. They develop programs to evaluate **accuracy** of production equipment, **measurements** and testing. These engineers may specialize in such areas of quality control engineering, as process control, product **evaluation**, product **reliability**, **inventory** control, metrology, automated testing, and research and development.

One more field where we can work after finishing the University is the environment protection. This includes **wastewater** control, **hazardous wastes** and toxic materials control, **water supply** protection, air pollution control, industrial hygiene, radiation protection, solid **waste disposal**, and public health.

Here is one of the reasons why the career I have chosen is a good idea. We are going to help people and to make the environment, in which we live, better and cleaner.

5 Match the words in A with the words in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

A) 1) water; 2) waste; 3) public; 4) hazardous; 5) product; 6) inventory; 7) quality control; 8) automated; 9) industrial; 10) water.

B) a) evaluation; b) wastes c) supply; d) disposal; e) health; f) engineer; g) testing; h) control; i) protection; j) hygiene.

6 Choose the correct word in the following sentences.

1. We must (check/apply) the temperature regularly to make sure it doesn't rise.
2. To (calculate/manufacture) the defect rate, the defects per unit (DPU) formula is used.
3. We try to (detect/define) faulty products before they are sent to our customers.
4. But it is a better idea to (protect/prevent) faulty products in the first place.
5. Making sure that materials are stored correctly is part of (process/inventory) control.
6. We're sending our engineer who will (repair/remake) the faulty motor.
7. We have had problems with the electronic equipment due to power (errors/failures).
8. This process is very inefficient because of the volume of (scrap/error) left over.
9. Here is a list of things we could do to improve quality, and now we must (measure/prioritize) them.
10. Improving the design quality of these cars will add (value/variability).

7 Here is a memo from the head of quality control to the managing director. Match the beginning of each sentence (1–7) with a–g to complete the text.

MEMO

From: Sue Braun

To: Alois Vincent

Re: Quality control

1. As you know were recently carried out ...	a) raw materials and system failures are the areas we must improve on
2. Our aim was to improve quality and ...	b) to monitor raw materials more carefully
3. As you can see from the attached chart, ...	c) a cause/effect analysis of the plastic bottle manufacturing plant
4. We will introduce new systems	d) reduce the number of defective products
5. We carried out a system failure analysis and now ...	e) our aim is zero defects
6. This will prevent future failures and ...	f) we are repairing the molding machine
7. With continuous process improvement, ...	g) surely reduce defects

8 Speak about the career of a quality control engineer/non-destructive testing engineer using the following phrases to describe duties involved in this job.

1. to examine structures or vehicles such as aircraft, trains, nuclear reactors, bridges, dams, and pipelines, using non-destructive testing (NDT) techniques.

2. to test the safety of structures, vehicles, or vessels using x-ray, ultrasound, fiber optic or other equipment.

3. to interpret test results in accordance with codes, standards, specifications, or other procedures.

4. to interpret the results of all methods of non-destructive testing (NDT), such as acoustic emission, electromagnetic, magnetic particle, neutron radiographic.

5. to identify defects in solid materials using ultrasonic testing techniques.

6. to monitor how materials perform and evaluate how they deteriorate.

7. to determine causes of product failure.

9 Can you say now that the career in quality control and non-destructive testing is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job chances for quality control engineers be good in the near and far future?

Unit 10. A Career in Digital Economics

Major: 6-05-0611-04 Digital Economy

1 a) Ask your partner the following questions to evaluate his/her potential to work in the field of digital marketing.

1. if he has clear vision and strategic thinking to anticipate future trends, set clear objectives, and devise plans to achieve them.

2. if he has an analytical mindset and understanding how to interpret data.

3. if he is always ready to adjust to a new development in order to do great work because digital marketing is constantly evolving.

4. if he is flexible and can see things from the perspective of other people, for example, clients or customers.

5. whether identifying, evaluating and solving complex problems are his strong points.

6. whether he is a natural problem solver and a strong communicator.

7. whether he can work productively in a team environment, multi-task and meet deadlines.

b) If the answers are "yes" and your partner does not struggle with math, the decision to pursue a major in digital economics has been the right one, hasn't it? Write down your arguments.

2 Study the following words.

1	search engine	поисковая система (в интернете)
2	brand awareness	узнаваемость бренда
3	revenue	доход
4	to update	обновлять
5	interaction	взаимодействие
6	to bolster	укреплять
7	objective	цель

8	engaging	привлекательный
9	to capture	привлечь внимание
10	compelling	захватывающий
11	eye-catching	эффектный, привлекающий внимание
12	target	цель, целевой
13	pay-per-click (PPC)	оплата за клик
14	affiliate marketing	партнерский маркетинг

3 Read the following text.

Digital marketing is one of the world's fastest growing disciplines. Digital marketers use digital channels to reach customers and promote products and services. These digital channels can be websites, social media, search engines, mobile apps, email, text messages, and more.

Digital marketers are involved in developing an organization's multi-channel communication strategies and may work across several areas. They manage marketing campaigns, build brand awareness, work on search engine optimization, create content for a company blog. Their goal is to convert browsers into shoppers, and to increasing company's revenue.

Digital marketers wear many hats. They have to master a wide range of skills and tools in order to stay on top of the ever-growing digital media channels, which they use to create, manage, and track campaigns. It means that digital marketers spend their days creating, posting, or updating content, monitoring or handling social **interactions** and campaigns, or performing other work in an attempt to **bolster** a company's digital channels.

Because of the unique combination of planning, creativity, and strategy, their role requires:

- understanding concepts of digital marketing and its role in business;
- developing marketing strategies based on product, price, place and promotion **objectives**;
- providing solutions based on a critical examination of marketing information;
- developing **engaging** content, innovative campaigns, and unique branding strategies that capture the attention of their audience and drive results.

Creativity is essential for capturing the audience's attention. Whether it is writing **compelling** blog posts, designing **eye-catching** graphics, or producing entertaining videos, creative thinking helps marketers develop content that attracts their **target** audience.

Commonly used digital marketing techniques include social media marketing, search engine optimization (SEO), **pay-per-click (PPC)** campaigns, mobile marketing, **affiliate marketing**.

4 Match the words in A with the words/phrases in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

- A) 1) to reach; 2) brand; 3) search engine; 4) to increase; 5) to update; 6) to bolster;

7) to capture; 8) eye-catching; 9) to attract; 10) affiliate; 11) pay-per-click (PPC).

B) a) awareness; b) attention; c) customers; d) graphics; e) digital channels; f) optimization; g) content; h) company's revenue; i) campaigns; j) marketing; k) target audience.

5 Match the words/phrases in A with their definitions in B.

A	B
1. social media marketing	a) app-based, in-game, location-based and SMS marketing
2. search engine optimization (SEO)	b) a type of internet marketing which involves advertisers paying a fee each time one of their ads is clicked
3. pay-per-click (PPC) campaigns	c) an online presence by attracting internet followers through social media channels such as Facebook, Twitter, YouTube and Instagram
4. mobile marketing	d) where a business allows other businesses (affiliates) to sell products on their website
5. affiliate marketing	e) developing strategies to increase the number of visitors to a website by achieving high-ranking placements in search results

6 Match the following titles of digital marketing jobs in A with their descriptions in B.

A	B
1. SEO Specialist	a) plans, creates, distributes, and analyzes content with the aim of attracting and engaging potential customers and improving the content's effectiveness
2. Content Marketing Specialist	b) tests, analyzes, and changes a website so it is optimized, and the website ranks higher in the search results on major search engines such as Google and Bing
3. Marketing Automation Coordinator	c) focuses on web analytics, social data, and trends in the digital market
4. Social Media Manager	d) focuses on social media, other online research, data tracking, developing strategies to increase followers and handling all interactions from consumers with your brand
5. Digital Marketing Analyst	e) focuses on building email lists, creating emails, and reaching a target audience through written communications, which is an excellent low-cost way to keep an audience engaged and your brand top of mind
6. Email Marketing Specialist	f) manages and optimizes paid advertising campaigns across digital channels
7. PPC/Digital Advertising Specialist	g) focuses on the results of a marketing campaign and finding the best software to help discover important customer behaviors

7 Complete the following texts using the words from the box.

The Pay-Per-Click Model

service, pay-per-click, keyword, search, profits, products, to advertise, advertisers, campaign, click, networking, free

The pay-per-click model is primarily based on keywords. For example, in (1. ...) engines, online ads (also known as sponsored links) only appear when someone searches a (2. ...) related to the product or (3. ...) being advertised. Therefore, companies that rely on (4. ...) advertising models research and analyze the keywords

most applicable to their (5. ...) or services. Investing in relevant keywords can result in a higher number of clicks and, eventually, higher (6. ...).

The PPC model is considered to be beneficial for both (7. ...) and publishers. For advertisers, the model is advantageous because it provides an opportunity (8. ...) products or services to a specific audience. In addition, a well-designed PPC advertising (9. ...) allows an advertiser to save a substantial amount of money as the value of each visit (10. ...) from a potential customer exceeds the cost of the click paid to a publisher.

For publishers, the pay-per-click model provides a primary revenue stream. Think about Google and Facebook, which provide (11. ...) services to their customers (free web searches and social (12. ...)). Online companies are able to monetize their free products using online advertising, particularly the PPC model.

8 Read about the duties of a digital marketer and use this information while speaking about your future job in digital marketing.

1. outlines and carries out digital marketing campaigns, including search engine optimization (SEO), content marketing, email marketing, social media marketing, and PPC efforts.

2. contributes to social media engagement and brand awareness campaigns.

3. determines the optimal social media platforms and channels.

4. analyzes campaigns to determine the right metrics and key performance indicators.

5. uses web analytics software to monitor the performance of client websites and makes recommendations for improvement.

6. collaborates with designers, developers, and communications professionals to maximize the efficiency of digital marketing campaigns.

7. keeps up to date with current digital trends.

9 Can you say now that the career in digital marketing is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job chances for digital marketers be good in the near and far future?

Unit 11. A Career in Biotechnical Systems and Technologies

Major: 12.03.04 Biotechnical Systems and Technologies

1 a) Ask your partner the following questions to evaluate his/her potential to work in Biotechnical Systems and Technologies.

1. if he/she values continually learning and staying up-to-date with technology trends.

2. if he/she has an analytical mindset and understanding how to interpret data.

3. if he/she is always ready to adjust to a new development because biotechnical systems and technologies are constantly evolving.

4. if he/she has an interest in the challenges facing our world.

5. whether identifying, evaluating and solving complex problems are his/her strong points.

6. whether he/she is a natural problem solver and a strong communicator.

7. whether he/she can work productively in a team environment, multi-task and meet deadlines.

b) If the answers are "yes", the decision to pursue a major in biotechnical systems and technologies has been the right one, hasn't it? Write down your arguments.

2 Study the following words.

1	application	применение, использование
2	maintenance	техническое обслуживание
3	prevent	предотвратить, предупредить
4	treat	лечить
5	pharmaceutical industry	фармацевтическая промышленность
6	quality control	контроль качества
7	health resort	санаторий
8	environmental center	экологический центр
9	engaged in	занимающийся
10	implementation	внедрение
11	evolve	развиваться
12	emerge	появляться

3 Read the following text.

If you are looking for a profession that uses engineering to make a positive impact on other people's lives, consider a career in Biotechnical Systems and Technologies. The program in Biotechnical Systems and Technologies is designed to equip students with necessary training for different roles in the field of biotechnology. The bachelor's program in Biotechnical Systems and Technologies focuses on **application** of engineering principles and design concepts to medicine and biology for healthcare purposes.

This field of study covers such sciences as physics, biochemistry, biology, electronics and computer equipment. Students get knowledge in the field of technology, biology and medicine. The program graduates will be involved in the creation, development, production and **maintenance** of medical equipment, devices and appliances designed to diagnose, **prevent**, **treat** and monitor health conditions as well as devices used in **pharmaceutical**, environmental and food **industries**.

Upon successful completion of the program of study graduates can pursue a wide range of careers in organizations which develop and manufacture biomedical and environmental equipment, in **quality control** and diagnostic laboratories, clinics and **health resorts**, health and **environmental centers**, in companies engaged in selling and providing maintenance service of medical and environmental equipment. Graduates will be able to work as electronic engineers, software engineers, metrology engineers, physics engineers, radiometric engineers, research engineers, engineers responsible for new equipment and technology **implementation**, engineers responsible for sales and service of medical and environmental equipment, etc.

Throughout their career, engineers will be expected to develop their knowledge and skills. New technologies are constantly **evolving**, new ideas and innovations are **emerging** at a rapid pace, which encourages continuous professional development. That is why, gaining new skills and staying up-to-date with the latest best practices and innovations becomes crucial.

4 Match the words in A with the words in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

A) 1) health; 2) healthcare; 3) necessary; 4) design; 5) maintenance; 6) medical; 7) health; 8) quality; 9) engineering; 10) successful; 11) rapid.

B) a) equipment; b) principles; c) service; d) applications; e) concepts; f) conditions; g) training; h) completion; i) resorts; j) pace; k) control.

5 Match the sentence beginnings with the correct endings.

A	B
1. The program in Biotechnical Systems and Technologies is designed to equip students ...	a) in the creation, development, production and maintenance of medical equipment as well as devices used in pharmaceutical, environmental and food industries
2. This field of study covers ...	b) with necessary training for different roles in the field of biotechnology
3. The program graduates will be involved ...	c) to develop their knowledge and skills
4. Graduates can pursue ...	d) a number of sciences, such as physics, biology, electronics, etc.
5. Throughout their career, engineers will be expected ...	e) at a rapid pace
6. New ideas and innovations are emerging ...	f) a wide range of careers
7. Staying up-to-date with the latest best practices and innovations ...	g) becomes crucial
8. Continuous professional development ...	h) ensures that engineers remain competent and up to date in their profession

6 Read the information about bioengineering. Replace the words in bold with the synonyms in the box.

create, areas, attempt, modify, substantially, working, analogous,
address, employs, expertise

Bioengineering is the application of principles of biology and the tools of engineering to (1) **make** usable and economically viable products. Biological engineering (2) **uses** knowledge and (3) **experience** from a number of pure and applied sciences, such as mass and heat transfer, kinetics, biomechanics, bioinformatics, separation and purification processes, fluid mechanics, thermodynamics, etc. It is used in the design of medical devices, diagnostic equipment, biocompatible materials, renewable energy, ecological engineering, agricultural engineering, process engineering and catalysis, and other (4) **fields** that improve the living standards of societies.

Examples of bioengineering research include new medical imaging technology, portable and rapid disease diagnostic devices, prosthetics, biopharmaceuticals, and tissue-engineered organs. Bioengineering overlaps (5) **considerably** with biotechnology and the biomedical sciences in a way (6) **similar** to how various other forms of engineering and technology relate to other sciences.

In general, biological engineers (7) **try** to either mimic biological systems to make products, or to (8) **change** and control biological systems. (9) **Collaborating** with doctors and researchers, bioengineers use traditional engineering principles and techniques to (10) **deal with** biological processes, including ways to replace, augment, sustain, or predict chemical and mechanical processes.

7 Read the information about responsibilities of biomedical engineers. Complete the sentences using the words from the box.

duties, equipment, problems, knowledge, devices, health, training, performs, research, responsibilities, installing

Biomedical engineering is the application of engineering principles to solve health care (1. ...). Biomedical engineers use their engineering (2. ...) to create medical devices, (3. ...), and processes to heal, treat, or improve (4. ...) conditions. While the (5. ...) a biomedical engineer (6. ...) daily vary from project to project, some of the most common (7. ...) include:

- designing medical (8. ...), such as pacemakers or artificial limbs;
- repairing and (9. ...) medical devices and equipment;
- conducting original (10. ...) into existing biomedical devices and biological processes;
- (11. ...) medical professionals to use new medical equipment.

8 Translate the following phrases into English. Study the examples provided in the text (ex. 3) and then use these phrases in your own sentences:

- 1) дать студентам необходимую подготовку;
- 2) это направление подготовки охватывает следующие науки;
- 3) студенты получают знания в следующих областях;
- 4) выпускники будут заниматься разработкой медицинского оборудования;
- 5) контролировать состояние здоровья;
- 6) иметь широкий спектр возможностей для трудоустройства;
- 7) организации, специализирующиеся на сервисном обслуживании медицинского оборудования;
- 8) инженер по внедрению новой техники и технологий;
- 9) развивать свои знания и умения;
- 10) появляться быстрыми темпами;
- 11) стимулировать непрерывное профессиональное развитие;
- 12) приобретать новые навыки;
- 13) быть в курсе передовых достижений и инноваций.

9 Can you say now that the career in the field of biotechnical systems and technologies is the right one for you? Give your reasons. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job

chances for specialists in biotechnical systems and technologies be good in the near and far future?

Unit 12. A Career in Transport Logistics

Major: 6-05-1042-01 Transport Logistics

1 a) Ask your partner the following questions to evaluate his/her potential to work in the field of transport logistics.

1. if he has clear vision and strategic thinking to set clear objectives, and devise plans to achieve them.

2. if he has an analytical mindset and understanding how to interpret data.

3. if he is always ready to adjust to a new development in order to do great work because transport logistics is constantly evolving.

4. whether he values continually learning and staying up-to-date with technology trends.

5. if he is flexible and can see things from the perspective of other people, for example, clients or customers.

6. whether identifying, evaluating and solving complex problems are his strong points.

7. whether he is a natural problem solver and a strong communicator.

8. whether he can work productively in a team environment, multi-task and meet deadlines.

b) If the answers are "yes", your partner he has made the right decision to pursue a major in transport logistics, hasn't he/she? Write down your arguments.

2 Study the following words.

1	road transportation	автомобильный транспорт, автомобильные перевозки
2	forecasting	прогнозирование
3	interpersonal skills	навыки межличностного общения
4	logistics engineer	инженер по организации перевозок
5	freight forwarder	экспедитор
6	supply chain management	управление цепочками поставок
7	storage	хранение
8	distribution	распределение
9	to have a good command	хорошо разбираться
10	warehousing	складское хозяйство, складирование
11	liaise	поддерживать связь, общаться
12	negotiate	вести переговоры
13	simultaneously	одновременно
14	networking events	мероприятия для создания и укрепления деловых связей

3 Read the following text.

Transport Logistics is one of the most popular undergraduate programs offered by the Belarusian-Russian University. The program is designed to equip students with

necessary training for different roles in the field of logistics and supply chain. It focuses on the principles, policies, and trends related to **road transportation** and logistics. Besides, this program helps students develop new skills like **forecasting**, general management, problem-solving as well as **interpersonal skills**.

Upon successful completion of the program of study graduates are awarded the qualification of Engineer-Economist and Logistics Specialist. Graduates can pursue a wide range of careers in companies that provide logistics and transport services. Job titles for transport logistics graduates can include: logistics specialists, **logistics engineers, freight forwarders**, etc.

Logistics and **supply chain management** play a considerable role in the global economy. Every enterprise has a supply chain, so this is an area where there are multiple opportunities for employment. Responsibilities of logistics specialists include organizing and monitoring **storage** and **distribution** of goods. A logistics specialist must **have a good command** of modern economic and mathematical methods as well as in-depth knowledge of logistics in various activities, economic geography, road transport and transportation management, **warehousing**. A logistics specialist career involves organizing goods delivery and warehousing, designing an efficient supply chain, which means effectively delivering products to the right place at the right time and at the lowest possible cost, analyzing the transportation service market, performing calculations, finding reliable partners, **liaising and negotiating** with manufacturers, sales departments and warehouses, preparing the customs documentation.

Logistics specialists should possess excellent communication skills and strong organizational abilities. They also need to demonstrate that they can multitask effectively and manage multiple projects **simultaneously** while maintaining high productivity. Throughout their career, logistics specialists will be expected to develop their knowledge and skills by participating in training courses, taking part in conferences and workshops, as well as attending different **networking events**. As the business landscape rapidly changes, companies are using the latest technologies like IoT, robotics, and AI. That is why, gaining new skills and staying updated with the latest tech tools becomes crucial.

4 Match the words in A with the words in B. Skim the text and see how these word combinations are used in the text. Use these words in sentences of your own.

A) 1) successful; 2) customs; 3) interpersonal; 4) networking; 5) organizational; 6) in-depth; 7) reliable; 8) road; 9) multiple; 10) supply.

B) a) chain; b) abilities; c) opportunities; d) completion; e) skills; f) transportation; g) partners; h) documentation; i) knowledge; j) events.

5 Match the sentence beginnings with the correct endings.

A	B
1. The program in Transport Logistics is designed to equip students	a) the qualification of Engineer-Economist and Logistics Specialist
2. This program helps students	b) with necessary training for different roles in the field of logistics and supply chain
3. Upon successful completion of the program of study graduates are awarded	c) with multiple opportunities for employment

A	B
4. Graduates can pursue	d) develop new skills
5. Logistics is an area	e) they can manage multiple projects simultaneously while maintaining high productivity
6. A logistics specialist must have in-depth knowledge	f) a wide range of careers
7. Supply chain efficiency is about how effectively	g) of economic geography, road transport and transportation management, warehousing
8. Logistics specialists should demonstrate that	h) a company delivers its products to the right place at the right time and at the lowest possible cost
9. By continuously learning and developing new skills,	i) logistics specialists can ensure that their level of expertise is up to date

6 Here are some of the most common logistics duties and responsibilities. Match logistics manager responsibilities with their descriptions.

A	B
1. Planning and managing logistics activities	a) monitoring stock levels, ensuring that orders are fulfilled, and tracking incoming and outgoing shipments
2. Coordinating freight movements within a warehouse	b) reviewing shipment records, handling customer complaints, and ensuring that shipments arrive at their destinations on time
3. Managing inventory levels	c) meeting legal requirements.
4. Monitoring carrier performance	d) managing the flow of materials through the warehouse
5. Ensuring compliance with regulations	e) coordinating shipments between warehouses, vendors, customers, and carriers
6. Performing financial analysis	f) analyzing how much money is spent on transportation costs

7 Read the information about responsibilities of supply chain analysts. Replace the words in bold with the synonyms in the box.

examine, knowledge, collaboration, efficient, oversee, handle, delivery, customer, experts, optimize
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Supply chain analysts (1) **inspect** the entire process from raw materials to the final product that reaches the (2) **client**. Their goal is to (3) **improve** the system to be (4) **well-organized** and cost-effective. Supply chain managers can (5) **supervise** everything from manufacturing, packaging, inventory, and (6) **consignment**.

Vital to a company's success, supply chain (7) **specialists** have (8) **expertise** in data analysis, reporting, inventory planning, warehouse management, the ability to (9) **manage** a budget, and often solve complex problems.

In the supply chain manager role, you will also be involved in cross-functional (10) **cooperation** within an organization to streamline processes.

8 Read the information about responsibilities of fleet managers. Complete the sentences using the words from the box.

responsibilities, profits, transportation, costs, negotiating, products, vehicles, deliveries, operations, maintenance, regulations, departments, effectiveness

Fleet managers are logistics specialists in the (1. ...) industry. They play the vital role of overseeing a company's transportation (2. ...), whether they are transporting people or (3. ...).

Their vast (4. ...) include managing (5. ...) and their drivers, arranging schedules and (6. ...), ensuring routine (7. ...), (8. ...) with suppliers and analyzing the entire transportation operation (9. ...) and cost-efficiency.

They work closely with other (10. ...) to support the company's missions and goals, finding ways to cut (11. ...) and maximize (12. ...) while complying with all transportation laws and (13. ...).

9 Translate the following phrases into English. Study the examples provided in the text (ex. 3) and then use these phrases in your own sentences:

- 1) дать студентам необходимую подготовку в области логистики;
- 2) приобретать новые навыки;
- 3) выпускникам присваивается квалификация;
- 4) иметь широкий спектр возможностей для трудоустройства;
- 5) предоставлять услуги;
- 6) играть значительную роль;
- 7) хорошо владеть современными экономико-математическими методами;
- 8) иметь глубокие знания;
- 9) разрабатывать эффективную цепочку поставок;
- 10) минимальные затраты;
- 11) проводить расчеты;
- 12) готовить документы для таможи;
- 13) отличные коммуникативные навыки;
- 14) обладать хорошими организаторскими способностями;
- 15) эффективно работать в режиме многозадачности;
- 16) управлять несколькими проектами одновременно;
- 17) поддерживать производительность на высоком уровне;
- 18) проходить повышение квалификации;
- 19) принимать участие в конференциях и семинарах;
- 20) посещать деловые мероприятия;
- 21) приобретать новые навыки;
- 22) быть в курсе новейших технологий.

10 Can you say now that the career in transport logistics is the right one for you? Prove it. Make a dialogue with your partner and discuss why you have decided to go into this career? Will job chances for logistics specialists be good in the near and far future?

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