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(СГУГиТ)

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ИНОСТРАННЫЙ ЯЗЫК

Утверждено редакционно-издательским советом университета
в качестве учебного пособия для обучающихся по направлению подготовки
21.04.03 Геодезия и дистанционное зондирование
(уровень магистратуры)

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Учебное пособие подготовлено доктором филологических наук, доцентом С. С. Ждановым и кандидатом философских наук, доцентом Е. Ю. Плешивцевой на кафедре языковой подготовки и межкультурных коммуникаций СГУГиТ и представляет собой изложение учебного материала по курсу иностранного языка.

В данном пособии рассматриваются основные вопросы курса иностранного языка для магистрантов.

Учебное пособие предназначено для обучающихся по направлению подготовки 21.04.03 Геодезия и дистанционное зондирование (уровень магистратуры).

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ОГЛАВЛЕНИЕ

ВВЕДЕНИЕ

Учебное пособие «Иностранный язык» предназначено для магистрантов направления подготовки 21.04.03 Геодезия и дистанционное зондирование. Цель данного пособия – выработать у магистрантов умение и навык работы с языковым материалом на основе специализированного текста технического и научно-технического характера. К работе предлагаются учебные и общенаучные тексты, но, главным образом, аутентичные технические тексты, дающие представление о специфике и основных методах работы специалиста в области геодезии и дистанционного зондирования. Структура занятий включает в себя собственно тексты, примечания к каждому из изучаемых текстов (Notes), упражнения на закрепление лексики (Focus on vocabulary), упражнения и задания, активизирующие работу с текстом (Focus on text), грамматические задания (Grammar focus), контрольные задания (Control tasks). К текстам также предлагаются задания на развитие таких видов речевой деятельности, как говорение, чтение и письмо, что способствует приобретению умения и навыков иноязычного академического и профессионального общения.

Помимо непосредственной работы с текстовым материалом, в Раздел 1 включены методические указания по работе с текстами, с акцентированием тех фонетических, лексических и грамматических явлений, которые характерны для специализированного технического текста.

Важным разделом данного пособия является урок по теме «Учеба в магистратуре. Магистерская диссертация» (Studying for a Master’s Degree. Master’s Thesis), в котором магистрант получает возможность ознакомиться с текстами и основной лексикой для выработки умений и навыков письма, чтения и говорения по теме научного исследования.

Для облегчения и закрепления работы с материалом учебного пособия в него включены краткий грамматический обзор, а также приложения с текстами для самостоятельной работы магистрантов по аннотированию и реферированию.

РАЗДЕЛ 1. ВВОДНО-КОРРЕКТИВНЫЙ КУРС. МЕТОДИЧЕСКИЕ УКАЗАНИЯ ПО РАБОТЕ С ТЕКСТАМИ

Освоение дисциплины «Иностранный язык» в рамках магистерского курса имеет свою специфику, что связано, прежде всего, с работой со специализированным техническим текстом. Особенность технического текста проявляется на всех уровнях, от фонетического состава до синтаксиса, но в первую очередь, это касается лексики и грамматики. Усвоение иноязычного языкового материала происходит путем изучения значений слов (лексика), форм слов (грамматика), правил, по которым лексика получает оформление в предложении (синтаксис), и, немаловажный аспект, звукового состава (фонетика), который проявляет себя как на уровне отдельных лексем, так и на уровне целостного высказывания.

Таким образом, авторы данного пособия видят свою задачу в том, чтобы дать необходимые методические указания относительно всех задействованных в языке уровней, исходя из принципа целесообразности. Под принципом целесообразности авторы понимают отработку, прежде всего, тех фонетических, лексических, лексико-грамматических явлений, которые наиболее характерны для технического языка и имеют в нем большее распространение. Так, например, система перфектных времен (Perfect Tense) достаточно широко используется в научно-техническом тексте, в то время как длительные времена (Progressive Tense) фактически отсутствуют. Наибольшее же распространение получают настоящее простое и прошедшее простое время (Present Simple, Past Simple). К лексическим особенностям технического текста следует отнести не только термины и специализированную лексику, но и ряд наиболее употребительных глаголов, таких как determine, measure, organize, consider, applyetc. Что касается фонетики, можно заметить, например, большую распространенность закрытой позиции буквы ‘u’, что связано с наполнением технического текста многосложной лексикой.

Исходя из вышеизложенного, авторы считают необходимым предварить непосредственную работу с текстами краткими методическими указа-

ниями по фонетике, лексике и грамматике, остановив свое внимание на наиболее частотных явлениях технического языка.

Фонетика

Усложнение звукового состава происходит за счет возрастающего по сравнению с общеразговорным текстом использования словообразующих суффиксов, в частности, глагольного и глагольно-причастного суффиксов *–ize / ized (e.g. optimize-optimized, specialize-specialized, authorize-authorized, synchronize-synchronized)* и суффикса существительного *–ization (e.g. organization, specialization, authorization, synchronization, utilization)*. Затрудняет произношение слов и суффикс *–able*, обозначающий качество *(e.g. malleable, predictable, applicable, navigable, observable)*. Кроме того, стоит обратить внимание на сочетания букв, передающих звуки [ʃ], [ʧ], [ʒ]. В связи с тем, что в специализированном тексте возрастает количество многосложных слов, буква ‘u’ чаще стоит в закрытой позиции, представляя звук [ʌ] *(e.g. fundamental, destruction, construction, cluster, production, тж. с приставками multi-, sub-, un/under)*. Достаточно частое использование в специализированном тексте слов греческого, латинского происхождения, слов, заимствованных из французского языка, также затрудняет корректное произношение *(e.g. phenomenon, technology, technique, criteria, characteristics, machine, analysis, personnel, resume).*

Следует отрабатывать произношение сложных буквенных сочетаний, типов слогов и других явлений при работе с текстом и лексическими упражнениями (раздел ‘focus on vocabulary’).

Лексика

Знакомство с новой лексикой предполагает ее усвоение в качестве как активного, так и пассивного словарного запаса. К активному словарному запасу нужно, безусловно, отнести термины и специализированную лексику, а также глаголы, прилагательные и наречия, наиболее часто встречающиеся в техническом тексте. Корме того, важную роль играет заучивание определенных фраз-клише, характерных для научно-технического стиля.

Умение находить в словаре значение слова, наиболее отвечающее конкретному контексту, является одной из основных составляющих коррект-

ного перевода. Это особенно важно, когда речь идет о термине, поскольку термин не только отличается однозначностью, будучи тесно связанным с конкретной областью знаний, но и приобретает разное значение в разных областях знаний, что необходимо учитывать при переводе. Например, слово ‘mosaic’ в декоративно-прикладном искусстве – это разновидность инкрустации, в музыке это слово означает «попурри». В геодезической аэрофотосъемке и фотограмметрии ‘mosaic’ приобретает значение «монтаж аэрофотоснимков». Тогда выражение ‘controlled mosaic’ следует перевести как «топографически привязанный аэрофотомонтаж».

При работе с лексикой нужно помнить о таком характерном для английского языка явлении, как конверсия, при которой происходит переход слова из одной части речи в другую без изменения формы слова, чаще всего из существительного в глагол и наоборот, реже переходы с участием прилагательного: doctor – to doctor, post – to post, plan – to plan, master – to master; calm – a calm – to calm. Конверсия может быть связана с грамматической омонимией, например, слово ‘passes’ 3 л. ед. ч. наст. вр. («проходит, подаёт, передаёт, пасует»), но также и сущ. мн. ч. «вступительные экзамены».

Такого рода явления в английском языке необходимо учитывать, чтобы добиться грамотного перевода.

Грамматика

К наиболее характерным грамматическим явлениям технического текста, вызывающим сложности при переводе, следует отнести:

– существительные в роли определения (ср. watch pocket / pocket watch);

– инфинитив в двух основных функциях: составной части сказуемого (что делать? e.g. Automation makes it possible to provide more current maps.) и обстоятельства цели (для чего? e.g. It can be used to make better predictions);

– пассивный залог, который имеет широкое распространение в техническом тексте, главным образом в форме Simple Passive: to be+ V3/ed. Также может встречаться в форме Perfect Passive: to have + been + V3/ed;

– грамматические явления с ing-form, к которым относятся такие неличные формы глагола как причастие настоящего времени и герундий, а также отглагольные прилагательные и существительные (computing tech-

nologies, the setting of upper bounds). Особое внимание следует уделить причастию как настоящего времени (ing-form), так и прошедшего (V3/ed).

Unit 1. Our University. Undergraduate, graduate and postgraduate study

Text 1. The system of higher education in Great Britain and in the United States

The System of Higher Education in Great Britain. The autonomy of higher-educational institutions is important in Great Britain. Its universities enjoy almost complete autonomy from national or local government in their administration and the determination of their curricula. It is well known that entry requirements for British universities are rather difficult. A student must have a General Certificate of Education by taking examinations in different subjects. If they have greater number of "advanced level" passes, in contrast to General Certificate of Secondary Education ("ordinary level") passes, then the student has better chances of entering the university of his choice. This selective admission to universities, and the close supervision of students by a tutorial system, makes it possible for most British students to complete a degree course in three years instead of the standard four years. The undergraduate course of studies is completed when students are ready to take their Degree examinations. After graduating they attain the first academic degree or distinction of a Bachelor of Science. Those that have a bent for research work may apply for an advanced course of study. Every postgraduate working on a research problem is provided with an adviser (supervisor) for the refereeing and evaluation of his thesis.

The System of Higher Education in the United States. The system of higher education in the United States differs from European in certain ways. In the United States, there is a national idea that students who have completed secondary school should have at least two years of university education. That is why there is a great number of "junior colleges" and "community colleges." They give two years of undergraduate study. Traditional universities and colleges, where a majority of students complete four years of study for a degree courses can be funded privately or can have state or city foundations that depend heavily on the government for financial support. In the American system, the four-year, or bach-

elor's degree is ordinarily given to students after collecting of course "credits" or hours of classroom study. The quality of work done in these courses is assessed by continuous record of marks and grades during a course. The completion of a certain number (and variety) of courses with passing grades leads to the bachelor's degree. The first two years of a student's studies are generally taken up with obligatory courses in a broad range of subjects; also some "elective" courses are selected by the student. In the third and fourth years of study, the student specializes in one or perhaps two subject fields. Postgraduate students can continue advanced studies or research in one of the many graduate schools, which are usually specialized institutions. At these schools students work to get a master's degree (which involves one to two years of postgraduate study) or a doctoral degree (which involves two to four years of study and other requirements). A distinctive feature of American education is the de-emphasis on lecture and examination. Students are evaluated by their performance in individual courses where discussion and written essays are important.

Notes

curricula мн.ч. от curriculum	– учебный план, учебный курс
General Certificate of Education	– аттестат об общем образовании
to complete a degree course / complete study for a degree	– закончить курс обучения с получением степени
degree examinations	– выпускные экзамены
undergraduate study	– первая ступень высшего образования
bachelor's degree	– степень бакалавра
master's degree	– степень магистра
doctoral degree	– степень доктора наук
postgraduate student	– аспирант
graduate school	– магистратура, аспирантура
to collect course credits	– получить зачеты по предметам
marks and grades	– оценки
passing grade	– проходной балл (удовлетворительная оценка)

Focus on vocabulary

Упражнение 1. Произнесите правильно:

Higher education, higher-educational institutions, university education, secondary education; determination, distinction, administration, evaluation, completion, financial, admission, discussion; supervision; enjoy, subject, junior, majority; graduate, undergraduate, postgraduate; require, requirement, quality; thesis, theses; certificate; curricular, curriculum; certain, certain number; chance, research, bachelor, bachelor's degree, Bachelor of Science; course, courses, degree courses; essay (n), to essay (v); specialize, specializes, specialized institutions; emphasis, de-emphasis, to emphasize, emphasized.

Упражнение 2. Переведите на русский язык следующие словосочетания:

Curriculum, entry requirements, to take examinations (in), to enter the university, to graduate from the university, a bent for research work, to apply for an advanced course of study, tutorial system, to work on a research problem, to complete secondary school, course credits, classroom studies, passing grade, obligatory courses, elective courses, graduate school, de-emphasis on lecture and examination.

Упражнение 3. Найдите в тексте следующие слова и словосочетания:

Высшие учебные заведения, учебные планы (курсы), сдавать экзамены, экзамены по программе средней школы на повышенном уровне, экзамены по программе средней школы на обычном уровне, выпускные экзамены, первая ученая степень, научный руководитель, диссертация, колледж с двухгодичным курсом (техникум), муниципальный колледж, аудиторные занятия, проходной балл (удовлетворительная оценка), получить степень магистра, письменная работа (сочинение).

Focus on text

Упражнение 1. Укажите, соответствуют ли предложения информации в тексте ('true') или не соответствуют ('false').

1. Universities in Great Britain almost completely depend on national or local government in their administration and the determination of their curricula.

2. A student must have a General Certificate of Education by taking examinations in different subjects. 3. Students take their Degree examinations when the undergraduate course of studies is completed. 4. “Advanced level” passes and General Certificate of Secondary Education passes gives the student equal chances of entering university. 5. Most British students complete a degree course in three years instead of the standard four years. 6. Tutorial system is a distinctive feature of the United States higher education system. 7. So called “junior colleges” and “community colleges” give at least four years of undergraduate study. 8. To attain a Bachelor’s Degree, American students have to collect course credits or hours of classroom studies. 9. To get a Master’s Degree, students can continue advanced studies in graduate schools, which are usually specialized institutions. 10. Discussion and written essays are not so important for students when performing in individual courses.

Упражнение 2. Выпишите из текста ответы на вопросы, переведите их на русский язык.

1. In what spheres do British Universities enjoy their autonomy? 2. What are the entry requirements for British Universities? 3. Who has better chances to enter the university of his choice? 4. What is the duration of a degree course for most British students? 5. When the undergraduate course is completed? 6. What degree do students attain after graduating? 7. What is an advanced course of study in Britain? 8. What is the national idea in the US for those who have completed secondary school? 9. How can be funded traditional universities and colleges? 10. How can American students attain bachelor’s degree? 11. What is the role of marks and grades in attaining the degree? 12. What are advanced studies in the US? 13. What is a distinctive feature of American education? 14. Which is more important to evaluate American students’ work: lectures and examinations or discussion and written essays when performing in individual courses?

Grammar focus

Выпишите из текста и дайте грамматическую характеристику словам с формами ***-ing*** и ***-ed***. В случае сложного глагольного сказуемого выпишите и проанализируйте его полную видовременную форму.

Text 2. Master's study in Russia

Higher education at all levels in Russia is aligned with the Bologna system. It gives an excellent opportunity for students who are on the lookout for continuing their studies to gain M.Sc. degree. In Russia, master's programs are usually completed in one to two years. Since most students are primarily comprised of industry professionals, they can finish the program full-time or part-time, depending on their preference. Applying for a master's degree in Russia will require a specialist diploma or a Bachelor's degree from any university, as far as master's is a continuation of a bachelor's program, according to the two-level 4+2 (two years of bachelor's and two years of master's degree). One can graduate from a bachelor's degree in one speciality and then enrol in a master's degree in another, to have an opportunity to expand one's competence and acquire new qualification. Another requirement is an interdisciplinary exam. Some universities may also ask you to write a motivational essay. Russian universities offer both classical master's programmes in fundamental and innovative disciplines which will provide knowledge in the most relevant and interdisciplinary fields.

The master's programme usually takes two years: in the first year of study students mainly attend lectures in specialized subjects and acquire new knowledge. In the second year they lead active research work, work on the dissertation and then defend it. An individual approach and work with an academic adviser is a distinctive feature of the master's programme.

The master's programme provides students with highly specialized knowledge and skills that will deepen the fundamental education received with a bachelor's or specialist degree. It is also an opportunity for already established specialists to improve their skills and access the world of innovative technologies and the latest developments in their professional field. A master's degree adds value to one's resume for organizations in commercial and government sector. Graduates also gain a way to start scientific career anywhere in Russia or the world. Experience in scientific work and independent research, publications in academic journals and participation in conferences create a basis for a future in science. Masters have an opportunity to continue their studies in PhD schools – the third level of higher education.

Notes

M.Sc. degree	– сокр. от Master of Science: магистр наук
Academic adviser	– научный руководитель
PhD schools	– аспирантура

Упражнение 1. Используя нижеприведенные пункты, напишите с опорой на текст эссе об обучении в магистратуре в российских вузах.

Degree: Master

Length: 1-2 years

Entry requirements: specialist diploma or a Bachelor's degree

Other requirements: interdisciplinary exam; a motivational essay

Research work: Master's dissertation

Distinctive feature: individual approach; academic adviser

Final examination: Master's dissertation defence

Education document: Master's diploma

Opportunities: to improve skills, to add value to a resume, to get acquainted with innovative technologies

Features: PhD study opportunity

Упражнение 2. Составьте диалог, в котором один из студентов будет задавать вопросы об обучении в магистратуре, а другой будет отвечать, опираясь на полученную в эссе информацию.

Упражнение 3. Выполните презентацию на тему *«Моя биография»*, делая упор на обучении в вузе. Используйте приведенные ниже предложения, заполнив их необходимой информацией, в том числе из текста *Master's Study in Russia*.

1. My name is ... .
2. I graduated from the (SSUGT) in (2021).
3. I completed a degree course in (2021) and attained my first academic degree of a ... in (geodesy).
4. I graduated with a specialist diploma, my speciality is ... .

5. I have a bent for research work so I applied for a master's degree in the speciality of ... .
6. I enrolled in a master's degree in (2023).
7. Now I am taking Master's degree classes in ... at the university.
8. The master's programme takes ... .
9. In the first year of study we ... .
10. In the second year Masters lead active ..., work on the ... and then ... .
11. I was provided with a supervisor, my supervisor is ... .
12. My academic adviser referees and evaluates my dissertation.
13. Scientific work also implies publications in ... and participation in ... .
14. My goal is to ... my dissertation and to get ... .
15. Masters have an opportunity to continue their studies in ... the third level of ... .

Control tasks

Упражнение 1. Выучите для написания диктанта следующую активную лексику урока:

to take examinations (in), to enter the university, to graduate from the university, to complete a degree course, to attain first academic degree, to apply for an advanced course of study, to enrol in a master's degree, to take graduate classes, passing grade, marks and grades, course credits, to collect course credits, degree examinations, undergraduate study, bachelor's degree, master's degree, postgraduate student, graduate school, adviser (supervisor).

Упражнение 2. На основании выполненной презентации подготовьте для пересказа тему *«Моя биография»* (обучение в вузе). Используйте предложения по теме из задания по презентации.

РАЗДЕЛ 2. ОСНОВНЫЕ ВИДЫ РЕЧЕВОЙ ДЕЯТЕЛЬНОСТИ В АСПЕКТЕ «ОБЩИЙ ЯЗЫК»

Unit 2. Specialization

Text 1. Specialization. Training future specialists in geodesy [4]

The practical training of future specialists in geodesy in modern conditions of university education combines the principles of both a knowledge-oriented and a practice-oriented paradigm. Its combination makes it possible to form a professionally mobile specialist. The practical component of professional training of the students majoring in Geodesy and Land Management at the first (bachelor's) level ensures the professional mobility formation, as well as the mastery of significant professional competences. Educational practice during the 1st year includes such activities as: acquisition of skills and primary practical skills of working with analog geodetic devices, consolidation of integrated geodetic knowledge, performance of a set of field geodetic works, methods and rules of using maps in solving scientific and practical professional problems. Next step is an educational practice in geodesy, which involves comprehensive mastery of geodetic methods for solving various applied tasks, acquisition of practically oriented knowledge of the structure, principles of work, alignment, skills of working with modern geodetic devices, mastering the technique of geodetic measurements and constructions, new geodetic techniques in production conditions.

The crucial point is pre-diploma practice, which implies the development of professional competencies related to the solution of applied problems in the fields of land management, geodesy, geoinformatics, and preparation for the performance of qualification work.

Future geodesists, thanks to the transition from one basic form of activity to another, receive more developed practical skills in the application of educational and scientific information, implementation of means of quasi-professional and educational-professional activities, and acquire real professional experience, receiving opportunities for natural and effective entry into the profession.

Notes

Professional mobility formation	– формирование профессиональной мобильности
acquisition of skills	– приобретение навыков
production conditions	– условия эксплуатации
quasi-professional activities	– виды деятельности, имитирующие профессиональную деятельность
entry into the profession	– вступление в профессиональную деятельность; начало профессиональной деятельности

Focus on vocabulary

Упражнение 1. Произнесите правильно:

Specialist, specialization, profession, professional, construction, production, condition, solution, application, implementation, crucial; qualification, quasi-professional, acquire, acquisition, technique; principle, practice, competence, performance, experience; paradigm, alignment, apply, applied.

Упражнение 2. Переведите на русский язык следующие словосочетания:

Knowledge-oriented paradigm, practice-oriented paradigm, professionally mobile specialist, educational practice, analog geodetic devices, applied tasks, production conditions, performance of qualification work, practical skills, educational-professional activities.

Упражнение 3. Найдите в тексте следующие слова и словосочетания:

Студенты, специализирующиеся в области геодезии, учебная практика, овладение важными профессиональными компетенциями, выполнение комплекса полевых геодезических работ, условия эксплуатации, исключительно важный момент, внедрение средств, успешное начало профессиональной деятельности.

Focus on text

Упражнение 1. Заполните пропуски и переведите предложения.

1. Next step is … … … which involves comprehensive mastery of geodetic methods for solving various applied tasks. 2. The practical component of professional training of the students majoring in Geodesy and Land Management … … … ensures the professional mobility formation. 3. … … … is pre-diploma practice. 4. It implies preparation for the performance of … … … . 5. Future geodesists acquire … … …, receiving opportunities for natural and effective entry into the profession.

Упражнение 2. Выпишите из текста ответы на вопросы, переведите их на русский язык.

1. What does the practical training of future specialists in geodesy in modern conditions of university education combine? 2. What does the practical component of professional training of the students majoring in Geodesy and Land Management at the first (bachelor's) level ensure? 3. What does educational practice during the 1st year include? 4. What is the crucial point in the educational process? What does it imply? 5. What gives future geodesists opportunities for natural and effective entry into the profession?

Grammar focus

Выпишите из текста и дайте грамматическую характеристику словам с формами ***-ing*** и ***-ed***.

Text 2. Engineering functions [1]

Geodetic engineers are responsible for the creation and maintenance of maps. They use a variety of techniques to create digital representations of the Earth's surface, including satellite imagery, aerial photography, GPS tracking, and other data sources. Geodetic engineers may also be involved in the design and construction of new mapping technologies or systems. This could include anything from creating 3D models of the Earth's surface to developing software that can automatically detect changes in the landscape over time.

Geodetic Engineer Job Duties. Geodetic engineers have a wide range of responsibilities, which can include: conducting fieldwork such as surveying, measuring and mapping land parcels or building sites to collect data for construction projects; using computer programs to process data into maps or charts that can be used by other engineers or architects in their projects; preparing engineering plans and reports on geodetic activities such as developing new measurement techniques or updating existing methods; calculating latitude, longitude, elevation, and other geographic information using scientific methods and equipment such as Global Positioning Systems (GPS); reviewing data from satellites to monitor movement in the Earth's crust; using instruments such as theodolites and transits to measure horizontal and vertical angles in order to accurately plot locations on maps.

Geodetic Engineer Work Environment. Geodetic engineers work in a variety of settings, including private engineering firms, government agencies, and educational institutions. Many geodetic engineers work in offices, where they use computers to analyze data and prepare reports. They may also spend time in the field, performing surveying and mapping duties. Some geodetic engineers travel extensively to conduct fieldwork or to attend conferences.

Geodetic Engineer Job Description Example. As a Geodetic Engineer at [CompanyX], you will be responsible for providing support to other engineering disciplines by performing geodetic surveys and analyses. You will also be responsible for developing new methods and technologies for geodetic surveying, as well as for training other surveyors in the use of new equipment and methods. In addition, you will be responsible for the quality control of all geodetic surveys performed by [CompanyX].

The ideal candidate for this position will have a bachelor's degree in civil engineering, surveying, or a related field, as well as experience in the field of geodetic surveying. He or she must be able to work independently, as well as be a team player. He or she must also have excellent communication and interpersonal skills.

Notes

digital representations of the Earth's surface – цифровое изображение земной поверхности

GPS tracking	– GPS-слежение
updating existing methods	– обновление существующих методов
reviewing data from satellites	– просмотр данных со спутника

Упражнение 1. Напишите с опорой на текст 1 и текст 2 краткое эссе о специальности геодезиста. Осветите в эссе такие вопросы, как:

- training of future specialists in geodesy;
- geodetic engineer's functions and responsibilities;
- work environment of geodetic engineer;
- geodetic engineer at work.

Упражнение 2. Составьте диалог, в котором один из студентов будет задавать вопросы о деятельности геодезиста, а другой будет отвечать, опираясь на информацию в тексте 2.

Control tasks

Упражнение 1. Выучите для написания диктанта следующую активную лексику урока:

qualification, technique, competence, professionally mobile specialist, educational practice, applied tasks, performance of qualification work, practical skills, creation and maintenance of maps, GPS tracking, to conduct fieldwork, to perform surveying and mapping duties, quality control.

Упражнение 2. Подготовьте на пересказ сообщение по теме *«My Speciality»*. Используйте информацию из текстов урока.

Unit 3. Innovation

Text 1. Innovation in geodetic science

Joseph Engelberger, a famous robotics engineer, formulated three essential principles forming a background for innovations to be implemented: a recognized need; competent people with relevant technology; financial support.

Here is an example of Eurosense company performing in-house services over the whole survey process to maintain high standards of quality, accuracy and reliability.

Eurosense company is rather different from most survey companies, in that unlike others, it believes in offering a total service in-house. It is true not only for data acquisition itself, but also for the subsequent image analysis, processing, cartography and printing. It is this total in-house control that Eurosense company performs over the whole survey process from initial data acquisition to the final product. In-house refers to an activity or operation conducted within a company, instead of relying on outside providers.

1. Eurosense technologies in remote sensing. Remote sensing is a highly sophisticated business. Basically a means of rapidly surveying the Earth's environment from a distance, remote sensing techniques generally involve using aircraft or satellites with sensors operating in the electromagnetic spectrum. Vessels equipped with acoustic sensors for measurement of the underwater environment are also used. At Eurosense they use the whole range of remote sensing techniques available today. An aircraft carries a variety of remote survey equipment: metric cameras for precision photography in the visible light spectrum and the near or photographic infrared band, as well as special digital multispectral scanners (MSS) for surveying going from the ultraviolet through the visible and near infrared, to the thermal infrared bands. Because high quality photography is essential for accurate results, Eurosense uses only cameras with FMC (Forward Motion Compensation-Wild RC 20). The company also specializes in processing and analyzing satellite data obtained by using very high definition sensors working in the same spectral bands as those on board of an aircraft.

2. Eurosense advanced cartographic services. Processing and analysis services include the handling of a variety of digital and photographic survey data. Multispectral scanner data from aircraft surveys are processed, as well as satellite images and undersea sonar data. Information from digital terrain models is also included, together with data from external sources. Dealing with this multiplicity of sources requires the use of highly sophisticated equipment.

The solution is to use powerful digital interactive image processing systems. In addition to the standard features of these systems, special hardware and software are developed. This equipment is flexible enough to handle a variety of

source materials and is also highly accurate. Provision is made for geometric and radiometric correction of the scanner imagery. With thermographic survey data for example, this system gives the opportunity to produce high definition colour-coded thermograms up to 0.2°C thermal resolution. Eurosensesurvey company produces an enormous variety of image-based maps and documents, including three-dimensional digital terrain models, for both landscapes and the seabed, or regional thematic maps, based on satellite data.

Eurosense operates a Scitex Response-280 system to transform digital map data into a high quality cartographic output product. This system's software tools enable the company to perform all cartographic pre-press activities such as symbolization, colour-coding, annotation editing, etc., on cartographic files. The system's high resolution laser scanner/plotter is used for scanning purposes and for the production of colour separations for offset printing.

Notes

in-house	– внутри компании (все виды деятельности и услуги производятся внутри одной компании, без привлечения аутсорсинговых ресурсов)
forward motion compensation	– компенсация поступательного движения
nearinfrared (NIR)	– ближний инфракрасный диапазон
standard features	– стандартные функции
output product	– выпускаемая продукция
pre-press activities	– подготовка (продукта) до выхода в печать
annotation editing	– редактирование пояснений к карте

Focus on vocabulary

Упражнение 1. Произнесите правильно:

Essential, financial, initial, special, precision; specialize, recognize, recognized, analyze, analyzing, symbolization; quality, acquisition, subsequent, equipped, equipment, require; digital, regional, image, imagery, range, generally;

result, product, conduct, conducted, support, undersea, ultraviolet, multispectral, multiplicity; rely, relying, reliability.

Упражнение 2. Переведите на русский язык следующие словосочетания:

Essential principles, recognized need, financial support, in-house services, accuracy and reliability, survey companies, initial data acquisition, remote survey equipment, high definition sensors, on board of an aircraft, a variety of digital and photographic survey data, multiplicity of sources, standard features, highly accurate, scanner imagery, image-based maps and documents, regional thematic maps.

Упражнение 3. Найдите в тексте следующие слова и словосочетания:

Последующий анализ изображения, очень сложное дело, методы дистанционного зондирования, судна, оснащенные акустическими датчиками, спектр видимого света, ближняя инфракрасная область, данные подводного гидролокатора, трехмерные цифровые модели рельефа, термограммы с цветовым кодом, геометрическая и радиометрическая коррекция.

Упражнение 4. Дайте определение следующих понятий на английском языке:

– in-house services
– robotics engineer
– remote sensing
– electromagnetic spectrum
– visible light spectrum
– digital multispectral scanners (MSS)
– digital terrain models
– pre-press activities

Focus on text

Упражнение 1. Укажите, соответствуют ли предложения информации в тексте (‘true’) или не соответствуют (‘false’).

1. Eurosense company like many other companies believes in offering a total service in-house. 2. It is this total in-house control that Eurosense company per-

forms over the whole survey process. 3. In-house refers to an activity or operation conducted within a company, instead of relying on outside providers.4.Eurosensecompany doesn't use vessels equipped with acoustic sensors for measurement of the underwater environment. 5. Because high quality photography is essential for accurate results, Eurosense uses only cameras with FMC. 6. This equipment is flexible enough to handle a variety of source materials and but is not highly accurate. 7. This system's software tools enable the company to perform all cartographic pre-press activities such as symbolization, colour-coding, annotation editing, etc., on cartographic files.

Упражнение 2. Выпишите из текста ответы на вопросы, переведите их на русский язык.

1. Who is Joseph Engelberger? 2. What principles did he formulate? 3. How could you characterize Eurosense company activity in two words? 4. What are in-house services? 5. What do remote sensing techniques generally involve? 6. What remote survey equipment does an aircraft carry? 7. What does Eurosense survey company produce? 8. What does Eurosense operate a Scitex Response-280 system for? 9. What do pre-press activities include?

Упражнение 3. Попробуйте понять без перевода, о каких технологиях будущего идет речь в тексте. Обсудите информацию, данную в тексте в диалоге.

Technologies of the Future

The development of powerful, integrated sensor systems combined with modern communication technology has given rise to new and revolutionary applications and interdisciplinary approaches with a strong future potential, particularly in the online capture and modelling of geodata as well as automatic measurement and analysis. In addition to geodetic measurement systems, this includes technologies of the future, such as mobile and GPS positioning systems, location-based mobile information services, outdoor and indoor navigation, integrated machine and vehicle navigation systems, and automatic environmental monitoring systems.

Grammar focus

Упражнение 1. Выпишите из текста и дайте грамматическую характеристику словам с формами *-ing* и *-ed*.

Упражнение 2. Выпишите из текста глаголы в пассивном залоге.

Text 2. Information systems. Information theory [2]

Information theory discovers laws governing systems designed to manipulate information. Such systems, known as information systems, make it possible to transmit data from one person or department to another. It is true in the case of modern desktop software integrating traditional survey data with ground and aerial images to produce new flexibility and cost savings. Desktop software is bringing the power of imaging technology into mainstream survey process.

Imaging has always been an important part of surveying. Sketches, diagrams and photographs have long been part of surveyor's records. Today, the use of imaging technology rapidly is changing the way surveyors work in the field. Many survey crews are equipped with some form of digital camera and imaging technology is making its way into field instruments as well. For example, the Trimble VX spatial stations, Trimble V10 imaging rover and Trimble total stations equipped with Trimble VISION technology can collect high-quality georeferenced images. Modern desktop systems automatically store images in job directories and ensure that the appropriate images are attached to a given point. This automation helps manage the images, but doesn't take full advantage of the large amount of information inherent in each photo. Filling this gap requires some new approaches to desktop software.

Using imaging for surveying requires field images to be correctly aligned with measured survey points to enable office technicians to create the same view that the survey crew had in the field. The office technician can then review the fieldwork to identify gaps or blunders and make corrections in the office. Let's say we need to measure an object that is difficult to capture even using direct reflex measurement. The field crew can use Trimble VISION to capture images of the object from two or more perspectives. In the office, the technician can view the images in Trimble Business Center (TBC) software and select the object as it

appears in each of the images. The software then computes the 3D coordinates from the photogrammetric observations. This process is fast and simple. Office technicians can use photogrammetry to select and compute any number of discrete points. Each new point can be assigned a point identifier, feature code and attributes. By using this technique, the surveyor can achieve the long-sought goal of 'surveying in the office', including filling the missing data and correcting misidentified points.

Notes

Desktop software	– настольное программное обеспечение
imaging technology	– технология обработки изображений
TrimbleVX spatial station	– система позиционирования, соединяющая в себе оптические возможности, 3D сканирование и видеосъемку
TrimbleV10 imaging rover	– встроенная система фотокамер, производящая цифровые панорамные изображения

Упражнение 1. Прочитайте текст и сформулируйте в нескольких предложениях преимущества работы с технологией Trimble VISION. Определите, что такое 'surveying in the office'.

Упражнение 2. Составьте диалог, в котором один из студентов будет задавать вопросы о преимуществах работы с технологией Trimble VISION, а другой будет отвечать, опираясь на полученную из текста информацию.

Упражнение 3. Напишите эссе на тему 'Innovations in my future profession'.

Control tasks

Упражнение 1. Подготовьте для пересказа тему *'Innovations in my future profession'* на основе выполненного эссе.

Упражнение 2. Найдите в тексте и выпишите:

– герундий;

– причастия настоящего времени;

– причастия прошедшего времени;

– глаголы в длительном времени;

– глаголы в пассивном залоге.

РАЗДЕЛ 3. ЯЗЫК ДЛЯ СПЕЦИАЛЬНЫХ ЦЕЛЕЙ

Unit 4. Geodesy as a career

Text 1. GIS

If one regards the Canadian Geographic Information Systems (CGIS) as the first operational Geographic Information System (GIS), then GIS has more than five decades of history. Today's GIS technology is way more advanced. Many disciplines support the development of GIS: geography, geodesy, computer science, psychology, statistics, etc. Therefore, GIS has evolved from a system to an interdisciplinary science – GIScience.

Open GIS data can stimulate innovative ways of doing research in the field of geodesy and geosciences, considering first the benefits and challenges of open data. Open data, namely data freely usable, re-usable and re-distributable, promotes transparency, verifiability, encourages interdisciplinary studies, knowledge-exchange, etc. On the other hand, GIS allows the storage, manipulation, managing and analysis of topographic data. Hence, open GIS data is a powerful tool for geoscientists and geodesists who can conduct data-driven analyses like never before.

Some initiatives have been made, OpenStreetMap, for instance, is a collaborative and voluntary project, which utilizes satellite data to create maps of the world. The EU launched Copernicus, a programme aimed at developing European information services based on satellite and in-situ data. These initiatives contribute to improve the findability of data, but do not address a crucial problem: how to reutilize GIS data to create applications, spurring innovative ways of conducting scientific research in geodesy.

Open data aggregators could help address this issue. Aggregators have two main functions: data aggregation and integration. Aggregation consists of creating hubs where multiple data sources can be accessed for various purposes. Integration refers to linked data to which a semantic label (a name describing a variable) is attached to allow for the integration of different data sources. The Euro-

pean Network for Redistributing Geospatial Information to user Communities-Open Data (ENERGIC-OD) consortium launched a pan-European Virtual Hub (pEVH). This is a super-broker that automatically searches for open GIS data available online (i.e. GEOSS, INSPIRE, COPERNICUS data and Spatial Data Infrastructures or SDIs), processes it and renders it ready to use for app developers, facilitating open GIS data usage across Europe.

Notes

OpenStreetMap	– бесплатная база географических данных
Copernicus	– Европейская программа наблюдения Земли
in-situ	– данные, полученные непосредственно на месте наблюдений

Focus on vocabulary

Упражнение 1. Произнесите правильно:

Discipline, science, interdisciplinary science; psychology; use, usable, reusable, distributable, available; verifiability, findability; challenge, exchange, knowledge-exchange; crucial, initiative, issue, special, spatial; facility, facilities, facilitating; conduct, function, hub, multiple.

Упражнение 2. Переведите на русский язык следующие словосочетания:

Interdisciplinary science, freely usable, storage and manipulation of topographical data, powerful tool, collaborative and voluntary project, in-situ data, improve the findability of data, create applications, app developers, open data aggregator, GIS data usage.

Упражнение 3. Найдите в тексте следующие слова и словосочетания:

Намного более усовершенствованный; обмен знаниями; проводить анализ на основе данных; многочисленные источники данных; для различных целей; использовать спутниковые данные; понятность (открытость) и

проверяемость; инновационные способы проведения исследований; креативный центр (хаб); доступно онлайн; разработчик приложений.

Упражнение 4. Дайте определение следующих понятий на английском языке:

– open data;
– in-situ data;
– open data aggregator;
– creative hub;
– OpenStreetMap;
– Copernicus;
– SDI (in geodesy).

Focus on text

Упражнение 1. Укажите, соответствуют ли предложения информации в тексте (‘true’) или не соответствуют (‘false’).

1. The Canadian Geographic Information Systems (CGIS) could be seen as the first operational Geographic Information System. 2. In its five decades history GIS has evolved from a system to an interdisciplinary science – GIScience. 3. Freely usable data could hardly promote transparency and verifiability. 4. These initiatives do not only contribute to improve the findability of data, but also address a crucial problem of GIS data reutilization. 5. GIS data reutilization could help to create applications, spurring innovative ways of conducting scientific research in geodesy. 6. Integration refers to creating hubs where multiple data sources can be accessed. 7. A pan-European Virtual Hub searches for open data available online to process it and render it ready to use for app developers.

Упражнение 2. Выпишите из текста ответы на вопросы, переведите их на русский язык.

1. What can be considered the first operational Geographic Information System (GIS)? 2. What disciplines support the development of GIS? 3. What does open data promote and encourage? 4. Why is open GIS data considered to be a powerful tool for geoscientists and geodesists? 5. What initiatives have been made to contribute to the improvement of the findability of data? 6. What is the

aim of Copernicus programme? 7. Could Open Street Map and Copernicus projects address the problem of GIS data reutilization? 8. And who or what can? 9. What are aggregation and integration functions of open data aggregators? 10. What is pEVH?

Grammar focus

Выпишите из текста и дайте грамматическую характеристику словам с формами ***-ing*** и ***-ed***. В случае сложного глагольного сказуемого выпишите и проанализируйте его полную видовременную форму.

Text 2. Remote sensing [3]

The definition of remote sensing used here, provided by the American Society for Photogrammetry and Remote Sensing is: in the broadest sense, the measurement or acquisition of information of some property of an object or phenomena, by a recording device that is not in physical or intimate contact with the object or phenomenon under study. The technique employs such devices as the camera, lasers, and radio frequency receivers, radar systems, sonar, seismographs, magnetometers, and scintillation counters. Energy emitted, reflected and transmitted from all sections of the electromagnetic spectrum may be used to deliver data to distant sensor systems. Two common types of remote sensing are available: active remote sensing and passive remote sensing. An active sensor sends out its own signal, which is then measured when it is reflected by the Earth's surface. A passive sensor detects solar radiation that is reflected or released by objects on the surface of the Earth.

Although remote sensing techniques have traditionally been thought of as a way to collect data that is subsequently evaluated by the user, they are increasingly being used in scientific and applied research for various purposes. Remotely sensed images, as well as the products produced from imaging analysis, are key data sources for GIS. In fact, most comprehensive image analysis software packages now include GIS functions for change detection overlays, local spatial analysis techniques, conversion between raster (pixel-based grids) and vector (points, lines, and polygons defined and displayed on the basis of two-dimensional Cartesian coordinate pairs) data structures, and other processes. By

necessity, GIS software programmes interact with raster data and pictures in a variety of formats, and they are increasingly including analytical features that were previously only available in detected image analysis tools.

Notes

radio frequency receivers	– радиочастотный приемник
scintillation counter	– сцинтилляционный счетчик
software packages	– пакеты программного обеспечения
pixel-based grid	– пиксельная сетка

Упражнение 1. Мини-игра «Конференция»: один из студентов («специалист») отвечает на вопросы о специфике дистанционного зондирования. Опираясь на информацию в тексте, затроньте такие вопросы как:

– the definition of remote sensing;
– devices the technique employs;
– available types of remote sensing;
– remote sensing techniques in scientific and applied research;
– key data sources for GIS.

Упражнение 2. Выполните презентацию на тему *«Remote Sensing»*.

Control tasks

Упражнение 1. Выучите для написания диктанта следующую активную лексику урока:

a) freely usable data (open data), verifiability, interdisciplinary studies, knowledge-exchange, to utilize satellite data, multiple data sources, available online, app developer

b) remote sensing techniques, phenomenon under study, to deliver data, applied research, image analysis software package

Упражнение 2. Грамматика:

– выпишите из текста причастия прошедшего времени, не являющиеся частью сказуемого;

– выпишите из текста сказуемые в пассивном залоге и определите их видовременную форму;

– найдите в тексте единственное сказуемое длительного времени активного залога.

Упражнение 3. Подготовьте для пересказа одну из тем: *«GIS»* или *«Remote Sensing»*.

Text 3. 3D laser scanning

Airborne and Terrestrial Laser Scanning. Airborne and terrestrial laser scanning differ in terms of data capture mode, typical project size, scanning mechanism and obtainable accuracy and resolution, yet share many features, especially those resulting from the laser-ranging technology. Particularly, when it comes to point-cloud processing, the same algorithms are often applied to both ALS (Airborne Laser Scanning) and TLS (Terrestrial Laser Scanning) data.

Airborne Laser Scanning. Airborne Laser Scanning is a measurement system in which pulses of light, most commonly produced by a laser, are emitted from an instrument mounted in an aircraft and directed to the ground in a scanning pattern. To acquire ALS data the laser unit mounted in an aircraft records coordinates and intensity for each echo. Optech ALTM 3100 laser system can record up to 4 echoes per laser shot. The average point density in the test sites is about 4 points per square meter. The raw data point cloud is filtered using robust interpolation. Remaining gross errors are removed manually. The resulting DTM (Digital Terrain Models) has a resolution of 1m².

Terrestrial Laser Scanning. Points are obtained from range measurements by the laser. The laser scanner emits a beam that is reflected with a revolving mirror to obtain a two-dimensional (2D) profile from the surroundings. If this 2D scanner is then simultaneously rotated on top of a tripod it performs a 3D scan of the environment. Currently a single TLS scan is the most precise way of acquiring a dense point cloud of the surrounding environment. Due to occlusions, however, several scanning locations are needed to achieve full coverage. It is possible to combine multiple tripod scans by using human-deployed scan targets in the field and software automation in the post-processing phase, or simply human intervention in the latter.

Common to all laser-scanning projects are the need to visualize and structure acquired 3D point-clouds, and proper geo-referencing of data. High-quality DTM production has been the major driving force behind airborne laser scanner development. Compared to other survey technologies, ALS enables DTMs of higher quality at lower cost. Point-clouds from ALS survey contain points not only on terrain, but also vegetation, buildings and other objects. While these are useful in many applications, non-ground points must be removed from point-clouds for DTM production.

Notes

data capture mode	– режим сбора данных
obtainable accuracy	– достижимая точность
laser-ranging technology	– технология лазерной дальнометрии
point-cloud processing	– обработка облака точек
gross errors	– грубые ошибки
multiple tripod scans	– многократное сканирование со штатива
human-deployed	– дислоцированные человеком

Упражнение 1. Выпишите из текста *'3D Laser Scanning'* 7-8 предложений, отражающих основную мысль.

Упражнение 2. Контрольный перевод текста 'For In-Depth Point Cloud Processing'.

Over the past few years, the use of LiDAR data has taken center stage in the GIS software industry. Blue Marble Geographics' Global Mapper LiDAR Module offers an inexpensive, powerful and easy-to-use alternative.

Global Mapper's optional LiDAR Module significantly enhances the LiDAR processing capability of the software. Providing support for point clouds with over a billion points, it offers a wide range of filtering, visualization, modelling, editing and export functions. Unlike some other applications, Global Mapper does not automatically filter or thin out the data for faster rendering. It gives the user the ability to decide if and how they want to decimate the point cloud data.

During the import process, the point cloud can be optionally thinned to remove erroneous points, for customizing the resolution or geographic extent of the data. Filters can be applied to limit the display to specific point classifications or return types. After import, points can be manually reclassified to correct or update any errors or omissions in the collection operation. This procedure can be based on a manual selection process; a more systematic query or search; or on a cross-sectional profile view of the point cloud that can be used to easily isolate any elevated points that represent buildings or vegetation layers.

Point cloud visualization may be adjusted to reflect various aspects of LiDAR data including return intensity, elevation, classification, and RGB values, if present. The tool even offers an option to automatically assign the RGB from an underlying imagery layer to each point individually. When rendered in the 3D window, this displays a visually realistic, rotatable model of buildings, trees, and any other extruded features.

For most users of LiDAR data, point cloud manipulation is a means to an end with the ultimate goal being to generate a terrain or surface model. Global Mapper excels at this procedure and provides many options for customizing the parameters of the resulting 3D raster layer. The software also offers the opportunity to perform a wide variety of 3D data creation and analysis functions such as contour generation, flood analysis, terrain flattening, and volume calculation.

Text 4. Photogrammetry

Photogrammetry is the art, science, and technology of obtaining reliable information about physical objects and the environment through processes of recording, measuring, and interpreting photographic images and patterns of recorded radiant electromagnetic energy and other phenomena. Photogrammetry, as its name implies, is a three-dimensional coordinate measuring technique that uses photographs as the fundamental medium for metrology or measurement. Two general types of photogrammetry exist: aerial (with the camera in the air) and terrestrial (with the camera handheld or on a tripod).

Traditionally, the work to process dozens or hundreds of aerial images would be handled by powerful workstations and specialized technical staff, which can add time and cost to the deliverables. Processing terrestrial images

differs from airborne images: terrestrial images come from a series of station views with a common point origin. These can be quickly tied together to produce georeferenced orthophotos. In contrast, airborne imagery consists of linked images along the flight path. These multi-station images have different perspectives and require much more processing power.

Today, even the high-end photogrammetric processing required for the UAS imagery can be handled using desktop computers and software. Surveyors can collect ground control using GNSS or total stations and then process and adjust the terrestrial data using traditional methods. The photogrammetry module can directly access the ground data for use in registering the images to produce orthophotos, 3D point clouds and surface models. The imaging and photogrammetry capabilities provided by modern desktop software enable the surveyor to add new types of deliverables to their services. These include: orthographic images compiled from multiple photos taken using terrestrial or airborne cameras; coordinate points and attributes determined using discrete measurements within the orthophotos; surface models of large or small areas developed using aerial images and photogrammetry; 3D point clouds based on aerial imagery and controlled with terrestrial GNSS or optical systems; new metadata, which consist of information such as condition, color, and the presence or absent of specific features.

This new class of data provides vision-based information to augment conventional position and attribute data.

Notes

radiant electromagnetic energy	– излучающая электромагнитная энергия
coordinate measuring technique	– технология измерения координат
georeferenced orthophoto	– геопространственный ортофотоснимок
flightpath	– траектория полета
multi-station images	– изображения, полученные с нескольких станций
high-end photogrammetric processing	– высококлассная фотограмметрическая обработка

Упражнение 1. Прочитайте и переведите текст.

Упражнение 2. Выпишите из текста 7-8 предложений, отражающих основную мысль.

Control tasks

Упражнение 1. Выучите для написания диктанта следующую активную лексику урока:

a) airborne laser scanning, terrestrial laser scanning, data capture mode, laser-ranging technology, achieve full coverage, visualize 3D point-clouds, georeferencing of data;

b) aerial photogrammetry, terrestrial photogrammetry, three-dimensional, coordinate measuring technique, photographic images, orthographic images.

Упражнение 2. Подготовьте для пересказа одну из тем: *«3D Laser Scanning»* или *«Photogrammetry».*

Unit 5. Studying for a master's degree

Text 1. Master programme in geomatics

The Master Programme aims at providing the student with extensive and detailed knowledge of the geomatics theory and methods on a high scientific level.

Qualified geospatial information specialists. In recent years private industry, government institutions as well as society as a whole have been placing increasing importance on geospatial information. This development has led to a dynamic geographic information (GI) industry. However, the growth of the upwardly mobile GI sector has been hampered by a shortage of highly qualified professionals. University graduates with excellent professional skills in the acquisition, processing, analysis, and visualization of spatial information, based on their experience in the development and application of GI systems, are still categorized as mainstream information and communications technology graduates. Although a number of courses in subjects, such as geography, cartography, geodesy, geology and environmental sciences include instruction in processing and

visual display of geographic information, GI companies and institutions have a constant shortage of qualified candidates with the required multidisciplinary expertise.

Core Disciplines. Intensive training in geoinformation processing, theoretical and practical aspects of the visualization of spatial data, information and navigation technology, information science and software engineering are therefore important elements of the geomatics master degree programme.

The Master Thesis is accomplished in close cooperation with the professors, doctors and associate professors, their research and development activities. Small working groups, in ongoing dialog with the teachers as well as intensive support guarantee a timely study completion and a successful graduation.

Notes

high scientific level	– высокий научный уровень
university graduate	– выпускник университета
shortage of qualified candidates	– нехватка квалифицированных специалистов
associate professor	– доцент
timely study completion	– своевременное завершение обучения

Focus on vocabulary

Упражнение 1. Произнесите правильно:

Theory and methods; qualified, geospatial, specialist, private, society, whole, increase, dynamic, shortage, acquisition, categorize, categorized, visual, multidisciplinary, expertise, visualization, spatial.

Упражнение 2. Переведите на русский язык следующие словосочетания:

extensive and detailed knowledge; private industry, increasing importance, GI sector, professional skills, application of GI systems, mainstream, visualization of spatial information, visual display of geographic information, navigation technology, associate professor, intensive support, successful graduation.

Упражнение 3. Найдите в тексте следующие слова и словосочетания:

Общество в целом, в тесном сотрудничестве, основанный на опыте, необходимый опыт, интенсивное обучение, теоретический и практический аспект, научно-исследовательская деятельность, постоянный диалог.

Упражнение 4. Составьте свои предложения со следующими словами и выражениями:

Extensive and detailed knowledge; increasing importance; university graduates; based on the experience; mainstream; multidisciplinary expertise; important elements; in close cooperation with; intensive support; successful graduation.

Focus on text

Упражнение 1. Заполните пропуски и переведите предложения.

1. … … … aims at providing the student with extensive and detailed knowledge. 2. This development has led to ... ... 3. ... ... have a constant shortage of qualified candidates with the required multidisciplinary expertise. 4. ... ... are therefore important elements of the geomatics master degree programme. 5. Small working groups, in ongoing dialog with the teachers as well as intensive support guarantee ... ...

Упражнение 2. Выпишите из текста ответы на вопросы, переведите их на русский язык.

1. What is the goal of The Master Programme? 2. What development has led to a dynamic geographic information (GI) industry? 3. What is the reason to hamper the growth of the upwardly mobile GI sector? 4. Who are categorized as mainstream information and communications technology graduates? 5. What are important elements of the geomatics master degree programme? 6. What could guarantee a timely study completion and a successful graduation?

Grammar focus

Выпишите из текста сложные глагольные сказуемые и проанализируйте их полную видовременную форму.

Text 2. Master's thesis. Theses and dissertations

A thesis or dissertation is a document submitted in support of candidature for an academic degree or professional qualification presenting the author's research and findings. In some contexts, the word "thesis" or a cognate is used for part of a bachelor's or master's course, while "dissertation" is normally applied to a doctorate, while in other contexts, the reverse is true. The term graduate thesis is sometimes used to refer to both master's theses and doctoral dissertations.

The required complexity or quality of research of a thesis or dissertation can vary by country, university, or program, and the required minimum study period may thus vary significantly in duration.

Structure. A thesis (or dissertation) may be arranged as a thesis by publication or a monograph, with or without appended papers, respectively, though many graduate programs allow candidates to submit a curated collection of published papers. An ordinary monograph has a title page, an abstract, a table of contents, comprising the various chapters (e.g., introduction, literature review, methodology, results, discussion), and a bibliography or more usually a references section. They differ in their structure in accordance with the many different areas of study (arts, humanities, social sciences, technology, sciences, etc.) and the differences between them. In a thesis by publication, the chapters constitute an introductory and comprehensive review of the appended published and unpublished article documents.

Dissertations normally report on a research project or study, or an extended analysis of a topic. The structure of a thesis or dissertation explains the purpose, the previous research literature impinging on the topic of the study, the methods used, and the findings of the project. Most world universities use a multiple chapter format: a) an introduction, which introduces the research topic, the methodology, as well as its scope and significance; b) a literature review, reviewing relevant literature and showing how this has informed the research issue; c) a methodology chapter, explaining how the research has been designed and why the research methods/population/data collection and analysis being used have been chosen; d) a findings chapter, outlining the findings of the research itself; e) an analysis and discussion chapter, analyzing the findings and discussing them in the context of the literature review (this chapter is often divided into two: analysis and discussion); f) a conclusion.

Style. Degree-awarding institutions often define their own house style that candidates have to follow when preparing a thesis document. In addition to institution-specific house styles, there exist a number of field-specific, national, and international standards and recommendations for the presentation of theses.

Presentation requirements, including pagination, layout, type and color of paper, use of acid-free paper (where a copy of the dissertation will become a permanent part of the library collection), paper size, order of components, and citation style, will be checked page by page by the accepting officer before the thesis is accepted and a receipt is issued.

Thesis committee. A thesis or dissertation committee is a committee that supervises a student's dissertation. In the US, these committees usually consist of a primary supervisor or advisor and two or more committee members, who supervise the progress of the dissertation and may also act as the examining committee, or jury, at the oral examination of the thesis. At most universities, the committee is chosen by the student in conjunction with his or her primary adviser, usually after completion of the comprehensive examinations or prospectus meeting, and may consist of members of the comps committee. The committee members are doctors in their field (whether a PhD or other designation) and have the task of reading the dissertation, making suggestions for changes and improvements, and sitting in on the defense. Sometimes, at least one member of the committee must be a professor in a department that is different from that of the student.

Regional and degree-specific practices and terminologies. In Russia, Kazakhstan, Belarus, and Ukraine an academic dissertation or thesis is called what can be literally translated as a "master's degree work" (thesis), whereas the word dissertation is reserved for doctoral theses (Candidate of Sciences). To complete a master's degree, a student is required to write a thesis and to then defend the work publicly. Length of this manuscript usually is given in page count and depends upon educational institution, its departments, faculties, and fields of study.

Notes

table of contents	– содержание
references section	– библиография
findings of the research	– новизна исследования

degree-awarding institutions	– учебные заведения, присуждающие ученые степени
citation style	– стиль цитирования
defend the work publicly	– защищать диссертацию публично

Упражнение 1. Напишите с опорой на текст эссе о требованиях к написанию диссертации.

Упражнение 2. Выполните презентацию на тему *«Master's Thesis»*. Используйте необходимую информацию из текста.

Control tasks

Упражнение 1. Выучите для написания диктанта следующую активную лексику урока:

а) high scientific level, university graduate, shortage of qualified candidates, theoretical and practical aspects, associate professor, master degree programme, research and development activities;

в) academic degree, author's research and findings, graduate thesis, master's thesis, doctoral dissertation, required complexity or quality of research, suggestions for changes and improvements, degree-awarding institutions, defend the work publicly.

Упражнение 2. Подготовьте письменное сообщение на тему *«My Research Work».*

Для того чтобы сообщение было хорошо структурированным и логичным, ответьте на следующие вопросы:

1. What is your name?
2. Where do you study?
3. Do you take your Master's Degree classes?
4. Do you carry out research?
5. Why do you take up science?
6. Who is your scientific adviser (supervisor)?
7. What is the field you major (specialize) in?
8. What is the title of your research topic?

9. What are the aims and objectives of your research work?
10. What are the tasks to fulfil?
11. Is it a desk study?
12. What is the experimental part of your research?
13. Does your research project involve plenty of work in labs? With computer?
14. Do you go out to the field to collect the data you need?
15. What is the focus of your research?
16. What are the methods and techniques you apply in your research?
17. What results do you expect to obtain?
18. Do you consider your work to be relevant?
19. Do you plan to continue your studies and take a postgraduate course?

Используйте полученные ответы для письменного сообщения на тему *«My Research Work».*

Упражнение 3. Подготовьте тему *«My Research Work»* для пересказа.

Приложение 1

ТЕКСТЫ ДЛЯ ПЕРЕВОДА И РЕФЕРИРОВАНИЯ

Text 1. Surveyors and public policy

The health of any profession depends on its relationship with its client: society. This is an unequal relationship in which the profession, to maintain its position, must continually appraise the needs of society and its role in satisfying them.

Surveyors must become actively engaged in public affairs.

Below a case is made for surveying profession to contribute to public policy, namely, to UN policy.

Surveyors' contribution to UN policy:

– Calling upon nations to make geographical information more available in timely, affordable and appropriate form.

– Access to information and encouraging public awareness and participation by making information widely available.

– Strengthening legal frameworks for land management.

– Increasing exchange information between government institutions.

– Undertake national inventory of land resources.

– National mapping programmes.

– Developing integrated information systems for environmental monitoring, accounting and impact analysis.

– Developing databases for assessment and management of coastal areas and charting for navigational safety.

– Transforming existing information into forms more useful for decision making.

To meet this tasks INSPIRE was established as a role model in relation to the formulation of public policy at the European level. INSPIRE is a legal act of the Council of the European Parliament setting up an Infrastructure for Spatial Information in Europe. The prime purpose of INSPIRE is to overcome barriers affecting the availability and accessibility of relevant data. The key elements to overcome these barriers include: metadata to describe existing information resources so that they can be more easily found and accessed; agreements on net-

work services and technologies to allow discovery, view, download of information resources, and access to related services; policy agreements on sharing and access, including licensing and charging; coordination and monitoring mechanisms.

Although a great deal of work has taken place with the support of many stakeholders, there are several organizational and technical challenges that need to be addressed. The most crucial challenge was to maintain the momentum and the high level of commitment of all the stakeholders and the experts contributing to the development of the Implementing Rules. This requires a notable amount of resources to ensure that stakeholders feel ownership of the process, which then become a prerequisite for more effective implementation.

A second challenge is to facilitate the transition from an SDI perspective that only addresses relatively few technical experts towards a spatial information infrastructure, which is a service providing information products and analyses that are of wider use to non-experts. This requires turning many of the functionalities and analytical processes encoded in GIS software and usable by few trained geospatial professionals, into geo-processing services that can operate in established workflows over the datasets available on the Web, and provide an answer to questions posed by the many who are not experts.

Notes

appraise the needs of society	– оценивать потребности общества
public affairs	– связи с общественностью
public awareness	– осведомленность общественности
decision making	– принятие решений
access to related services	– доступ к соответствующим сервисам
licensing and charging	– лицензирование и взимание платы
crucial challenge	– важнейшая задача
high level of commitment	– высокий уровень приверженности
established workflow	– налаженный рабочий процесс
implementing rules	– имплементирующие правила

Text 2. Mine surveying [6]

Surveying in the mining sector. Geospatial data forms the foundation of mining. The rapidly evolving innovations in the geomatics sector are bringing previously unforeseen opportunities that will provide a major boost, both to mining surveyors and the mining industry as well.

Today, mine surveying is an exact science. While the basic principles of surveying may have remained largely unchanged throughout the ages, the instruments used have not. Common technologies in mine surveying today include terrestrial laser scanning, airborne laser scanning ('Lidar'), airborne photogrammetry, unmanned aerial systems (UASs). Beside this, software forms an essential part of the mining surveying profession nowadays.

TLS and ALS in the mining industry. Surveying in the mining industry, both in open-pit and underground mines, goes hand in hand with terrestrial laser scanning (TLS), which is deployed to verify the spatial changes of mining works. By combining Lidar with GNSS, it is possible to obtain a fully geospatially referenced dataset which opens up opportunities for changes to be directly measured and monitored over time. Another method of capturing the mining environment is airborne laser scanning (ALS, or 'Lidar'). ALS offers great opportunities for the mining sector, as it is able to acquire millions of points per km². This density creates a robust dataset in the form of a digital terrain model (DTM) or digital elevation model (DEM) to be used for such mining applications as volume calculations, geomorphology and structural geology, slope analysis and surface run-off modelling for feasibility studies and environmental impact studies.

Unmanned aerial vehicles (UAVs) in mining industry. Reflecting the trend in the entire geospatial profession, a growing number of mining companies are working with UAVs. These are equipped with digital cameras to provide high-resolution aerial imagery, which is then further processed to produce highly precise orthophotos, point clouds and 3D models. UAVs can also play a role in improving the safety of workers underground by providing information about the above-ground situation.

Notes

rapidly evolving innovations	– быстро развивающиеся инновации
unforeseen opportunities	– невиданные возможности
unmanned aerial systems (UASs)	– беспилотная воздушная система
open-pit	– открытый карьер
underground mine	– подземная шахта
verify the spatial changes	– проверять пространственные изменения
digital terrain model (DTM)	– цифровая модель рельефа
digital elevation model (DEM)	– цифровая модель возвышенности рельефа

Text 3. Value of experimentation

Experimentation is the step in the scientific method that helps to decide between two or more competing hypotheses, which suggest reasons to explain a phenomenon or predict the results of the action. Experimentation can be defined as a process of experiment making, or the act of doing experiments. Experimental research is a study conducted with a scientific approach using two sets of variables. The first set acts as a constant to measure the differences of the second set. An experiment is a procedure carried out to support or refuse a hypothesis, or determine efficacy or likelihood of something previously untried. Experiments provide insight into cause-and-effect by demonstrating what outcome occurs when a particular factor is manipulated. Experiments vary greatly in goal and scale but always rely on repeatable procedure and logical analysis of the results. Uses of experiments vary considerably between the natural and human sciences.

Experiments typically include controls, which are designed to minimize the effects of variables other than the single independent variable. This increases the reliability of the results, often through a comparison between control measurements and the other measurements. Scientific controls are a part of the scientific method. Ideally, all variables in an experiment are controlled, accounted for by the control measurements. In such an experiment, if all controls work as expected, it is possible to conclude that the experiment works as intended, and that results are due to the effect of the tested variables.

Notes

competing hypotheses	– конкурирующие гипотезы
predict the results	– предсказывать результат
sets of variables	– набор переменных
independent variable	– независимая постоянная
cause-and-effect	– причинно-следственная связь
natural and human sciences	– естественные и гуманитарные науки
reliability of the results	– надежность результатов

Text 4. Scientific method

Scientific enquiry is confined to positive questions, i.e. it deals with the questions which can be verified or falsified by actual observations of the real world.

One major objective of science is to develop theories. These are general statements or unifying principles describing and explaining the relationships between things we observe in the world around us. When some definite regular pattern is observed in the relationships between two or more things, for example, tides rise and fall at regular intervals of time, and someone asks why this should be so, the search for the theory has begun. To explain observed phenomena scientific enquiry makes use of procedures common to all sciences. These procedures are called scientific method, which implies the following steps:

First: To define the concepts to be used in such a way that they can be measured. This is necessary if we are to test the theory against the facts.

Second: To formulate a hypothesis. This is a tentative untested statement which attempts to explain how one thing is related to another. Hypotheses will be based on observation and upon certain assumptions about the way the world behaves. These assumptions, in their turn, may be based upon existing theories which have proved to have a high degree of reliability. Using observed facts and making use of certain assumptions a process of logical reasoning leads to the formulation of a hypothesis. This must be framed in a manner which enables scientists to test its validity.

Third: To think out what would happen if the hypothesis is correct. The hypothesis is used to make predictions, means if certain things are done, certain other things will happen.

Fourth: To test the hypothesis – are the predictions of the hypothesis supported by the facts? In the natural sciences the testing of hypotheses is carried out by controlled experiments in the laboratory. If the hypothesis is supported by the factual evidence we have a successful theory which may be formulated in the form of a scientific law. A scientific law is a statement based on repeated experiments or observations that describe some aspects of the natural world.

A successful theory is one which up to now has not been proved false. If, at some future times facts emerge which confound the theory and its predictions become unreliable, it will be discarded and a search for a better theory will begin.

Notes

scientific enquiry	– научное исследование
actual observations	– фактические наблюдения
regular pattern	– закономерность
phenomena мн.ч. от phenomenon	– явления
make use of procedures	– использовать методики
base upon	– основываться, строиться на
logical reasoning	– логическое рассуждение
frame in a manner	– (зд.) сформулировать таким образом
natural world	– мир природы, окружающий мир

Приложение 2

СТАТЬИ ДЛЯ АННОТИРОВАНИЯ

Paper 1. Low-volume road surveys

by Roswell K.Miller /Surveying and Mapping, Vol. 43, No.1, March 1983, pp. 61–64

Low-volume roads are roads that serve primarily for land access, according to AASHTO definition. As such, low-volume roads probably include all temporary roads of any length, most borrow pit access roads, many logging roads, quite a few recreation-oriented roads, and all roads where the expected use will not warrant high survey, design, and construction costs.

This paper describes a route surveying procedure that uses a staff compass, engineer's tape, and Abney level or clinometer to survey the proposed route(s) of a low-volume road. The survey procedures are faster than conventional engineers' route surveys accomplished with transit, tape, level, and rod, and still provide adequate design data and construction control references for the road. The method is used in conjunction with the 'paper projection method' and is somewhat similar to the 'method of field design'.

Once the terminals of the road have been established, a prime consideration is production of the information that will be necessary for the construction crew to build a serviceable road to the desired specifications. The minimum data provided the construction crew should consist of a plan of the centreline which shows the stationing, culvert locations and sizes, curve data, and adjacent features, which may be important to orientation of the plan of the road on the ground. Also needed and usually found on the same page of a plan is a profile of the centreline grades and the corresponding ground profile beneath the centreline. The profile should show culvert locations and sizes, vertical curves or grade breaks and stationing. The plan and profile is produced by the design engineer using data from the route survey and specifications chosen for the road. The survey data needed by the engineer includes a traverse of the route, a profile of the undisturbed ground beneath the traverse, and data concerning the shape of the earth's surface adjacent to the traverse. Assuming the reconnaissance has been

completed and trial grade lines have been run on topographic maps and in the field, the survey should follow the proposed centreline as closely as possible.

The equipment needed for a two-person crew includes a staff compass and staff, no more than a 200-ft. tape, an Abney level or clinometer capable of reading slopes in percents, and the usual complement of brushing equipment, ribbon, a standard field notebook, and tall stakes. In order to make the office calculations and the plotting of the traverse as easy as possible, the field work should be done to expedite these activities. The traverse is accomplished with the staff compass, taking back-bearings and fore-bearings to the nearest one-quarter degree. Distances are measured as slope distances for later conversion to horizontal distances. To facilitate the conversion, measure all slope distances in multiples of 10 ft., i.e., 60, 70, 80, etc. Slopes taped should be measured with the Abney level or clinometer and recorded to the nearest whole percent or estimated to the nearest half percent if the final grade of the road is expected to be critical. Either while the traverse is being measured, side shots perpendicular to the traverse points must be taken. The perpendiculars can be determined 'by eye' along tangent sections and should 'split the angles' at all stations where the traverse deflects. The plan of the traverse is easily plotted with a protractor and engineer's scale. The profile is easily plotted too. With the plotting of these two documents, the job of the surveyor is essentially done.

The method of location, design, and field control does not produce detailed plans, accurate estimates of earthwork required, mass diagrams, and the engineering data required for high-value, precision-designed roads and highways. The method does provide a quick, reliable, and relatively inexpensive surveying and engineering method adequate for the many miles of low-volume roads.

Paper 2. Exploring the impact of AI on geodesy: a comprehensive overview of the latest innovations [5]

by *Marcin Frąckiewicz* in *Artificial intelligence*, *News* on 28 July 2023

Geodesy, the scientific discipline that deals with the measurement and representation of the Earth, is undergoing a significant transformation due to the advent of Artificial Intelligence (AI). The integration of AI into geodesy has

opened up new avenues for research and innovation, leading to unprecedented advancements in the field. This article provides a comprehensive overview of the latest innovations in the application of AI in geodesy.

The application of AI in geodesy is not a new concept. However, the recent advancements in AI technology have significantly expanded its potential in this field. AI algorithms are now being used to process and analyze large volumes of geodetic data more efficiently and accurately than ever before. This has led to significant improvements in the accuracy of geodetic measurements and models, thereby enhancing our understanding of the Earth's shape, orientation in space, gravity field, and geographical reference systems.

One of the most notable applications of AI in geodesy is in the area of satellite geodesy. AI algorithms are being used to process and analyze data from satellite-based geodetic systems, such as the Global Navigation Satellite System (GNSS) and the Gravity Recovery and Climate Experiment (GRACE). These algorithms have significantly improved the accuracy and efficiency of satellite geodesy, leading to more precise measurements of the Earth's shape and gravity field.

In addition to satellite geodesy, AI is also being used in the field of geodetic surveying. AI algorithms are being used to automate the process of geodetic surveying, thereby reducing the time and effort required to conduct these surveys. This has led to significant improvements in the efficiency and accuracy of geodetic surveys, thereby enhancing our ability to map and monitor the Earth's surface.

Moreover, AI is playing a crucial role in the development of geodetic models. AI algorithms are being used to develop and refine geodetic models, thereby improving our understanding of the Earth's shape, orientation in space, and gravity field. These models are crucial for a wide range of applications, including navigation, geospatial information systems, and climate change research.

The integration of AI into geodesy has also opened up new avenues for research and innovation. Researchers are now using AI to explore new areas of geodesy, such as the study of the Earth's internal structure and the monitoring of geophysical phenomena. This has led to new insights into the Earth's structure and dynamics, thereby expanding our knowledge of the Earth and its processes.

In conclusion, the integration of AI into geodesy has led to significant advancements in the field. AI algorithms are now being used to process and analyze

geodetic data more efficiently and accurately, leading to improvements in the accuracy of geodetic measurements and models. Moreover, AI is opening up new avenues for research and innovation in geodesy, thereby expanding our knowledge of the Earth and its processes. As AI technology continues to evolve, we can expect to see even more exciting innovations in the field of geodesy in the future.

Приложение 3

СТРУКТУРА НАУЧНОЙ СТАТЬИ

Выпишите и переведите на русский язык обозначения структурных частей научной статьи. Переведите статью.

DETAILED BATHYMETRY OF GUYOT SUMMITS IN THE NORTH PACIFIC BY MULTI-BEAM SONAR

by N. Christian Smoot

Abstract. The flat-topped seamount, or guyot, was recognized as a seafloor feature by Hess in the 1940's because sonar had progressed enough to begin delineating topography. Various studies were undertaken to pinpoint an exact guyot definition. A recapitulation of surveying hardware shows why this was inadequate. U.S. Naval Oceanographic Office surveys employing a multi-beam swath mapping system have covered most of the North Pacific guyots, and the bathymetric tops of six of the guyots are presented at a 10fm contour interval. These are used to show some facilities in both the historical definition as well as some of the survey procedures. Introduction and Background.

Introduction. During WWII sonar had progressed enough for Hess to notice flat tops on some Pacific Ocean seamounts. A study revealed that these features varied in size, had flat or gently sloping tops of 2° or less, and that they were circular or oval in plan. They were named guyots after geographer Arnold Guyot. The observed top depths of the flat surfaces ranged from 520-960 fm, and the bottom from 2600-3100 fm. The guyots exhibited very little terracing and were thought to be relicts of Pre-Cambrian volcanic islands with no reef growth. The sonar was a minimum 65° beam width and navigation was poor by today's standards.

Menard and Ladd summarized the 'state-of-the-art' and the definition of a guyot was than restricted to a flat-topped seamount deeper than 100 fm. Guyots were felt to be world-wide. It has also been shown that guyots are dip sticks to record ancient ocean depth, and that the subsidence implied by guyots is related to the subsidence of the oceanic crust itself.

Materials and methods. For the past 15years the U.S. Naval Oceanographic Office has been collecting multi-beam swath mapped data of northern hemi-

sphere ocean floors with a sonar system SASS, which produces real time corrected depths on automatically contoured strip charts of much more detail than heretofore possible using a less than 2° beam width. A sophisticated combination of LORAN/C, navigational satellites, inertial navigation, and speed logs has produced the navigation data for these total coverage 10-fm contour interval chartlets.

Discussion. All the foregone research led to the accepted UN guyot definition by way of the General Bathymetric Chart of the Oceans Advisory Committee (GEBCO) as presented by the U.S. Board of Geographic Names: namely, a seamount having a comparatively smooth top. GEBCO also recognizes a seamount as rising 500 fm or more above the seafloor and of limited extent across the summit. This limited extent is important to separate guyots from seamounts with mere breaks in relief.

Conclusion. Given the above information a guyot is still below 100 fm, possibly represents a sunken island, and has upward concave sides and a convex or irregular top.

Acknowledgments. Thanks to the crews of the USNS DUTTON USNS HESS for providing data over years.

References.

Приложение 4

ФРАЗЫ-КЛИШЕ ДЛЯ РЕФЕРИРОВАНИЯ ТЕКСТА

Из текста на иностранном языке нужно выбрать в среднем 7–10 предложений, которые заключают в себе основную идею текста. После того как предложения будут выбраны, оформить их, используя приведенные ниже фразы-клише (табл. 1). Нет необходимости использовать все фразы-клише, но выберите из каждого пункта одну или две фразы, так, чтобы это соответствовало логике передачи основной мысли.

Таблица 1

Фразы-клише

ANNOTATION PLAN	
The title of the text	The title of the text is… The text is headlined…
The main idea of the text	The main idea of the text is that … The text is about… The text deals with the problem of…
The contents of the text (facts, names, figures)	According to the text … It is clear from the text that… It must be mentioned that… The author writes/reports/stresses/ /notes/considers that… Further the author reports/says/stresses/writes that…
Conclusion	The author concludes that… The author comes to the conclusion that…
Your opinion	I found the text rather interesting/important because… In my opinion the text is rather disputable because…

Analysis of the article / scientific paper

I am going to review …
The article runs under the heading / the article is headlined …
The paper was written by … and printed in …

The paper under review contains / presents a profound analysis of …
The paper concentrates on the problem / on the fact / on the event of …
The problem of … is well covered.
The author states / declares / underlined that …
The author of the paper argues that …
It is essential that …
It is worth stressing the …
Of special interest / importance is the fact that …
It should be noticed / stressed / emphasized / underlined that …
The article ends with a thorough analysis of …
Summing up, it is evident that …
The paper's view-point is summarized in the following statement …

Пример реферирования текста

Text: Geodetic surveying

1. Title: The title of the text is GEODETIC SURVEYING.

2. Main idea: The text is about the science and art of geodesy and the instruments and methods geodesists use in their work.

3. Contents: *It is clear from the text that* geodesy is the science concerned with determining the size and shape of the Earth and the location of points upon its surface and the art of surveying the earth surface considering its shape and size is called Geodetic Surveying. *The author writes* why geodesy is important. *He points out that* accurate positions are required for a wide variety of applications including mapping and charting, flood risk determination, transportation, land use and ecosystem management. *It must be mentioned* that Geodetic Surveying is suitable for finding out the area of any region on the earth surface, the length and directions of the border lines, contour lines and location of basic points. *It is clear from the text that* Geodetic Surveying can be done by geographers, engineers and surveyors specialised in related disciplines. *Further the author says about* the methods and instruments used in Geodetic Surveying. *For example,* triangulation is used for finding exact location of an object (point) in respect of latitude and longitude. Geodetic levelling is used to establish a basic network of vertical control points. *According to the text* main instrument for Geodetic Surveying is a theodolite. It is the basic surveying unit used for geodetic

surveying. *The author reports about* three levelling techniques: differential, trigonometric, and barometric.

4. Conclusion: *The author comes to the conclusion that* although the accuracy in barometric levelling is not as great as either of the other two, it obtains relative heights very rapidly at points which are fairly far apart.

5. Opinion: I found the text rather important because it includes the detailed information about such methods of Geodetic Surveying as triangulation and different kinds of levelling (differential levelling, trigonometric levelling, barometric levelling). The author of the text stresses the importance of Geodetic Surveying for a wide variety of applications.

Приложение 5

ОБЗОР ОСНОВНЫХ ГРАММАТИЧЕСКИХ ЯВЛЕНИЙ С ТАБЛИЦАМИ И УПРАЖНЕНИЯМИ

Тема 1. Основные видовременные таблицы и «формулы». Active Voice

Спряжение глаголов ‘to be’ и ‘to have’

Таблица 2

To be (быть, являться, представлять собой)

Present	I am is (ед.ч.) are (мн.ч.)
Past	was (ед.ч.) were (мн.ч.)
Future	will be

Таблица 3

To have (иметь)

Present	I have have (мн.ч.) has (ед.ч.)
Past	had
Future	will have

Видовременные «формулы» (спряжение глаголов)

В «формулах» через **V** обозначен любой смысловой глагол; формы неправильных глаголов **V2, V3** берутся из таблицы неправильных глаголов. Нужные формы глаголов ‘to be’ и ‘to have’берутся из таблиц выше (см. спряжение глаголов ‘to be’ и ‘to have’).

Active Voice

Simple: V, Vs (3л.ед.ч.) – present
V2, Ved– past

will V – future
Progressive: to be (формы) + Ving
Perfect Simple: to have (формы) + V3/ed
Perfect Progressive: to have (формы) + been + Ving

Passive Voice

Simple Passive: to be (формы) + V3/ed
Progressive Passive: to be (формы) + being + V3/ed (* no future)
Perfect Passive: to have (формы) + been + V3/ed

Общая сводная таблица времен Активного и Пассивного залога

Таблица 4

Общая сводная таблица времен Активного и Пассивного залога

Tenses	**Active Voice**			**Passive Voice**
Simple	Present: V, Vs	Past: V2/ed	Future: will V	to be + V3/ed
Progressive	to be + Ving			to be + being + V3/ed
Perfect Simple	to have + V3/ed			to have + been + V3/ed
Perfect Progressive	to have + been + Ving			

Значение видовременных форм

Simple •
сообщение **факта**; обычное, привычное действие
(yesterday, tomorrow, last (week), next (week), ago; наречия частотности)

Progressive **I----------I**
сейчас, в данный момент, действие, имеющее длительность (**как долго?**)
(now, at the moment, from…to, at)

Perfect Simple **I----------I**
завершенное действие, результат, опыт (**уже, до**)
(already, by, just, before, after, yet, ever/never)

Perfect Progressive I----  ----I

действие началось, но все еще не закончилось (длится); либо закончилось, но имело длительный характер (**все еще**) (since, for)

Смысловой аспект видовременных систем Active Voice

Я много читаю. I read much (Present Simple)

Я читаю книги на английском и русском языках. I read books in English and in Russian. (Present Simple)

Месяца два назад я прочитал(а) книгу о Сальвадоре Дали. Some two months ago I read a book about Salvador Dali. (Past Simple)

Сейчас я читаю роман Нила Геймана. At the moment I am reading Neil Gaiman's novel. (Present Progressive)

Вчера весь вечер я читал(а) очень интересную книгу. Yesterday I was reading a very interesting book. (Past Progressive)

Я уже (про)читал эту книгу. I have already read this book. (Present Perfect Simple)

Я прочитал(а) эту книгу до того, как учитель сказал прочитать ее летом. I had read the book before the teacher told us to read it in the summer. (Past Perfect Simple)

Я читаю эту книгу уже почти месяц. I have been reading this book for almost a month. (Present Perfect Progressive)

Переведите предложения, используя настоящее время глагола 'to be'

Я – студент. Я – фотограф-документалист. Я – семейный человек. Мы все – хорошие люди. Мы – друзья. Мы – завзятые (inveterate) путешественники. Они слишком уж обидчивы. Они – прекрасные соседи. Они – завсегдатаи (regular attendees) этого клуба. Он – настоящий (a true) джентльмен. Поскольку (now when) она теперь жена принца, она тоже член королевской семьи, хотя она – не аристократка (noblewoman). Я нахожу (думаю, полагаю), что вы – очень приятный и интересный собеседник (counterparty, companion). Вы абсолютный хам (complete and utter cad)! Ты очень груб (too rude) с мистером Хантом. Ты – единственный (the only one) из моих друзей, кто понимает меня.

Проспрягайте неправильные глаголы, поставив их во вторую и третью формы (V2 / V3). Объясните, когда используется V2, а когда V3

Ring, speak, chose, read, do, eat, feel, write, bring, fight, buy, get, forget, win, wear, swear, keep, hurt, shut, build, spend, send, run, teach, be, have, find, cost, come, become, begin, give, go, know, drive, prove

Проспрягайте правильные глаголы, следите за правильным произношением окончания *-ed*

Translate, prevent, follow, discuss, specialize, minimize, communicate, determine, manage, produce, create, measure, use, decide, develop, dedicate, optimize, specify, apply, occupy

Русско-английский перевод глаголов в активном залоге

Для выполнения русско-английского перевода: определите в каком времени должен стоять глагол при переводе предложения на английский язык; пользуясь видовременной таблицей (см. выше), поставьте глаголы в нужную форму; переведите предложения на английский язык, не забывая, что порядок слов в русском и английском языках может различаться.

Переведите предложения на английский язык

1. Стив и Эллис живут в Манчестере. 2. Стив – инженер и в данный момент он работает над новым проектом. 3. Его отдел работает над этим проектом уже три месяца. 4. К лету инженеры закончат этот проект и начнут работать над новым Упражнением. 5. Эллис – типичная английская домохозяйка, она делает работу по дому и занимается детьми. 6. Сейчас, когда Стив на работе, она убирает на кухне после завтрака. 7. Старшие дети (уже) ушли в школу, а младшая дочь играет с кошкой в гостиной. 8. Занимаясь делами, Эллис вспомнила, как она впервые приехала в Манчестер из Престона (Preston), где она жила с родителями. 9. Нахлынули воспоминания, и Эллис задумчиво смотрит в окно. 10. Но вот она вспомнила, что еще не помыла посуду. 11. Наконец Эллис сделала все домашние дела, теперь она смотрит телевизор. 12. Кошка Маффин, с которой играла младшая дочь Катрин, убежала во двор, и Катрин пришла к матери. 13. Теперь

они смотрят телевизор вместе. 14. А вечером придет с работы отец, старшие сестра и брат вернутся из школы и всей семьей они будут ужинать. 15. Они любят эти вечера, когда они все вместе дома.

Тема 2. Passive voice

Simple Passive: to be (формы) + V3/ed

Progressive Passive: to be (формы) + being + V3/ed

(* no future)

Perfect Passive: to have (формы) + been + V3/ed

Сравните: Shakespeare wrote Hamlet ⇨Hamlet was written by Shakespeare

Смысловой аспект видовременных систем Passive Voice

Simple Passive: В прошлом году было проведено испытание первого блока реактора. The first reactor unit was tested last year.

Progressive Passive: В данный момент проводится испытание второго блока реактора. At the moment the second reactor unit is being tested.

Perfect Passive: К концу следующего года испытания всех трех блоков реактора будут завершены. By the end of the next year the testing of all three units of the reactor will have been completed.

Способы передачи пассивного залога в английском языке в сравнении с русским языком

Пассивный залог ↔ PassiveVoice

Строителями каждый год возводится большое количество строительных объектов. A large number of building objects are constructed by builders every year.

Неопределенно-личная форма ⇨ PassiveVoice

В Сибири строится большое количество жилых и производственных помещений. A great deal of residential and industrial premises is built in Siberia.

Активный залог ↔ PassiveVoice

Пресса много пишет о новых объектах строительства. New building objects are written much about in the press.

Переведите глаголы в пассивном залоге Simple Passive

– Doctor, what's wrong with me?! I am ignored by everyone.

– Next!

Lennox is invited to the party.

Lynn and Murphy are invited to the party too.

The Dog Isle was built up with sky-scrapers.

The islands were discovered by Captain Cook in 1775.

Some of the factory buildings will be rebuilt to be modern art galleries and boutiques.

Проспрягайте глаголы в пассивном залоге Simple Passive

e.g. The workers of the factory <u>are paid</u> every two weeks.

I am the worker of the factory, so I … … every two weeks. Me and my co-worker … … once a month. Alan … … every week. You … … every week too. They … … twice a month. Shinned … … daily.

Переведите глаголы в пассивном залоге Progressive Passive

Oh, my! I must go home; I think I am being looked for by my dear Granny.

I am working at home today because my office is being painted.

We are at Heathrow air terminal at the moment. The flight 333 has just landed. The passengers are being checked in.

My friend is going in for his oral exam. He is being asked now.

He failed the exam. No wander; the exam was being taken by Professor Morgan.

So what? We were also being asked by Professor Morgan, but we passed the exam.

Проспрягайте глаголы в пассивном залоге Progressive Passive

e.g. Mr Evans <u>is being sent</u> to Hawaii for a week.

I … … … to Hawaii for a week. We … … … to Hawaii for a week. Alan and Alice … … … to Hawaii for a week. You … … … to Hawaii for a week. He … … … to Hawaii for a week. They … … … to Hawaii for a week.

Переведите глаголы в пассивном залоге Perfect Passive

I have been operated on and feel much better now.

Now, when all the house work has been done, I can relax listening to the music or scrolling through my news feed.

All the equations have been solved, now I can rest a bit.

The project work had been finished by the end of March.

The mathematicians of the Computing Center are sure that the equation will have been solved this year.

Проспрягайте глаголы в пассивном залоге Perfect Passive

e.g. Have you heard the news? Mr. Evans has been robbed.

I … … … My two friends … … … this month. He … … … recently. Oh, really, you … … …, haven't you? Alan's sister… … …too. They… … …as far as I know.

Revision. Переведите на русский язык, обращая внимание на глаголы в разных видовременных формах пассивного залога:

The Presidents are meeting in Kremlin. They are to discuss economic development issues. Much attention is also paid to the question of cultural interaction. Now, when all the questions of the agenda have been discussed, the agreements are being signed.

Тема 3. «Атрибутивные цепочки». Существительное в роли определения

Определение в английском языке может быть выражено в связке '*существительное + существительное'*. В отличие от русского языка, в английском языке перед определяемым словом может стоять не одно, а несколько существительных перед определяемым словом, образуя своего рода 'атрибутивную цепочку': image analysis software packages; power grid transmission line data collection project.

Такие словосочетания могут затруднять перевод. Для корректного перевода такого рода 'цепочек' существительных следует помнить, что глав-

ным, определяемым словом будет последнее существительное, а остальные будут его определять в одном из косвенных падежей с предлогом или без предлога. Следует заметить, что ‘атрибутивные цепочки’ могут включать не только структуру ‘*существительное + существительное’,* но и состоять из существительных в сочетании с прилагательными, числительными и даже целыми словосочетаниями: space-to-space method; the big ‘Russia blew up its pipeline’ lie

Тренировочное упражнение

I.

1. The University of Washington distributed computing project for protein structure prediction.
2. First steam engines were put into operation in Great Britain.
3. In the radio telephone sound waves are converted into radio waves.
4. When was diesel internal combustion engine invented?
5. We should check water quality results.

II.

a) a pocket watch, a watch pocket, flower garden, garden flower, system monitoring, monitoring system, system management, management system, system manual, manual system, airplane system manual, airplane manual system.

b) inlet pressure, inlet pressure decrease; detection system, network intrusion detection system; address book, e-mail address book, the victim’s e-mail address book; bend resistance, bend resistance experiment, bend resistance experiment conditions; transmission line, transmission line performance, transmission line performance evaluation, transmission line performance evaluation problem; salt water, salt water intrusion, salt water intrusion system, salt water intrusion system maintenance, salt water intrusion system maintenance monitoring.

c) cold war slogans, cold war protest slogans, cold war proponent, cold war proponents’ slogan, ‘let’s arm’ slogan, cold war proponents’ ‘let’s arm’ slogan; not-my-circus-not-my-monkeys-attitude.

Тема 4. IT Structures

IT as a personal pronoun 3rd person, singular: он, она, оно, его, ее и т. д.; это

Переведите:

a) The dog's a bit nervous, it could bite.

b) My bike's been giving trouble, so I'm taking it into the garage.

c) Why is the book on the floor? Put it on the shelf.

d) Have you seen this film? –Yes, I have seen it already.

e) Who's that on the phone? – It's my father.

f) Norwich is Britain's oldest recorded town. It is a very picturesque town too.

IT as a structural word (**не переводится** на русский язык)

Переведите:

a) It is autumn.

b) It is dark.

c) It is extremely cold in some places of the Arctic zone.

d) It is possible that some territories of our planet are still terra incognita.

e) I found it necessary to warn you.

f) He thought it impossible to solve that question himself.

g) Mendeleev's discovery made it possible to artificially create an element theoretically *known to exist.*

h) The tutor finds it advisable to read Latin texts aloud.

Emphatic IT

ITIS / WAS… THAT / WHO / NOT (UN)TILL: именно, лишь, как раз, только, только когда

Сравните: The secretary sent Mike the photos yesterday.

It was the secretary who sent Mike the photos yesterday.

It was Mike that the secretary sent the photos to yesterday.

It was the photos that the secretary sent Mike yesterday.

It was yesterday that the secretary sent Mike the photos.

Переведите:

a) It was Popov who invented the radio.

b) It is you who are in the wrong.

c) It was Albert who found the lost book.

d) It was Mark's mistake that affected dramatically the future of his son.

e) It's not tea I want, it's coffee.

f) It is you who are crazy, not Max.

g) It was not till Monday that I could proceed with investigations.

h) It was not until sir Rutherford was through with his experiment that he left the laboratory.

IT as preparatory subject and object (with an infinitive or a clause or an -ing form as the subject or object) – на русский язык **не переводится.**

Сравните: It doesn't interest me. It doesn't interest me what you think.

Переведите:

a) It's surprising. It's surprising how many unhappy marriages there are.

b) It's probable. It's probable that we'll be a little late.

c) I find it interesting. I find it interesting to collect stamps.

d) London is always a good idea; it is worth seeing. It is worth seeing the Richmond Park.

Переведите:

a) It is nice to talk to you.

b) It was surprising that she didn't come back.

c) It looks as though we'll miss the train.

d) It's no use trying to explain it to him.

e) It looks as if we are going to have trouble when going through customs.

f) Jane finds it difficult to learn verses by heart.

g) Andy made it clear what he meant.

h) When it is not necessary to change, it is necessary not to change. / Lucius Cary /.

i) It is easy to see the faults in people I know; it is hardest to see the good. / Will Cuppy /.

Introductory IT (IT + IS/WAS/MV + V3/ed)– на русский язык **не переводится**

It is said that
It is supposed that
It was announced that
It was proposed to
It should be assumed that
It is believed that
It is known that
The same structure is used with any subject:
S + IS/ARE/WAS/WERE + V3/ed (+ infinitive)

Переведите:

a) He is supposed to be one of the top 10 greatest Formula1 drivers.
b) He is known to have mastered this speciality.
c) Linda is thought to have left home.
d) They are suspected to be the men robbed the Central Bank.
e) Little Ann was expected to become the best pupil in the class.
f) Mr. and Mrs. Parker were said to be ex-spies of His Majesty King George VI.
g) You are not supposed to park on double yellow lines.

Тема 5. Модальные глаголы. Теория и примеры

Must – должен

✓ Приказ, категоричность: You must do this! You must do that! (‘In the army now’).

✓ Собственные обязательства: I simply must find some time and visit Mom and Dad. Я обязательно найду время навестить родителей / нужно обязательно навестить родителей.

✓ Запреты и предписания (в том числе административного или юридического характера): Cars must not be parked here! You must fasten the belt when driving.

✓ Обязательства сторон в юридических документах: You must give a month notice in writing to terminate the agreement. Вы должны письменно

уведомить нас о своем намерении прекратить действие настоящего договора не менее, чем за месяц.

✓ Большая вероятность, уверенность в совершении какого-либо действия; особенно в сочетании **must +have + V3/ed** (для выражения прошедшего действия):It must rain. Наверняка пойдет дождь. We must have taken the wrong road. Похоже, мы заблудились. Justin must have decided on the cottage in Albury. Скорее всего, Джастин остановил свой выбор на том коттедже в Олбери.

Can – могу, умею

✓ Физическая способность или умение.

✓ Просьба или предложение помощи: Can I help you? Can I have some tea, please? (в неформальной обстановке).

✓ Возможность / вероятность совершения действия; также в сочетании**can + have + V3/ed** (для выражения прошедшего действия):Where can he be? Где он может быть? What can have happened? Что там могло случиться? Что там случилось?

Can't / Cannot– отсутствие возможности; также в сочетании **can + have + V3/ed** (для выражения прошедшего действия): She can't be more than twenty. Ей не больше двадцати. Не может быть, чтобы ей было больше двадцати. Lynn can't be in Port Talbot, he went to Manchester on a business trip two days ago. Не может быть, чтобы Линн был в Порт Талбот, он уехал в командировку в Манчестер два дня назад. We can't have met. Мы не могли быть знакомы друг с другом.

Could (P.P. of Can)

✓ более вежливая форма 'can' (могли бы / не могли бы вы).

✓ предложение сделать что-то: You could leave earlier tonight. Почему бы вам сегодня не уйти пораньше. Listen, you could do this – go to her and apologise.Послушай, может быть тебе пойти к ней и извиниться?

✓ в прошедшем времени соответствует русскому «мог, умел».

✓ **NB!** не соответствует глаголу «смог, сумел, удалось»; в таком значении (для описания не общих способностей, а какого-то конкретного достижения) употребляется глагол 'manage to'/ 'be able to'.

NB! с глаголами, относящимися к пяти чувствам (see, hear, smell, feel, taste), и с глаголами, описывающими мыслительные процессы (understand, believe, remember, decide), используется глагол ‘could’даже для конкретных ситуаций.

✓ **could + have + V3/ed** очень небольшая степень вероятности, уверенности: Why is he not here yet? He could have missed the plane. Почему его до сих пор нет? Может быть, он опоздал на самолет?

May – могу, можно

✓ разрешение (более официальное, чем ‘can’): May I come in? (в школе) Can I come in, Dad? (дома) Can I take this, Mom? (дома)

✓ возможность, вероятность совершения действия: возможно, может быть: I may go to London next month. Вероятно (возможно), завтра я поеду в Лондон.

✓ для прошедшего времени **may + have + V3/ed**: He may have missed the train. Он, наверное, опоздал на поезд.

May be – может быть: May be rain or may be snow, may be yes or may be no.

May not – нельзя, не разрешается: You may not smoke here.

Might (P.P. of May)

✓ более мягкая, манерная просьба, чем с глаголом may: Might I ask you about something? Не дозволено ли мне будет обратиться к Вам с просьбой?

✓ предположение, вероятность с известной долей сомнения: She might marry him one day. Может статься, она и выйдет за него замуж.

Shall

✓ вопрошание к действию: Ready (to jot my speech down)? Shall I start? Готовы? Мне начинать? Shall I give you a hand with the dishes? Помочь тебе помыть посуду?

✓ со мн.ч. переводится как «может» («давайте»): Shall we try and do it? Может нам стоит попробовать (сделать это)? Shall we consider this in a greater detail? Может (давайте) проанализируем это более детально / подробно?

✓ приказ: You shall go there! Вы должны пойти туда (вы пойдете туда)!

Should– следует, следовало бы, необходимо, нужно, должен

✓ совет, рекомендация, выражение морального долга, желательность действия: You should give up smoking. Ты должен бросить курить. He should go to the doctor. Ему нужно сходить к врачу.

✓ возможность, вероятность действия (меньшая уверенность, чем с глаголом ‘must’): He should be at home now. Наверное, он уже дома.

✓ описание условий, обязательств в официальных и юридических документах: Should you come across any discrimination, let us now. В случае любого проявления дискриминации уведомите нас.

✓ в сочетании с перфектным инфинитивом **should + have + V3/ed** выражает условие в прошедшем времени, упрек– «следовало бы»: You should have done that earlier. Вам следовало бы сделать это раньше.

Will –просьба о помощи, одолжении: Will you pass me a cuppa, please?

Won’t −нельзя, не надо: You won’t do that again, will you? Больше чтобы так не делал.

Mind your own business, will you? (смягченный приказ)

Would – сослагательное наклонение: «бы», «ли»; «хотелось бы», «если бы»

В вежливых формах: Would you like some muffins with coffee? Не хотите ли маффинов с кофе?

Маловероятное действие, желание: I would love to be somewhere at the beach of Florida! Как бы мне хотелось очутиться где-нибудь на пляже во Флориде.

Условное предложение в Past: If I had been given another chance, I wouldn’t have made so many mistakes.Если бы мне дали еще один шанс, я бы не наделал столько ошибок.

Need – нужно, нуждаться

✓ для выражения потребности, необходимости, нужды: We need to go soon. Нам скоро нужно уходить. My sweater needs mending. Мой свитер нуждается в починке.

Needn't (br.) / don't need – не нужно

✓ совет, пожелание, попытка отговорить: You needn't / don't need to go there. Не надо туда ходить.

✓ в ответе на вопрос «должен / должны ли что-то сделать»: Must we do it in a written form? No, you needn't. Мы должны сделать это в письменном виде? Нет, не нужно.

✓ с перфектным инфинитивом для прошедшего времени **needn't + have + V3/ed**: не нужно было (для выражения упрека): You needn't have done that не нужно было этого делать (а вы сделали = зачем вы это сделали)

✓ **NB!** Со вспомогательным глаголом **didn't need** смысл будет другим: You didn't need to do that. Вам не нужно было этого делать (вот вы и не делали = от вас этого не требовалось).

Ought to – должен (употребляется редко)

✓ сильная степень желательности, целесообразности: You ought to inform us at once. Вам следует немедленно оповестить нас (вы должны сразу же нас проинформировать).

✓ моральный долг или совет, порицание, упрек: He ought to help his family. Он должен помогать своей семье. You ought to be more polite with your parents-in-law. Тебе следует быть повежливей с родителями жены.

✓ очень сильная степень уверенности, вероятности действия: They ought to be at home at this hour. В это время они наверняка дома.

✓ «следовало бы/ не следовало бы» – с перфектным инфинитивом **ought to + have + V3/ed** выражает порицание за действие, которое должно было произойти, но не произошло: You ought to have visited your auntie. Тебе следовало бы навестить тетушку.

Modal verbs training with Puzzle English

Insert the verb which you think match the sentence best.

Now listen to the original. You fail or pass? Or maybe your variant is also possible?

1. What is it? … be a burglar, he's wearing a mask. (should/must/might)

2. When you're 30 minutes into an argument and realize you … be wrong. (may/might/ought)

3. I … not teach anybody anything I … only make them think. (can/may) (can/may)

4. I now pronounce you husband and wife! You … update your Facebook status. (may/must)

5. – Waiter, the food was delicious, … you complement the cook for me? (could/may/can)

Waiter [addressing the cook]: – Harold, you are beautiful! ☺

6. Police officer:

– Ted, we found you in the park, throwing rocks at old couples.

– Why … they be happy?! (ought/must/should)

7. You … never text and drive. I don't do that because I don't have a car. (might/should/ought)

8. If you … solve a problem, it's because you're playing by the rules. (can't/may not)

9. You … make everybody happy all the time. You are not pizza. (can't/ shouldn't)

10. Lecturer: – Everything I say will be on the exam.

Student: – I guess I … pay attention in class today. (must/should)

11. You will never … to hit a target that you … not see (be able/have) (must/can)

12. I … not lose weight, … be my trainer's fault. (must/may/can) (may/must/should)

13. I am not … to have a dog. (have/allowed/managed)

14. All food … go to the lab for testing. (must/should)

15. My wife was so sick this morning that I … to carry her to the kitchen to make my breakfast. (must/had/was)

16. Life is like riding a bicycle. To keep your balance you … keep moving. (must/have to)

17. I am not ready for Monday. … I have another Sunday? (may/can)

18. You … have a cat. Or plants. Not both. (should/may/can)

19. Maybe you … make assumptions about people you don't know. (needn't/shouldn't/mustn't)

20. … your troubles last as your New Year's resolutions! (may/can/should)

21. When you wake up late but still … to make it to work on time. (must/can/manage)

22. First day back to work? You … need this coffee. (may/should)

23. Visitors? I … say 'Hi!' (should/must)

24. You … to stay faithful to what you're working on. (are allowed/are/have)

25. We … all start to live before we get too old. Fear is stupid, so are regrets. (should/must/ought)

Тема 6. Ing-forms: причастие настоящего времени (Participle I). Герундий (Gerund). Отглагольное существительное и прилагательное (Verbal Noun and Attribute)

Кроме глаголов длительного времени. к грамматическим явлениям с ing-form относятся, прежде всего, причастие настоящего времени и герундий, а также отглагольные существительное и прилагательное. В этой связи бывает сложно правильно определить в тексте грамматическое явление, что препятствует правильному переводу.

Сравнительная схема *ing-forms* с примерами

Причастие (Participle I) → какой, что делающий? что делая?: Развивая такие технологии, мы получим интересные результаты (Developing such technologies we shall gain interesting results).

Прилагательное (Adjective) → какой? (признак) → (the/a): Развивающиеся страны (Developing countries).

Существительное (Noun) → что? → the/a: Развитие (разработка) этой теории даст интересные результаты (the developing of the theory will give us interesting results).

Герундий → что? → (for, of, with, on, etc): Лучшие способы для развития (разработки) теории (best methods for developing the theory).

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