МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ
Федеральное государственное бюджетное образовательное учреждение
высшего образования
«Забайкальский государственный университет»
(ФГБОУ ВПО «ЗабГУ»)

Институт _____

Факультет историко-филологический

Кафедра иностранных языков

УЧЕБНЫЕ МАТЕРИАЛЫ

для студентов заочной формы обучения

по иностранному (английскому) языку
наименование дисциплины (модуля)

для направления подготовки (специальности) 15.03.05 Конструкторско-технологическое обеспечение машиностроительных производств

код и наименование направления подготовки (специальности)

Общая трудоемкость дисциплины (модуля)

Виды занятий	Распределение по семестрам			Всего
	1 семестр	2 семестр	3 семестр	
1	2	3	4	5
Общая трудоёмкость дисциплины	72	72	72	252
Аудиторные занятия, в т.ч.	8	8	8	24
Лекции (ЛК)	-	-		-
Практические занятия (ПЗ)	8	8	8	24
Лабораторные работы (ЛР)	-	-	-	-
Самостоятельная работа студентов (СРС)	64	64	64	192
Внеаудиторная работа со студентами (ВРС)				
Курсовой работа (курсовой проект) (КР,КП)				
Форма контроля в семестре	зачет	зачет	Экзамен (36 часов)	252

Краткое содержание курса

1. Существительные. Множественное число существительных. Притяжательный падеж. Существительное в функции определения
2. Прилагательные. Степени сравнения
3. Числительные
4. Местоимения
5. Present, Past, Future Indefinite. Глаголы *to be, to have* в Present, Past, Future Indefinite. Повелительное наклонение
6. Оборот *there + be*
7. Видо-временные формы глагола: активный залог — формы Indefinite (Present, Past, Future); формы Continuous (Present, Past, Future); формы Perfect (Present, Past, Future)
8. Модальные глаголы: a) выражающие возможность: can (could), may и эквивалент глагола сап — to be able; b) выражающие долженствование: must, его эквиваленты to have to, to be to, should.
9. Неопределенные и отрицательные местоимения
10. Функции слова it
11. Видо-временные формы глагола: пассивный залог – формы Indefinite (Present, Past, Future).
12. Особенности перевода пассивных конструкций на русский язык.
13. Функции глагола to BE
14. Функции слова ONE
15. Определительные и дополнительные придаточные предложения (союзные); придаточные обстоятельственные предложения времени и условия
16. Лексический минимум (профессиональная лексика.)

Каждое контрольное задание предлагается в трех вариантах. Вы должны выполнить один из трех вариантов в соответствии с последними цифрами номера зачетной книжки:

студенты, шифр которых оканчивается на 1, 2, 3 выполняют вариант № 1; студенты, шифр которых оканчивается на 4, 5, 6 выполняют вариант № 2; студенты, шифр которых оканчивается на 7,8,9 или 0 выполняют вариант № 3.

КОНТРОЛЬНОЕ ЗАДАНИЕ 1

Чтобы правильно выполнить **задание** 1, необходимо усвоить следующие разделы курса

1. Существительные. Множественное число существительных. Притяжательный падеж. Существительное в функции определения
2. Прилагательные. Степени сравнения
3. Числительные
4. Местоимения
5. Present, Past, Future Indefinite. Глаголы *to be*, *to have* в Present, Past, Future Indefinite. Повелительное наклонение
6. Оборот *there* + *be*

ОБРАЗЕЦ ВЫПОЛНЕНИЯ 1 (К УПР. 1)

The students attend lectures and seminars on History	Студенты посещают лекции и семинары по истории

Lectures – множественное число от существительного a lecture лекция

He lectures on political economy.	Он читает лекции по политической экономии

Lectures – 3–е лицо единственного числа от глагола to lecture в Present Indefinite

My brother’s son is a student.	Сын моего брата – студент.

Слово brother’s – форма притяжательного падежа существительного

ОБРАЗЕЦ ВЫПОЛНЕНИЯ 2 (К УПР. IV)

Lomonosov founded the first Russian University in Moscow.	Ломоносов основал первый русский университет в Москве.

Founded - Past Indefinite Active от стандартного глагола to found.

ВАРИАНТ 1

I. Перепишите следующие предложения. Переведите предложения на русский язык. Определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -s и какую функцию это окончание выполняет, т.е. служит ли оно:

а) показателем 3-го лица единственного числа глагола в Present Indefinite;

б) признаком множественного числа имени существительного;

в) показателем притяжательного падежа имени существительного (см. образец выполнения 1).

1. The "Big Ben" clock weighs 13.5 tons.
2. Most of London's places of interest are situated to the north of the river Thames.
3. Hyde Park covers 360 acres.

II. Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным.

1. The bus stop is not far from here.
2. Several Moscow University physicists work at this problem.
3. There are only daylight lamps in this room.

III. Перепишите следующие предложения, содержащие разные формы сравнения, и переведите их на русский язык.

1. One of the most famous buildings in England is St. Paul's Cathedral.
2. This room is smaller than that one.
3. The longer is the night, the shorter is the day.

IV. Перепишите следующие предложения, определите в них видо-временные формы глаголов и укажите их инфинитив; переведите предложения на русский язык (см. образец выполнения 2).

1. This student first came to Moscow in 1995.
2. The Port of London is to the east of the City.
3. In a few days she will leave for Irkutsk.

V. Прочитайте и письменно переведите на русский язык текст

TRENDS IN THE MODERN MACHINE- BUILDING INDUSTRY

The scientific and technological progress will continue in engineering along two main headlines. Firstly, it is automation, including the creation of “unmanned” industries. Secondly, raising the reliability and extending the service life of machines.

This certainly requires new technology. The machine modules on a large scale are well suited for “unmanned” industries.

Intense work is being carried out on new robots. What we need is not merely manipulators which can take up a work piece and pass it on, but robots which can identify objects, their position in space, etc. We also need machines that would trace the entire process of machining. Some have been designed and are manufactured. Modern engineering thinking has created new automated coal-digging complexes and machine systems, installations for the continuous casting of steel, machine-tools for electrophysical and electrochemical treatment of metals, unique welding equipment, automatic rotor transfer lines and machine-tool modules for flexible industries. New technologies and equipment have been designed for most branches of engineering. In the shortest time possible the engineers are to start producing new generations of machines and equipment which would allow manufacturers to increase productivity several times and to find a way for the application of advanced technologies. Large reserves in extending service life for machines can be found in the process of designing. At present, advanced methods have been evolved for designing machines proceeding from a number of criteria. Automatic design systems allow for an optimizing of the solutions in design and technology when new machines are still in the blueprint stage. A promising reserve in increasing the life of parts is strengthening treatment. In recent years new highly efficient methods have been found.

First and for most of them is the vacuum plasma methods for coating components

with hard alloy compounds, such as nitrides and carbides of titanium, tungsten and boron. Methods have been designed for reinforcing machine parts most vulnerable to wear and tear, such as in grain harvesters, to make them last several times longer.

ВАРИАНТ 2

I. Перепишите следующие предложения. Переведите предложения на русский язык. Определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -s и какую функцию это окончание выполняет, т.е. служит ли оно:

а) показателем 3-го лица единственного числа глагола в Present Indefinite;

б) признаком множественного числа имени существительного;

в) показателем притяжательного падежа имени существительного (см. образец выполнения 1).

1. Tallinn exports a great variety of goods.

2. Last month my friend read a very interesting book on Tallinn's history.

3.The inhabitants of Tallinn are fond of their city.

II. Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным.

1. This is the building of the Tallinn City Soviet.

2. The students of our group will go to the State History Museum tomorrow.

3. Teams of figure skaters and ice-hockey players undergo intensive training at the Sports Centre of Tallinn.

III. Перепишите следующие предложения, содержащие разные формы сравнения, и переведите их на русский язык.

1. Kadriorg is one of the most favourite parks of the Tallinners.

The more I thought of that plan, the less I liked it.

Your translation is better than mine.

IV. Перепишите следующие предложения, определите в них видо-временные формы глаголов и укажите их инфинитив: переведите предложения на русский язык (см. образец выполнения 2).

1. One of Tallinn's farmacies functions for more than 550 years.

2. The construction of the Tallinn Town Hall began in the first decades of the 14th century.
3. In two years my brother will become an engineer.

V. Прочитайте и письменно переведите на русский язык текст

INDUSTRIAL ENGINEERING AND AUTOMATION

A major advance in twentieth century manufacturing was the development of mass production techniques. Mass production refers to manufacturing processes in which an assembly line, usually a conveyer belt, moves the product to stations where each worker performs a limited number of operations until the product is assembled. In the automobile assembly plant such systems have reached a highly-developed form. A complex system of conveyer belts and chain drives moves car parts to workers who perform the thousands of necessary assembling tasks.

Mass production increases efficiency and productivity to a point beyond which the monotony of repeating an operation over and over slows down the workers. Many ways have been tried to increase productivity on assembly lines: some of them are as superficial as piping music into the plant or painting the industrial apparatus in bright colours; others entail giving workers more variety in their tasks and more responsibility for the product.

These human factors are important considerations for industrial engineers who must try to balance an efficient system of manufacturing with the complex needs of workers.

Another factor for the industrial engineer to consider is whether each manufacturing process can be automated in whole or in part. Automation is a word coined in the 1940s to describe processes by which machines do tasks previously performed by people. The word was new but the idea was not. We know of the advance in the development of steam engines that produced automatic valves. Long before that, during the Middle Ages, windmills had been made to turn by taking advantage of changes in the wind by means of devices that worked automatically.

Automation was first applied to industry in continuous-process manufacturing such as refining petroleum, making petrochemicals, and refining steel. A later development was computer-controlled automation of assembly line manufacturing, especially those in which quality control was an important factor.

ВАРИАНТ 3

I. Перепишите следующие предложения. Переведите предложения на русский язык. Определите по грамматическим признакам, какой частью речи являются слова, оформленные окончанием -s и какую функцию это окончание выполняет, т.е. служит ли оно:

а)показателем 3-го лица единственного числа глагола в Present Indefinite;

б) признаком множественного числа имени существительного;

в)показателем притяжательного падежа имени существительного (см. образец выполнения 1).

1. The lecturer gave several examples of the Sevastopol scientists' international ties.
2. The foundation of Sevastopol dates back to 1783.
3. The author mentions this phenomenon in his article.

II.Перепишите следующие предложения и переведите их, обращая внимание на особенности перевода на русский язык определений, выраженных именем существительным.

1. His father was one of the leaders of the partisan movement during World War II.
2. The reporter spoke about the fulfilment of the Food Programme in the region.
3. Not long ago our family moved into a large three-room flat.

III. Перепишите следующие предложения, содержащие разные формы сравнения, и переведите их на русский язык

1. The more I studied the English language, the more I liked it.
2. My friend is one of the best students of our group.
3. This room is smaller than that one.

IV. Перепишите следующие предложения, определите в них видо-временные формы глаголов и укажите их инфинитив; переведите предложения на русский язык (см. образец выполнения 2)

1. The dean will come here later.
2. The student made no mistakes in his translation.
3. Plasma is the fourth state of matter.

V. Прочитайте и письменно переведите на русский язык текст

Automation

We now use the term *automation* for specific techniques combined to operate automatically in a complete system. These techniques are possible because of electronic devices, most of which have come into use in the last thirty years. They include program, action, sensing or feedback, decision, and control elements as components of a complete system.

The program elements determine what the system does and the step- by-step manner in which it works to produce the desired result. A program is a step-by-step sequence that breaks a task into its individual parts. Some steps in an industrial automation program direct other parts of the system when and how to carry out their jobs.

The action elements are those which do the actual work. They may carry or convey materials to specific places at specific times or they may perform operations on the materials. The term *mechanical handling device* is also used for the action elements.

Perhaps the most important part of an automated system is sensing or feedback. Sensing devices automatically check on parts of the manufacturing process such as the thickness of a sheet of steel or paper. This is called feedback because the instruments return or feed back this information to the central system control.

The decision element is used to compare what is going on in the system with what should be going on, it receives information from the sensing devices and makes decisions necessary to maintain the system correctly. If some action is necessary the decision element can give instructions or commands to the system.

The control element consists of devices to carry out the commands of the decision element. There may be many kinds of devices: valves that open or close, switches that control the flow of electricity, or regulators that change the voltage in various machines; they make the necessary corrections or adjustments to keep the system in conformity with its program.

An industrial engineer working with automated systems is part of a team. Many components of the system, such as computers, are electronic devices so electronic engineers and technicians are also involved.

КОНТРОЛЬНОЕ ЗАДАНИЕ 2

Для того чтобы правильно выполнить задание 2, необходимо усвоить следующие разделы курса английского языка:

1. Видо-временные формы глагола: активный залог — формы Indefinite (Present, Past, Future); формы Continuous (Present, Past, Future); формы Perfect (Present, Past, Future)

2. Модальные глаголы: a) выражающие возможность: can (could), may и эквивалент глагола сап — to be able; b) выражающие долженствование: must, его эквиваленты to have to, to be to, should.

3. Неопределенные и отрицательные местоимения

4. Функции слова it

ОБРАЗЕЦ ВЫПОЛНЕНИЯ 1 (К УПР. I)

Lobachevsky's geometry had **revolutionized** mathematics and the philosophy of science.	Геометрия Лобачевского *произвела коренное изменение* в математике и философии науки.

had revolutionized - Past Perfect Active от глагола to **revolutionize.**

ВАРИАНТ 1

1.Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык

1. Today scientists are still looking for the substance as a source of energy.

2. Could you speak English a year ago?

3. The Mendeleyev system has served for almost 100 years as a key to discovering new elements.

II. Перепишите и письменно переведите предложения на русский язык, обращая внимание на перевод неопределенных и отрицательных местоимений

1. Some 350 people attend a yachting school in Tallinn.
2. Does he know any foreign language?
3. Any exhibit of this museum is valuable.

III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквивалент. Переведите предложения на русский язык

1. Energy can exist in many forms and each form can be transformed into the other.
2. The computers should become an integral part of the organization of industrial processes of all types.
3. These metal parts had to be subjected to X-ray examination.
4. The chemists may use the reactor to analyse various substances for their exact composition.

IV. Переведите предложения на русский язык, обращая внимание на разные значения слова IT

1. The main building was completed in 1985. It houses the library.

2. It is necessary for all the students to know the fundamental laws of mechanics

3. It often rains in autumn and snows in winter.

4. It is necessary to find new sources of cheap energy.

V. Прочитайте и письменно переведите на русский язык текст

THE FUNDAMENTALS OF FORGING

Forging is the oldest known metalworking process. It is believed to have begun when early man discovered he could beat pieces of ore into useful shapes. History tells us that forging was widely practised at the time when written records first appeared.

The blacksmith was one of the first to realize the advantages of forging. Although he did not know why,"he knew that hammering a* piece of hot metal not only resulted in a usable shape, it improved its strength. It is this inherent improvement in strength of metal that has placed forgings in the most highly stressed applications in machines.

To understand why forging improves the mechanical properties of metal, it is important to recognize that metal is made up of grains. Each grain is an individual crystal, and when the grains are large, cracks can occur and propagate along the grain boundaries. Therefore, it is desirable to minimize the grain size in a metal.

Reducing the metal’s grain size is one of the things forging does so well. Forging breaks down a coarse-grained structure producing a chemically homogeneous wrought structure with much smaller grains by controlled plastic deformation. In forging, controlled plastic deformation whether at elevated temperature or cold (at room temperature) results in greater metallurgical soundness and improved mechanical properties of the metal.

Metal shaping by controlled plastic deformation is the basis for all forging operations. Because of the diversity of forging end-use applications, however, a wide range of processes and equipment have been developed to produce forgings. Some processes are ideally suited to make large parts, others, small parts, and still others, rings. Modern forging is not only carried out in virtually all metals, it is done at temperatures ranging from more than 2500 °F to room temperature. Part configuration generally determines the forging method chosen.

ВАРИАНТ 2

Перепишите следующие предложения; подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык

1. Quantum mechanics has greatly influenced the nuclear theory.
2. The problem of the structure of matter is constantly occupying the minds of many scientists.
3. The scientist wrote this article not long ago.

II. Перепишите и письменно переведите предложения на русский язык, обращая внимание на перевод неопределенных и отрицательных местоимений

1. Any monument in Volgograd has its own history.
2. Nobody knew anything about this experiment.
3. The names of some streets and squares are living history of the heroic city.

III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквивалент. Переведите предложения на русский язык.

1. Heat can be divided into three different types.
2. A great number of plastics should find their applications in the electrical industry.
3. Chemical means had to be used for the separation of compounds into their elements.
4. The existence of an X-ray laser in the future may be possible.

IV. Переведите предложения на русский язык, обращая внимание на разные значения слова IT

1. It is ten o'clock.
2. It has become evident that ecological problems can be solved only on the global level.
3. It is difficult to speak English.

4. It is necessary to obtain accurate data on the possibility of living and working in space.

V. Прочитайте и письменно переведите на русский язык текст

WORKING WITH NEW MATERIALS

A successful design is almost always a compromise among highest performance, attractive appearance, efficient production, and lowest cost. Achieving the best compromise requires satisfying the mechanical requirements of the part, utilizing the most economical material that will perform satisfactorily, and choosing a manufacturing process compatible with the part design and material choice. Stating realistic requirements for each of these areas is of the utmost importance.

The rapidity of change in materials technology is typified by the fact that plastics, a curiosity at the turn of the 20th century, are now being used in volumes which have for many years exceeded those of all the non- ferrous metals put together, and which are beginning to rival steel.

The changes which are taking place are, of course, not only quantitative. They are associated with radical changes in technology — in the range and nature of the materials and processes available to the engineer.

The highest specific strength (i.e. the strength available from unit weight of material) now available comes from non-metals, such as fibreglass, and from metals, such as berillium and titanium, and new ultra- high strength steels.

Fibre technology, in its modern form, is of more recent origin than plastics, but composites based on glass and/or on carbon fibres are already being applied to pressure vessels, to lorry cabs and to aircraft engines, and may well replace aluminium for the skin and structure of aircraft. An all-plastic car has been exhibited: nearly the whole car, except the engine and transmission is of plastics or reinforced plastics.

It is not only plastics and their reinforcement which are changing the materials scene. Ceramics too are gaining an increasing foothold. Their impact as tooling materials in the form of carbides, nitrides and oxides is also well known — cutting tools made of these materials are allowing machining rates which had previously been considered quite impossible.

Silicon nitride seems to offer particular promise for a wide variety of applications. Among these is liquid metal handling. Pumps for conveying liquid aluminium are now on trial which could revolutionize the foundry industry. Silicon nitride is also being tested for the bearing surfaces of the Wankel rotary engines which are being developed as potential replacements

for the conventional piston engines of our motor cars. And ceramic magnets have replaced the traditional steel pole-piece plus copper field coil for providing the engineering field for many electric motors.

ВАРИАНТ 3

1. Перепишите следующие предложения, подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык

1. The reactor is fast becoming a major source of heat and electricity.

2. Scientists have found ways of measuring the sizes and positions of bodies in the Universe.

3. They tested this new machine last week.

II. Перепишите и письменно переведите предложения на русский язык, обращая внимание на перевод неопределенных и отрицательных местоимений

1. No student of that group studies Spanish.
2. Some five hundred people were present at the meeting.
3. Have you any books on chemistry?

III. Перепишите следующие предложения; подчеркните в каждом из них модальный глагол или его эквиваленты. Переведите предложения на русский язык

1. The application of digital (цифровой) computers should include all forms of automatic control in science and industry.
2. Laser light can be used to transmit power of various types.
1. These new materials had to withstand much higher temperatures than metals.
3. Ethylene gas may be obtained by cracking petroleum.

IV. Переведите предложения на русский язык, обращая внимание на разные значения слова IT

1. It is necessary to study foreign languages.

2. It is a new subject. We shall study it for two years.

3. Unlike many other big cities, it isn’t very noisy.

4. The successes in chemistry made it possible to obtain a lot of new materials.

V. Прочитайте и письменно переведите на русский язык текст

MACHINES AND WORK

Defined in the simplest terms a machine is a device that uses force to accomplish something. More technically, it is a device that transmits and changes force or motion into work. This definition implies that a machine must have moving parts. A machine can be very simple, like a block and tackle to raise a heavy weight, or very complex, like a railroad locomotive or the mechanical systems used for industrial processes.

A machine receives input from an energy source and transforms it into output in the form of mechanical or electrical energy. Machines whose input is a natural source of energy are called prime movers. Natural sources of energy include wind, water, steam, and petroleum. Windmills and waterwheels are prime movers; so are the great turbines driven by water or steam that turn the generators that produce electricity; and so are internal combustion engines that use petroleum products as fuel. Electric motors are not prime movers, since an alternating current of electricity which supplies most electrical energy does not exist in nature.

Terms like work, force, and power are frequently used in mechanical engineering, so it is necessary to define them precisely. Force is an effort that results in motion or physical change. If you use your muscles to lift a box you are exerting force on that box. The water which strikes the blades of a turbine is exerting force on those blades, thereby setting them in motion. In a technical sense work is the combination of the force and the distance through which it is exerted. To produce work, a force must act through a distance. If you stand and hold a twenty-pound weight for any length of time, you may get very tired, but you are not doing work in an engineering sense because the force you exerted to hold up the weight was not acting through a distance. However, if you raised the weight, you would be doing work.

Power is another term used in a special technical sense in speaking of machines. It is the rate at which work is performed. The rate of doing work is sometimes given in terms of horsepower, often abbreviated *hp.* This expression resulted from the desire of the inventor James Watt to describe the work his steam engines performed in terms that his customers could easily understand. After much experimentation, he settled on a rate of 33,000 foot-pounds per minute as one horsepower. In the metric system power is measured in terms of watts and kilowatts. The kilowatt, a more widely used term, equals a thousand watts or approximately l'/з horsepower in the English system.

КОНТРОЛЬНОЕ ЗАДАНИЕ 3

Для того чтобы правильно выполнить задание 3, необходимо усвоить следующие разделы курса английского языка:

1. Видо-временные формы глагола: пассивный залог – формы Indefinite (Present, Past, Future).

Особенности перевода пассивных конструкций на русский язык.

2. Функции глагола to BE

3. Функции слова ONE

4. Определительные и дополнительные придаточные предложения (союзные); придаточные обстоятельственные предложения времени и условия

Используйте следующие образцы выполнения упражнений.

ОБРАЗЕЦ ВЫПОЛНЕНИЯ 1 (К УПР. I)

The new laboratory equipment **was sent for** yesterday. Вчера *послали*	Вчера *послали* за новым оборудова нием лаборатории.

was sent for - Past Indefinite Passive от глагола to **send.**

His scientific work **is** much **spoken** about.	О его научной работе много говорят.

is spoken – Present Indefinite Passive от глагола to **speak**

ВАРИАНТ 1

I. Перепишите следующие предложения; подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. Обратите внимание на перевод пассивных конструкций

1. Elements are transformed into other elements both by man and by nature.
2. He was asked many questions at the exams.
3. They will be shown a new film tomorrow.
4. The launching *of Sputnik 1* was followed by many achievements in science and engineering.

II. Переведите предложения на русский язык, обращая внимание на функции глагола to BE

1. In the Metro people are carried up and down by escalators.
2. This machine is suitable for lifting things.
3. He was to meet him at the station.

III. Переведите предложения на русский язык, обращая внимание на разные значения слова ONE

1. This metro station was opened last year, and that one will be put into operation in two years.
2. One of our teachers will be in London this week.
3. One must take part in scientific work.
4. Our old laboratory equipment was much worse than the new one.

IV. Переведите предложения

1. I think that roads are very important in our life.
2. At every Institute there is a reading hall and a library where the students can take the necessary books.
3. I'll finish my work while you are playing chess.

4. The computer's work is based on principles which are easy to understand.

V. Прочитайте и письменно переведите на русский язык текст

ELECTRICAL ENERGY AND ELECTRICAL MACHINES

Volta made his experimental cell in 1800, producing for the first time a steady reliable electric current. During the nineteenth century, the development of practical applications of electrical energy advanced rapidly. The first major uses of electricity were in the field of communications — first for the telegraph and the telephone. They used not only electric current but also electromagnetic effects.

Thomas Edison’s invention of the electric light bulb was perhaps the most momentous development of all, but not because it was such a unique invention. It was momentous because it led to the creation of an electric power system which has since reached into nearly every corner of the world. Actually, other people were working simultaneously on the same problem, and Edison’s claim to the invention was disputed. Perhaps Edison’s most important claim to fame is his pioneering work in engineering, which helped to provide electric service for New York City in 1882.

The application of electricity has grown to the point where most of us lead “electrified lives”, surrounded by a variety of devices that use electric energy. Less visible, but probably more important, are the thousands of ways industry has put electric energy to work. The direct-current machine is one of the most important ways.

Electrical machines are divided into alternating current (a.c.) and direct-current (d.c.) machines. The basic parts of a d.c. machine are the armature and electromagnets (or field coils). Coils wound on the pole cores form the excitation field of the machine. The armature is the rotating part of the machine. In its insulated slots is placed a winding connected to the commutator. Carbon brushes are placed in brush holders and contact the rotating commutator.

There are two electric circuits in the d.c. machine, the armature circuit and the excitation circuit. A d.c. machine is reversible: if the machine is rotated and the magnetic field is excited the machine sends

ВАРИАНТ 2

I. Перепишите следующие предложения; подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. Обратите внимание на перевод пассивных конструкций

1. Synthetic rubber products were developed between 1914 and the 1930s.
2. All the work will be done by automatic machinery.
3. When was this University founded?
4. The intensity of this process is influenced by many factors.

II. Переведите предложения на русский язык, обращая внимание на функции глагола to BE

1. What is the exact size of the room?
2. They were to erect this bridge 3 years ago.
3. The width of the windows is marked on the working plan.

III. Переведите предложения на русский язык, обращая внимание на разные значения слова ONE

1. In London one must get used to the left-side traffic.
2. We had to find new methods of investigation because the old ones were unsatisfactory.
3. The new technologies that are being developed must be connected with traditional ones.
4. One should always be careful when he operates this machine-tool.

IV. Переведите предложения

1. If you don’t know some words, you may use a dictionary.
2. Some graduates work in the various branches of industry, while others carry on research work in different research institutes.

3. People learned to draw pictures of the objects around them long before they learned to write.

4. There are a lot of higher schools in Russia where young people can get higher education.

V. Прочитайте и письменно переведите на русский язык текст

FORGING PROCESSES AND EQUIPMENT

Open die forging with modern hammers and presses is a technological extension of the pre-industrial blacksmith working with a hammer and anvil. Open die forgings are produced on flat dies, round swage dies and V-dies, either in pairs or in combination with a flat die. The upper die is attached to the ram, and lower die to the hammer anvil or press bed. The open die process is usually associated with large parts such as shafts, sleeves and disks, weighing up to 1,000,000 lb.

As the workpiece is formed during open die forging, it is moved via a manipulator in small increments until hot working forces the metal into the desired dimensions. After forging the part is rough, then finish machined to net dimensions. Heat treatment is often performed either prior to or between machining operations. Materials for open die forging vary from carbon alloy, stainless and tool steels to aluminium, titanium and nickel-based alloys for high temperature applications. Metals are worked above their recrystallization temperature (Fig. 1). Impression die forging comprises the majority of commercial forging production. It is carried out in two cavities that are brought together in a hammer or press. The workpiece undergoes plastic deformation until its enlarged sides contact the side walls of the die, as shown in Fig. 2. Once the die cavity is nearly filled, a small amount of material flows outside the die, forming flash. The flash cools rapidly and presents increased resistance to further metal flow. This increases the pressure in the workpiece, assuring complete die filling.

Closed die forging, a variation of impression die forging, does not depend on the formation of flash to complete die filling. In true closed die forging, the metal is deformed in a cavity that allows little or no escape of excess metal.

ВАРИАНТ 3

I. Перепишите следующие предложения; подчеркните в каждом из них глагол-сказуемое и определите его видо-временную форму и залог. Переведите предложения на русский язык. Обратите внимание на перевод пассивных конструкций

1. The books were taken from the central library.

2. Heat energy is transmitted in two different ways.

3. An interesting problem was discussed at the lecture.

4. Becquerel's discovery was followed by an intensive research work of Marie and Pierre Curie.

II. Переведите предложения на русский язык, обращая внимание на функции глагола to BE

1. It was a picturesque landscape.

2. This pipe is made of copper.

3. We are to do this work in time.

III. Переведите предложения на русский язык, обращая внимание на разные значения слова ONE

1. One must apply the material that can be machined easily.

2. The problem that has become the most important one is the problem of pollution.

3. One can easily regulate the speed of this machine.

4. This apparatus is more powerful than the one installed in the laboratory.

IV. Переведите предложения

1. If we compare the maps of Moscow and London we can see a similarity between them.

2. The universities provide a wide range of courses for those who want to get higher-level posts in commerce, industry and administration.

3. The first railroad in Russia was the railroad which connected Moscow with St. Petersburg.

4. They learned to make papyrus, which they used especially for writing and for

drawing.

V. Прочитайте и письменно переведите на русский язык текст

MELTING FURNACES

The metals used in various kinds of castings are melted in several types of furnaces. They are: cupolas, electric furnaces, open-hearth furnaces, crucible furnaces and some others.

A cupola furnace is a vertical type, cylindrical or shaft furnace designed to melt ferrous metals in the production of cast iron castings. The cupola consists of a refractory-lined steel stack resting on a cast iron base plate which is supported by four steel legs. The bottom of the cupola consists of two doors which are supported in closed position by a centre prop.

Iron, coke and flux are charged onto a coke bed and are held above the tuyere openings where the maximum temperature is maintained. Molten metal is tapped through a tap hole at the base of the cupola.

Although the first cupola was built about 1720 cupola melting is still recognized as the most economical melting process and most of the grey cast iron produced is melted by this method.

Electric furnaces are used for producing high quality castings. The principle of the electric furnace operation is based on the heating effect obtainable from the passing of electricity. There are three general types: arc, induction and resistance.

Arc furnaces are used for melting or refining ferrous metals. Two types of arc furnaces are in use: direct-arc and indirect-arc.

In the direct-arc furnace the arc comes in direct contact with the metal charge. Indirect-arc furnaces are the type in which the arc is maintained between two electrodes above the charge.

In the induction furnace electric currents are induced in the charge and their circulation through the charge produces heat. This type of furnace is used for producing exact alloys.

In the resistance furnace the electrodes are placed in the charge and the flow of electric current through the charge produces heat. These furnaces are generally used for non-ferrous metals production.

Форма итогового контроля

Зачет

Формулировка вопросов к зачету базируется на основе всего материала семестра.

Экзамен

Экзамен проводится по экзаменационным билетам

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ

федеральное государственное бюджетное образовательное учреждение высшего профессионального образования «Забайкальский государственный университет»

ЭКЗАМЕНАЦИОННЫЙ БИЛЕТ № 1
по дисциплине иностранный язык
направление подготовки
Конструкторско-технологическое обеспечение машиностроительных производств
семестр 3

Translate the text «Mechatronics» ,using a dictionary

Составил Кабановская Е.Ю.

УТВЕРЖДАЮ

Зав. кафедрой _____

«_____» _____ 20__ г

Билет № 1

Mechatronics is a combination of mechanics and electronics. It is an interdisciplinary branch of mechanical engineering, electrical engineering and software engineering that is concerned with integrating electrical and mechanical engineering to create hybrid systems. In this way, machines can be automated through the use of electric motors, servo-mechanisms, and other electrical systems in conjunction with

special software. A common example of a mechatronics system is a CD-ROM drive. Mechanical systems open and close the drive, spin the CD and move the laser, while an optical system reads the data on the CD and converts it to bits. Integrated software controls the process and communicates the contents of the CD to the computer.

Robotics is the application of mechatronics to create robots, which are often used in industry to perform tasks that are dangerous, unpleasant, or repetitive. These robots may be of any shape and size, but all are preprogrammed and interact physically with the world. To create a robot, an engineer typically employs kinematics (to determine the robot's range of motion) and mechanics (to determine the stresses within the robot).

Оформление письменной работы согласно МИ 4.2-5/47-01-2013 Общие требования к построению и оформлению учебной текстовой документации

Учебно-методическое и информационное обеспечение дисциплины

Основная литература

1. Барановская Т. В. Грамматика английского языка. Сборник упражнений: Учебное пособие, Логос, 2016 . – 384 с.
2. Карпова Т.А., Асламова Т.В., Закирова Т.С. Английский язык для технических вузов. Учебник.- Кнорус, 2015. 234 с.
3. И.В. Орловская, Учебник английского языка для технических университетов и вузов/ Л.С. Самсонова, А.И. Скубриева, Озон, 2015 . – 448 с.
4. Полякова Е.В. Английский язык для инженеров: учебник / Полякова Е.В., Синявская О.И. – М.: «Высшая школа», 2014. – 463с.

Дополнительная литература

1. Аракин В.А. Практический курс английского языка. Практический курс для студентов высших учебных заведений. – Владос, 2014 г. 194 с.
2. Веренич Н.И. Английский язык. Учебное пособие – Тетра Системс, 2014 г. 210 с.

3. Истомина, Саакян: Практический курс английской грамматики, Эксмо-Пресс, 2014 . – 272 с.
4. Соколова Л.А. Грамматические трудности перевода с английского язык на русский: учеб. пособие / Л.А. Соколова, Е.П. Трофимова, Н.А. Калевич. М.: Высшая школа, 2013. – 204с.

Базы данных, информационно-справочные и поисковые системы

http:// www.study-english info

http: //www.engramm.su

http://en.wikipedia.org/wiki/

http://website.informer.com/terms/Engineer_Civil

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