ФГБОУ ВО “КГЭУ"

КАЗАНСКИЙ ГОСУДАРСТВЕННЫЙ ЭНЕРГЕТИЧЕСИЙ УНИВЕРСИТЕТ

КАФЕДРА ЭС

**Домашняя работа №1**

**По дисциплине “Иностранный язык”**

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Задание 1.   
1. Automation is a system of manufacture designed to extend the capacity of machines to perform certain tasks formerly done by humans, and to control sequences of operations without human intervention.

2. It is such devices as automatic telephone switching equipment, automatic pilots, and automated guidance and control systems

3. Automated manufacture arose out of the intimate relationship of such economic forces and technical innovations as the division of labor, power transfer and the mechanization of the factory, and the development of transfer machines and feedback system

4. The division of labor is the reduction of a manufacturing or service process into its smallest independent steps

5. The division of labor results in increased production and a reduction in the level of skills required of workers.

6. Steps:  
1) Division of labor

2) Mechanization of the factory

3) The development of power technology

4) Innovations in power transfer

7. The development of power technology also gave rise to the factory system of production, because all workers and machines had to be located near the power source

8. The transfer machine is a device used to move a work piece from one specialized machine tool to another, in such a manner as to properly position the work piece for the next machining operation

9. Industrial robots, originally designed only to perform simple tasks in environments dangerous to human workers, are now extremely dexterous and are being used to transfer, manipulate, and index (that is, to position) both light and heavy workpieces, thus performing all the functions of a transfer machine.

10. The goal of this assembly-line system was to make automobiles available to people who previously could not afford them.

Задание 2.

1. Manufacture system designed to extend the capacity of machines is called automation
2. Automated manufacture arose out of division of labor and mechanization of the factory.
3. The division of labor is, the reduction of a manufacturing or service process into its smallest independent steps.
4. Another step necessary in the development of automation was Mechanization
5. As a result of the development of power transfer specialized machines were motorized and their production efficiency was improved.
6. The development of power technology also gave rise to the factory system of production.
7. The transfer machine is a device used to move a work peace from one specialized machine tool to another.
8. Industrial robots were originally designed only to perform simple tasks.
9. The goal of the assembly-line system was to make automobiles available to people who previously could not afford them.

Задание 3.

1. FALSE, to extend, not to reduce
2. FALSE, its widespread use
3. TRUE
4. TRUE, but also the division of labor
5. FALSE, Adam Smith was british
6. TRUE
7. TRUE
8. FALSE, work pieces, not workers
9. TRUE
10. FALSE, the goal was to make them avaliable to people who previously could not afford them

Задание 4.

1. Автоматизированная производственная линия состоит из серии рабочих станций, соединенных трансферной системой для перемещения деталей между станциями.
2. Современные автоматические линии управляются программируемыми логическими контроллерами.
3. Автоматизированные производственные линии используются во многих отраслях промышленности, особенно в автомобилестроении
4. Если производство детали серийное, то наиболее экономичный способ производства - автоматическая линия
5. Линии передачи возникли примерно в 1924 году
6. Работы по прессовке включают в себя резку и формирование деталей из листового металла
7. Автоматизированная система предназначена для выполнения некоторых полезных действий, которые требуют затраты энергии

Задание 5.

1. Electricity is the most widely used energy in modern automated systems.
2. Automated systems mainly carry out two variants of operations: 1) Processing 2) Moving and positioning
3. [Automation](https://lms.kgeu.ru/mod/url/view.php?id=70884) is a system of manufacture designed to increase the productivity of machines and mechanisms
4. the fields of communications, aviation, and astronautics are that industries that use automation most widely
5. the division of labor, power transfer and the mechanization accelerated the development of automatisation
6. Mechanization was the next step necessary in the development of [automation](https://lms.kgeu.ru/mod/url/view.php?id=70884)
7. The development of power technology contributed to the development of automation
8. . Industrial robots was originally designed only to perform simple tasks in environments dangerous to human workers

**Текст FEEDBACK**

Задание 1.

1. By means of the feedback principle
2. A feedback loop is a mechanical, pneumatic, or electronic device that senses or measures a physical quantity such as position, temperature, size, or speed, compares it with a preestablished standard, and takes whatever preprogrammed action is necessary to maintain the measured quantity within the limits of the acceptable standard
3. The [feedback](https://lms.kgeu.ru/mod/page/view.php?id=50190) principle was first introduced in 1788
4. The inventor of flyball governon is James Watt and it was used to control the speed of a steam engine
5. At the top of the spindle the arms are linked by a lever with a valve that regulates the steam input. As the engine speeds up beyond the desired rate, causing the spindle to rotate faster, the flyballs are driven upward by centrifugal force. The action of the flyballs partly closes the input valve, reducing the amount of steam delivered to the engine
6. Yes, we can
7. Through feedback devices, machines can start, stop, speed up, slow down, count, inspect, test, compare, and measure.
8. Milling, boring, bottling, and refining

Задание 2

1. Essential to all automatic-control mechanisms is the feedback principle, which enables a designer to endow a machine with the capacity for self-correction.
2. A feedback loop is a mechanical, pneumatic, or electronic device that senses or measures a physical quantity such as position, temperature, size, or speed, compares it with a preestablished standard, and takes whatever preprogrammed action is necessary to maintain the measured quantity within the limits of the acceptable standard.
3. In manufacturing and production, feedback loops require that acceptable limits or tolerances be established for the process to be performed; that these physical characteristics be measured and compared with the set of limits; and, finally, that the feedback system be capable of correcting the process so that the measured items comply with the standard.
4. That operations are commonly applied to a wide variety of production operations that can include milling, boring, bottling, and refining.

Задание 3.

1. В современных автоматических системах широко используется обратное питание
2. Система контроля обратного питания состоит из пяти базовых элементов
3. Входом в систему является постоянное значение или заданное значение для системного выхода.
4. Чувствительными элементами являются измерительные устройства, используемые в контуре обратной связи для контроля значения выходного сигнала.
5. Это устройство состоит из двух металлических полос, соединенных вдоль друг друга
6. Два металла обладают разными коэффициентами теплового расширения
7. Биметаллическая полоса способна измерять температуру
8. В системах управления с обратной связью для автоматизации используется множество различных типов датчиков.
9. Назначение контроллера и исполнительных устройств в системе обратной связи - сравнить измеренное выходное значение с эталонным входным значением и уменьшить разницу между ними.
10. В целом, контроллер и исполнительный механизм системы представляют собой механизмы, с помощью которых осуществляются изменения в процессе, влияющие на выходную переменную
11. Эти механизмы обычно разрабатываются специально для системы и состоят из таких устройств, как двигатели, клапаны, электромагнитные переключатели, поршневые цилиндры, зубчатые колеса, силовые винты, системы шкивов, цепные приводы и другие механические и электрические компоненты.
12. Переключатель, подключенный к биметаллической полоске термостата, является контроллером и исполнительным устройством для системы отопления.
13. Когда практическое значение (температура комнаты) ниже заданного, переключатель включает нагреватель.
14. Когда температура превышает заданное значение, нагрев выключается.