Практическое занятие № 10

Тема: Типы автоматизации
Цель: активизировать лексику по теме в разных видах деятельности: чтение, аудирование, говорение.

Ход занятия:

1. **Изучите лексику для обязательного усвоения** (Glancing at Vocabulary):

investment – инвестиция, вклад	rate – скорость, темп
non-productive – непроизводительный	changeover - переналадка
application – применение	several - некоторый
to refer to – относиться к	certain - определенный
suitable – подходящий	to transfer - передавать
memory – память	assembly machines – сборочные машины

2. Выполните задания:

Задание 1. Переведите предложения:

1. Manufacturing is one of the most important application fields for automation technology.
2. There are several types of automation in manufacturing.
3. Fixed automation refers to automated machines with fixed sequence of processing operations.
4. These machines are designed to make only certain processing operations.
5. This form of automation needs high initial investments.
6. Programmable automation is a form of automation for producing products in large quantities.
7. The equipment is designed to facilitate product changeover.
8. In flexible automation the changeover of the equipment can be done very quickly and automatically.

Задание 2. Переведите словосочетания:
1.Automation technology
2.Fixed automation
3.Assembly machines
4.Non-productive time
5.Programmable automation
6. flexible automation
7.Computer terminal
8.Numerical-control machine-tool

Задание 3. Прочитайте и переведите текст « TYPES OF AUTOMATION»:

Manufacturing is one of the most important application fields for automation technology. There are several types of automation in manufacturing. The examples of automated systems used in manufacturing are described below.

1. Fixed automation, sometimes called «hard automation, refers to automated machines in which the equipment configuration allows fixed sequence of processing operations. These machines are programmed by their design to make only certain processing operations. They

are not easily changed over from one product to another This form of automation needs high initial investments and high production rates. That is why it is suitable for products that are made in large volumes. Examples of fixed automation are machining transfer lines found in the automobile industry, automatic assembly machines and certain chemical processes

2. Programmable automation is a form of automation for producing products in large quantities, ranging from several dozen to several thousand units at a time. For each new product the production equipment must be re programmed and changed over. This reprogramming and changeover take a period of non-productive time. Production rates in programmable automation are generally lower than in fixed automation, because the equipment is designed to facilitate product changeover rather than for product specialization. A numerical-control machine- tool is a good example of programmable automation. The programme is coded in computer memory for each different product style and the machine-tool is controlled by the computer programme.

3. Flexible automation is a kind of programmable automation. Programmable automation requires time to reprogram and change over the production equipment for each series of new product. This is lost production time, which is expensive. In flexible automation the number of products is limited so that the changeover of the equipment can be done very quickly and automatically The reprogramming of the equipment in flexible automation is done at a computer terminal without using the production equipment itself. Flexible automation allows a mixture of different products to be produced one right after another.

Задание 4. Ответьте письменно на вопросы:

1. What is the most important application of automation?
2. What types of automation are used in manufacturing?
3. What is fixed automation?
4. What are the limitations of hard automation? Generally
5. What is the best example of programmable automation?
6. What are the limitations of programmable automation?
7. What are the advantages of flexible automation?
8. Is it possible to produce different products one after another using automation technology?

3. Контрольные вопросы:

1. How many types of automation do you know? What are they? (Сколько типов автоматизации вы знаете? Какие это типы?)

2. What are the advantages of each of them? (Каковы преимущества каждой из них?)