**Задание для обучающихся с применением дистанционных образовательных технологий и электронного обучения**

Дата: 03.06.2020г.

Группа Э-19

Учебная дисциплина: Английский язык

Тема занятия: Современные компьютерные технологии в промышленности.

Форма:Практическое занятие.

Содержание занятия:

Повторить содержание предыдущих вопросов: Современные компьютерные технологии в промышленности.

Вопросы, рассматриваемые в ходе занятия:

1. Работа с текстом по теме «Роботы в производстве».
2. Практические упражнения по теме и по тексту.

**Задание для обучающихся:**

**1. Переведите текст письменно в тетради и отправьте мне по фото или вордовским документом.**

**ROBOTS IN MANUFACTURING**

 Today most robots are used in manufacturing operations. The applications

of robots can be divided into three categories:

 1. material handling;

 2. processing operations;

 3. assembly and inspection.

 Material-handling is the transfer of material and loading and unloading of

machines. Material-transfer applications require the robot to move materials or

work parts from one to another. Many of these tasks are relatively simple: robots

pick up parts from one conveyor and place them on another. Other transfer

operations are more complex, such as placing parts in an arrangement that can

be calculated by the robot. Machine loading and unloading operations utilize a

robot to load and unload parts. This requires the robot to be equipped with a

grip-per that can grasp parts. Usually the gripper must be designed specifically

for the particular part geometry.

 In robotic processing operations, the robot manipulates a tool to perform

a process on the work part. Examples of such applications include spot welding,

continuous arc welding and spray painting. Spot welding of automobile bodies is

one of the most common applications of industrial robots. The robot positions a

spot welder against the automobile panels and frames to join them. Arc welding

is a continuous process in which robot moves the welding rod along the welding

seam. Spray painting is the manipulation of a spray-painting gun over the

surface of the object to be coated. Other operations in this category include

grinding and polishing in which a rotating spindle serves as the robot's tool.

 The third application area of industrial robots is assembly and inspection.

The use of robots in assembly is expected to increase because of the high cost of

manual labour. But the design of the product is an important aspect of robotic

assembly. Assembly methods that are satisfactory for humans are not always

suitable for robots. Screws and nuts are widely used for fastening in manual

assembly, but the same operations are extremely difficult for a one-armed robot.

 Inspection is another area of factor operations in which the utilization of

robots is growing. In a typical inspection job, the robot positions a sensor with

respect to the work part and determines whether the part answers the quality

specifications. In nearly all industrial robotic applications, the robot provides a

substitute for human labour. There are certain characteristics of industrial jobs

performed by humans that can be done by robots:

 a) the operation is repetitive, involving the same basic work motions every

cycle;

 b) the operation is hazardous or uncomfortable for the human worker (for

example: spray painting, spot welding, arc welding, and certain machine loading

and unloading tasks);

 c) the workpiece or tool are too heavy and difficult to handle;

 d) the operation allows the robot to be used on two or three shifts.

**2. Выполните упражнения. Ответы на вопросы запишите на английском языке. Выполните оба упражнения письменно в тетради и отправьте мне по фото или в печатном виде вордовским документом.**

**I. Ответьте на вопросы:**

1. How are robots used in manufacturing?

2. What is «material handling»?

3. What does a robot need to be equipped with to do loading and unloading

operations?

4. What does robot manipulate in robotic processing operation?

5. What is the most common application of robots in automobile

manufacturing?

6. What operations could be done by robot in car manufacturing industry?

7. What are the main reasons to use robots in production?

8. 1 low can robots inspect the quality of production?

9. What operations could be done by robots in hazardous or uncomfortable

for the human workers conditions?

10. Call certain characteristics of industrial jobs that can be done by robots.

**II. Переведите на английский язык:**

1. Существует несколько различных сфер использования

автоматизации в производстве;

2. Для использования жесткой автоматизации необходимы большие

инвестиции;

3. Жесткая автоматизация широко используется в химической

промышленности;

4. Станки с числовым программным управлением - хороший пример

программируемой автоматизации;

5. Гибкая автоматизация делает возможным перепрограммирование

оборудования;

6. Время простоя оборудования оборачивается большими убытками;

7. Использование гибкой автоматизации делает возможным

производство разнообразной продукции.

**Форма отчета.**

1. Сделать фото переведённого текста и выполненных упражнений и отправить мне. Или отправить их вордовским документом.

**Срок выполнения задания** 03.06.

**Получатель отчета.** **Готовые задания отправить лучше всего уже в Гугл-классе!!!**