

Тема занятия: «Конструирование машин»

Цель занятия: выучить новый лексический материал по теме «Конструирование машин»; совершенствовать навыки чтения и перевода текста профессионального направления; систематизировать знания, ответив на контрольные вопросы по теме занятия.

Уважаемые студенты! Ознакомьтесь с материалами практического занятия на тему «Конструирование машин». Конспект занятия выполняйте **в рабочей тетради письменно, обязательно указывая дату занятия, тему занятия, номер упражнения.** Ответы предоставить преподавателю на проверку **до 07. 06. 2023 г.** в электронном виде (**фотоотчёт**) на e-mail mikagol2605@mail.ru. Телефон преподавателя для консультации и возникающих вопросов: +79591415816.

С уважением, Голодюк Марина Викторовна.

1. Прочитайте и устно переведите текст «Industrial engineering and automation».
2. Прочитайте текст и определите:
 - а) о каких двух характерных чертах машиностроения XX века идет речь;
 - б) в каком абзаце идет речь о повышении производительности сборочного конвейера;
 - в) в связи с каким событием упомянуты в тексте 40-е годы XX века.

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.