

**METALLARGA MEXANIK ISHLOV BERISHDA TEKNOLOGIK  
JARAYONLARNI O`QITISHDA INNOVATSION  
TEKNOLOGIYALARDAN FOYDALANISH**

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**Annotatsiya:** Mazkur maqolada metallarga mexanik ishlov berishda texnologik jarayonlarni tashkil etish bo‘yicha fikr-mulohazlar yurutilgan. Shuningdek, texnologik ta’limda innovatsion texnologiyalardan foydalanish to’g’risida ilmiy-nazariy tavsiya va tushunachalar bayon etilgan.

**Kalit so’zlar:** sanoat, metal, mashina, texnologik jarayon, materialni ajratish, dastgoh, innovatsion texnologiya.

**USE OF INNOVATIVE TECHNOLOGIES IN TEACHING  
TECHNOLOGICAL PROCESSES FOR MECHANICAL PROCESSING OF  
METALS**

**Annotation:** This article discusses the organization of technological processes in the mechanical processing of metals. It also provides scientific advice and insights on the use of innovative technologies in technology education.

**Keywords:** industry, metal, machine, technological process, material separation, machine tool, innovative technology.

In his Address to the Oliy Majlis, President of the Republic of Uzbekistan Shavkat Mirziyoyev proposed to name 2018 the Year of Active Entrepreneurship, Support of Innovative Ideas and Technologies. The head of state stressed the importance of innovation: “Innovation is the future. If we want to start building our great future today, we must start with innovative ideas, innovative approaches.”

Among the main tasks for the development of innovations in the country in 2018 are as follows: will be in the center of our attention »

Innovative technologies are innovations and changes in the pedagogical process of teachers and students, which require the use of interactive methods. Interactive methods are based on the active, free and independent thinking of each student involved in the learning process. Using these techniques will make learning a fun activity for the student. When interactive methods are used, students gain the skills and abilities to work independently with the help and collaboration of teachers. Students acquire new knowledge through scientific research, experiments. The principle of acquiring knowledge through science is followed. Participants work in small groups. Assignments are given to all members of a small group, not to an individual student. The main form of organization of the teaching process is the lesson. A variety of non-traditional forms of teaching are currently being introduced. Such classes help to develop students' creative abilities, strengthen their mental capacity, broaden their scientific outlook, and develop their skills and abilities to quickly and fully absorb any innovation. The use of innovative technologies in the classroom stimulates students' interest in scientific research and develops their creativity and ingenuity. As a result, the acquired knowledge, skills and abilities will be applied in practice, the quality of learning will increase. To do this, the teacher must be competent and plan the lesson according to the content of the topics, to ensure that all students are active and conscious during the lesson.

*Use of innovative technologies in the technological processes of mechanical processing of metals:*

Mechanical recovery metals is a very complex process, resulting in parts of a certain size and given shapes. There are two ways to mechanically affect the material. The first method is characterized by the removal of the top layer from the working surface. In this case, the depth may vary depending on the requirements for the dimensions of the part. In the second method, the material is not damaged

during the first exposure, it can only be pressed, stamped, stamped, wrapped. As a rule, this method of exposure is then continued with the next stage of the part.

Mechanical processing of different types of metals is provided by a complex of technological operations to give the parts a certain size and shape. The main ones are drilling, milling, planing, grinding and drilling. Now all operations are carried out in a modern way multifunctional machines ... Thus, a single machine can perform different functions in series. To do this, you just need to install the software correctly and use the necessary tools in a timely manner. Many names of tools indicate their purpose: drilling - for drilling, milling - for milling, and so on.

All types of mechanical processing of metals are diverse and have their own differences and nuances. Lathes are being processed to meet the most modern technological requirements ... They are automatic, semi-automatic and CNC. As a rule, different types of milling are used to process shaped or flat surfaces: tip, tip or shape.

Today, many modern production facilities offer metalworking services. There are many machines available to do this work, but time determines its conditions, so machines are constantly being improved. Thus, primitive machines were replaced almost everywhere by automatic lines ... Dynamically developing enterprises are trying to expand production as much as possible using high-tech equipment. Thus, it is possible to guarantee high quality of products with the highest probability and the shortest delivery times for orders. Regardless of the size of the order and its complexity, any production wins if good quality products are made a priority.

### **Equipment for metal processing.**

As a rule, metal processing services are carried out quickly and in full compliance with all standards when qualified personnel undertake the work. In addition, each prospective enterprise provides optimal conditions for operation: the availability of sufficient production areas, the necessary equipment. It should be noted that for the successful and fast execution of the order, the staff must be provided with machines, welding and process equipment. So, to get the job done, you need to

choose the right equipment for metalworking. Of course, turning and milling is the main job - responsible for removing chips. The most common equipment in this field are CNC turning centers and centers. Modern models allow to produce parts that meet the highest requirements for the geometric parameters of the product and the roughness of its surface. The advantages of the new models of machine tools are: accuracy, speed, improved workplace parameters.

At present, a wide range of metalworking equipment is on display. Among the various models are the most popular and very rare (relatively frequently used) applications. For example, a carousel machine capable of processing a piece with a diameter of up to nine meters. Such a machine is not used often and everywhere. Jig boring machines and rotary table boring machines that provide high quality boring at any angle are in high demand. Every enterprise whose field of activity is metalworking strives to have milling, gears, radial, horizontal and vertical drilling machines.

Fine-grained hard grades without any coating work very well for titanium. Various methods of metal processing are used in engineering, metalworking industry, construction, cutting is one of their varieties.



Because metal parts are so diverse, they vary in shape, size, weight, alloy composition, so metal cutting is also done in several ways. The main ones can be distinguished from them:

- turning;
- drilling;
- milling;

- planning;
- grinding.

Each type involves the use of specialized equipment - often stationary machines. It is important to understand that more accurate and clean work is provided at lower speeds and that roughness can be performed to the maximum extent allowed. In particular, VI Zagvyazinsky, an expert in the field of pedagogical innovation, who studied the life cycle of various innovation processes, said that with the positive results of the development of innovation, teachers unreasonably seek to universalize it, to apply it to all areas of pedagogical practice. It often ends in failure and leads to frustration, cooling to novelty. Another structure (very close to what is now said) can be identified. This is the structure of the genesis of innovation derived from the theory of innovation in the field of material production. But if the student has a sufficiently developed imagination, it is very convenient to move to innovative processes in school: the emergence of the idea - development - design (what is on paper) - production (i.e. in practical work) zlasht) - use by other people.

In addition to the above, it is easy to see structures in any innovation process, such as the creation of innovations and the use of innovations; a complex innovation process that underlies the development of an entire school consisting of interconnected micro-innovation processes.

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