

# Mechanical Engineering Technology

South Ural State University

Degree or qualification is awarded: **Bachelor's degree**

Language of study: **Russian**

Mode of study: **full-time**

Duration: **4 years**

Availability of free education: **no**

Price: **151 800 rubles**

Programme webpage at the university website:

<https://www.susu.ru/en/education/bachelors-specialist-degree-programs/150305-design-and-technological-support-mechanical>

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The educational program 15.03.05 Design and Technological Support of Mechanical Engineering Productions take into account needs of the regional labor market, traditions and achievements of scientific and pedagogical school of the University in accordance with requirements of the Federal legislation.

The program aim is the formation of cultural and professional competencies and focus on meeting the educational and professional needs of the individual, the development of personal qualities of students, training of qualified professionals with competitive skills for the engineering industry. The main strategic objective of the program is to providing a high level of training to students in accordance with the existing and projected needs of enterprises and institutions of the region, city;

The program provides training in the field of Mechanical Engineering Technology, which is aimed at meeting needs of mechanical engineering enterprises in the region and fully meets the needs of the regional labor market.

The objective of the program is to train new generation of students in the field of mechanical engineering production who:

- possess have all the necessary skills of using high-performance technological equipment, devices, tools, measuring instruments and other technological equipment, as well as computer equipment and information technologies;
- are ready to use modern methods for the design of technological processes and technological equipment;
- are ready to work in a competitive environment in the labor market of mechanical engineering workers in the conditions of modernization of products and mechanical engineering enterprises;
- are able to solve professional problems to achieve financial stability and strategic efficiency of the mechanical engineering enterprise, as well as ensure the efficiency of design, manufacture, maintenance, repair and disposal of an engineering product at different stages of its life cycle.

The specific nature of the field lies in its focus on the conditions of modern computerized mechanical engineering production and building knowledge and skills in the following areas:

- properties and characteristics of structural and electrical materials, ability to choose and use materials for solving specific technical problems;
- methods of production of machine parts and components, normalization of their accuracy parameters, writing design and technological documentation;
- knowledge of different types of technological processes in mechanical engineering, technology of automated production, technological equipment, tools and metrological assurance, methods of building computerized engineering industries;
- theoretical foundations and design principles of technological processes of machine assembly and technological processes of manufacturing parts in mechanical engineering production, principles for selection of schemes of

the location of the part in the machine in the course of the manufacturing process, identification and calculation of the dimensional relationships of technological systems and machines, allowance calculations and operational dimensions;

- design of new technological processes of production of parts and machine assembly using separate machines, automatic lines and automated sites;
- processes and operations of shaping, regularities of physical and mechanical process in shaping;
- the structure of technological equipment;
- methods of the system approach to the creation of technological equipment with microprocessor control for computer-aided mechanical engineering industries using methods of computer-aided design;
- modern approaches to automation of production processes in mechanical engineering and features of development of technological processes of manufacturing of mechanical engineering products in the context of automated production;
- world and domestic experience in automation of production processes, technical and information bases of automation, features of automated processes in mechanical processing, blank production and assembly industries;
- methodology of calculation and design of technological equipment for various purposes, its manufacture and operation;
- theoretical basis of design of mechanical engineering production, modern methods of design of the main and auxiliary systems, rules and regulations of labor protection and ecology, production safety measures;
- functions, properties and methods of selection of the cutting tool for cutting machines and complexes, geometrical parameters of the cutting tool, cutting tool materials;
- concepts of flexible automated production, flexible production systems, location and technical and economic indicators of GPS.

## **Specializations within this programme**

### **Design and Technological Support of Mechanical Engineering Productions**

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