

MECHANICAL ENGINEERING TECHNOLOGY

Academic degree: Bachelor. Duration: four years

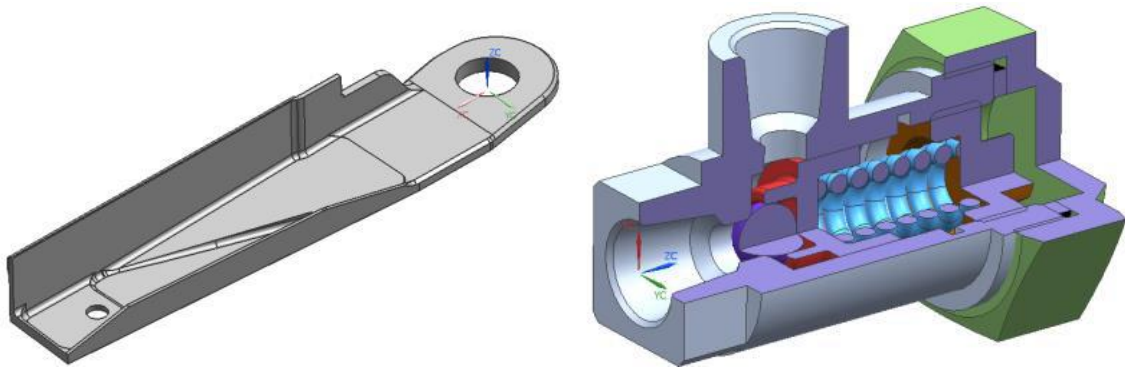
Changes that have been occurring in industries under the influence of information technology has transformed the approach to the manufacturing management. These new requirements were reflected in the concept of the fourth industrial revolution known as "Industry 4.0" which implies that the material world is connected with the virtual one contributing to the creation of a new digital ecosystem. In the production sector, this involves automating all processes and stages.

The mission of the educational program is to train highly qualified mechanical engineers with deep knowledge of production and equipment designing, new forms of production management, integrated automation of production processes, modern NC machines and robotic systems, and advanced machining methods.

Computer technology is mastered starting from the first year of study which allows graduates to work at advanced industrial enterprises. In addition, students master modern designing and project management methods in the CAD/CAM/CAE/PDM environment using the systems produced by *Autodesk (AutoCAD, Inventor)*, USA; *Siemens (NX, Tecnomatix, Teamcenter, Simcenter 3D)*, Germany; *MSC.Software (Patran)*, USA, etc.

Major courses:

- **3D Computer Modeling** provides students with knowledge and skills required to work with 3D modeling systems and to develop both simple parts and complex assemblies.

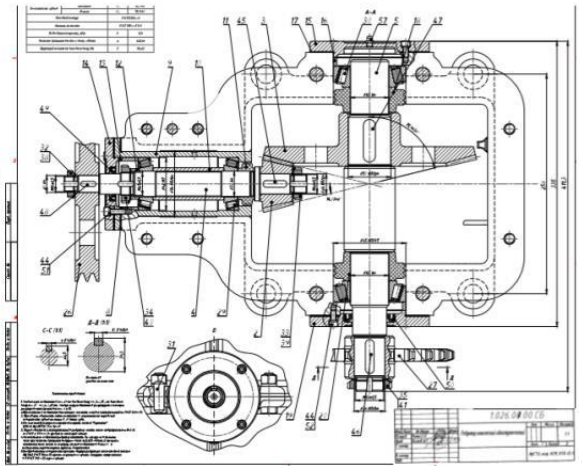
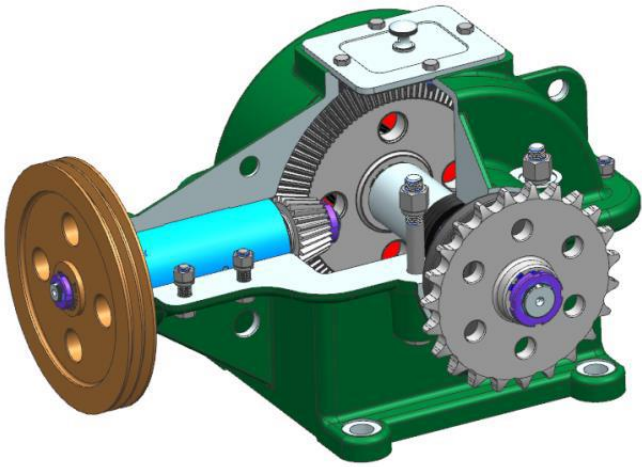


- **Materials Science** introduces students to the relationships between composition, structure and properties of materials and laws of changes under external physical and chemical factors;

- **Formation processes and metalworking tools** introduces students to the physical and mechanical processes in machining materials, modern cutting tools by Sandvik Coromant (Sweden), Dormer Pramet, Walter AG (Germany) and unique software CoroGuide and PluraGuide used for automated calculation of cutting data.



- **Machine Parts and Design Basics** is one of the key engineering courses which provides students with knowledge of structures, operation principles, and designing methods used for machine parts and assemblies.



- **Equipment for machine-building industries** introduces students to the functions and structures of modern metal-cutting machines. The laboratory is equipped with the CNC lathe DMG NEF400, the DMG DMC 635V milling machine and the five-axis DMG DMU 80P DUO BLOCK milling machine. Students have an opportunity to work with the Carl Zeiss Contura G2 7/7/6 Aktiv coordinate measuring machine, the HaimerTool Dynamic 2009 Comfort Plus tool balancing machine, the N1 Smart Camera 1764 machine vision stand, etc.

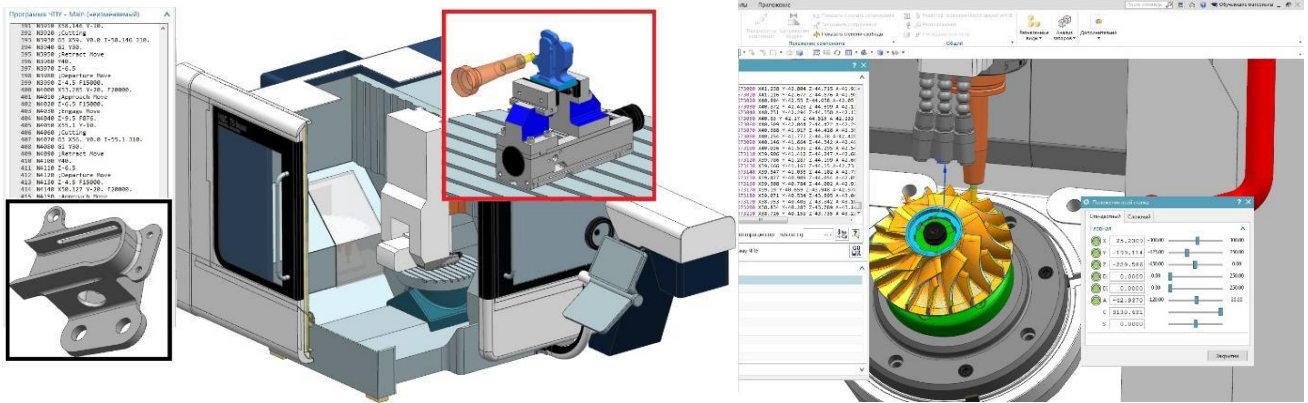


- **CNC Machine Programming** provides students with knowledge and skills required to program machine tools first using Siemens SinuTrain and then the machine itself.



- **Mechanical engineering technology** is a foundation course which combines all knowledge and skills acquired during the previous courses. The course is designed to develop knowledge of the design of machining and assembling processes, the structure and development trends in machine-building.

- **Automated systems for the engineering process** provides students with skills required to develop aircraft parts machining and controlling programs (CAD / CAM / CMM systems) with digital twins of machines and robots or production lines and to plan the production process taking into account the equipment load.



- **Machine-building economics** provides students with knowledge of the economic foundations of production processes, aspects of formation and use of material, labor and financial resources, cash management, budgeting and taxation of enterprises, and the culture of economic thinking.

In addition to the fundamental engineering disciplines, management in mechanical engineering, economics, social psychology, foreign languages and some other disciplines are taught.

Currently, production design engineering is a high-demand specialization: to produce something, an expert who knows how to do it is needed. The production design engineer is one of the key jobs in the production process. To ensure the competitiveness of products, enterprises need specialists engaged in the development of new technologies.

After completing the program you will be able:

- to develop technological processes for manufacturing parts using modern methods, tools and design technologies;
- to participate in the development of mechanical engineering projects taking into account technological, design, operational, aesthetic, economic and management parameters;
- to develop draft, technical and working projects for machine-building industries, technical means and systems for their equipment;
- to manage modern computer-controlled equipment;
- to monitor the compliance of projects and technical documents with standards, specifications and regulatory documents;
- to conduct a feasibility study of design calculations;
- to manage the team of performers;
- to examine and improve business processes at machine-building enterprises, etc.;

Our graduates work as

- process engineers (develop manufacturing and assembling processes);
- design engineers (design parts, tools, assemblies and mechanisms);
- supervisors of production sites;
- software engineers (design manufacturing processes using automated systems);
- workshop managers;
- managers of technological and design departments;
- preproduction managers;
- technology and equipment implementation managers.

Graduates are provided with the opportunity to continue their study to the next level (Master in Advanced Manufacturing Technology).