

Code and title of specialty (direction): 131 Industrial Machine-building

Title of specialization: Tool Manufacturing

Code and title of the field of knowledge: 13 Mechanical Engineering

Qualification: Master of Industrial Machine-building with a specialization "Tool Manufacturing"

Number of credits: 120 ECTS credits.

Grade of higher education: *The second (Master) one corresponds to the seventh qualification degree of the Ukrainian National Qualifications Frame.*

Requirements to the previous education grade: *A person has a right to get a Master degree under the condition of a Bachelor degree. If the previous degree was received in another country, a nostrification is required.*

Qualification requirements: *Higher education document is given to a person who mastered the program successfully and was certified. Graduation certification is done by evaluating competence formation level. The form of certification is qualification paper defense.*

Program learning outcomes: Ability to use knowledge of methods of forming surfaces when conducting cutting work of machine parts. Ability to choose, apply and calculate various methods of forming work pieces. To conduct experimental research on cutting process and receive adequate mathematical model of its options with minimal time and cost. Effectively use the model parameters to optimize the cutting process. Analysis of the structures and support cutting tools, and tooling techniques.

Ability to identify analytical depending of geometric and constructive nature. Ability to build parametric models of cutting tools in two-dimensional graphics editing program. Ability to calculate estimates of the reliability test results and to identify, analyze and eliminate the causes of failure and break-down. Ability to perform basic operations diagnostics, maintenance, repair and storage of equipment. Ability to carry out technical calculations for performed projects, feasibility and functional cost of effectiveness analysis of tool-designed productions, realized technologies of production facilities and means of system equipment.

Ability to apply information technology to design of cutting tools. Design of cutting tools for automated production. Using knowledge of the operation and manufacture of various types of tools. To perform profiling cutting tools for cutting specific details, to perform the necessary calculations for design and developing of working drawings of the cutting tool. To make the choice of tool materials according to the requirements with regard to production process, design of tools, operating conditions, ways of strengthening the chosen material and economic feasibility. Preparation of production of cutting tools of specified number with the least cost and quality control of manufacturing. To formulate the terms of reference for the development of equipment, tooling, to create methods of calculating certain components of equipment and production of technological tool sets.

Ability to select and use techniques and equipment, to analyze the dynamic qualities and modes of production equipment. Ability to organize technological preparation for production of cutting tools and technological tool sets. Designing mechanical assembly plants and areas with mandatory introduction of new manufacturing processes, quality control methods, economic feasibility, modern energy saving programs, and environmentally friendly materials. Ability to develop automated control systems of instrumental section of the plant.

Ability to get employment. Master of 131 Industrial Machine-building with a specialization "Mechanical Engineering" may take jobs of an engineer and researcher, designer-engineer, technologist-engineer, scientific consultant (in mechanical engineering), teacher of higher education institution.

Access to further studying. Master of 131 Industrial Machine-building with a specialization “Mechanical Engineering” may continue one’s studying at the postgraduate program of doctoral studies in the sphere 13 "Mechanical Engineering".

Final Department: Department of Machine-building and Applied Mechanics

Institute / Faculty: Faculty of Engineering

Heads of educational program: Associate Professor, Ph.D. Mitsyk Andriy Volodymyrovych,
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