National technical University “Kharkiv polytechnic institute”

Faculty “Mechanical-technological”

Department “Foundry”

Foundry Department

Producing specialty:

– *Knowledge area – 13 – “Mechanical Engineering”*
Specialty – 131 "*Applied mechanics*“
Specialization – 131-09 "*Equipment and technology of foundry*”

educational level bachelor**:**
Qualification **– *Bachelor of applied mechanics***

educational level master:
Qualification **– *Master of science in applied mechanics***

Brief description of the specialization. **Training for work at the enterprises of foundry engineering, to jewelry companies as a technology for the production of castings for artistic purposes, designers for foundry tooling and equipment, mechanics equipment, automation technicians, introduction of new equipment and technology, as well as for work in research, design, educational institutions and services quality control of castings.**

Foundry Department

Producing specialty:

– *Knowledge area – 15 “Automatization and Instrumentation”*
Specialty – 151 *"Automation and computer integrated technologies"*
Specialization – 151-07 "*Computerized control of technological processes*"

educational level bachelor:

Qualification **– Bachelor of automation and computer-integrated technologies**

educational level master:

Qualification **– Master in automation and computer integrated technologies**

Brief description of the specialization. **Graduates acquire knowledge in the field of metallurgical technology using computer-aided design (AutoCad, SolidWorks, Unigraphics, Pro / Engineer, etc.); computer-aided engineering analysis using program complexes ANSYS, MSC / NASTRAN, LVM Flow, etc. Possession of the whole spectrum of CAD / CAE casting technologies and methods for their adaptation to specific production conditions provides the ability to create with the use of modern computer technology three-dimensional model of the casting and to control the technology of their production while ensuring high quality; analyse in depth the technological processes of obtaining of castings and optimize them.**

Foundry Department

Areas of studying:

Specialization – 131-09
"*Equipment and technology of foundry*”

educational level bachelor:

The program is designed for students who aspire to become professionals in the field of engineering in applied mechanics, mechanical engineering, in particular in foundries

educational level master:

The content of the program provides for the acquisition of deep knowledge on management of enterprises of foundry engineering; innovative processes; ensuring the competitiveness and quality of cast products
Designed for students who seek to become experts on the modernization of equipment, foundry, optimization of technical systems and the introduction of modern technological processes

Foundry Department

Areas of studying:

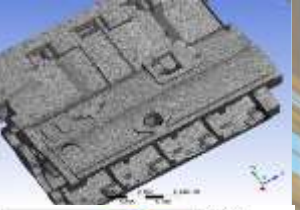
Specialization – 151-07
"Computerized control of technological processes"

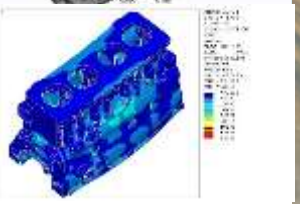
educational level bachelor:

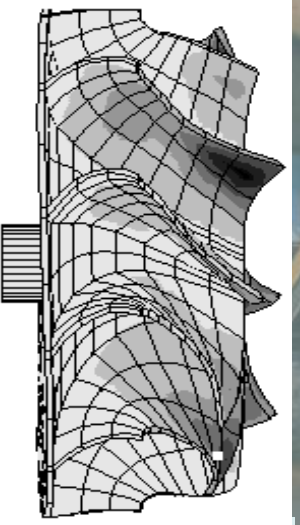
The program is designed for students who aspire to become professionals in the field of engineering activities with automation and computer integrated technologies, in particular the introduction of computerized control systems of technological processes

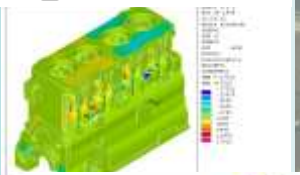
educational level master:

The content of the program involves the mastery of fundamental knowledge , necessary for the formation of the ability to explore the problems of complex systems control using the system of analysis, synthesis and other methods. Designed for students who aspire to become professionals in the field of engineering, management, research and teaching activities in automation and computer – integrated technologies, in particular the introduction of computerized control systems of technological processes and optimization of technological processes









Foundry Department

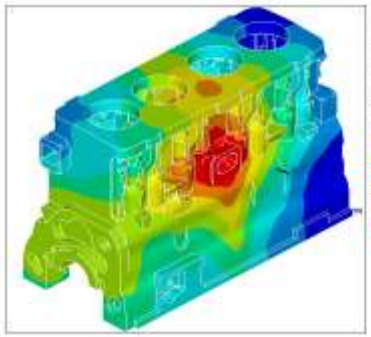
Research areas:

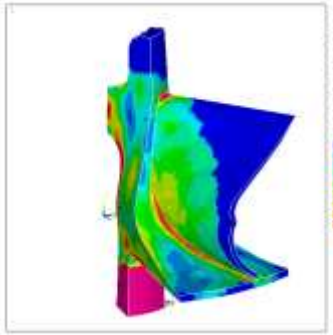
– Computer-integrated design of cast parts. ***D.Sc., Prof. O. Akimov***.

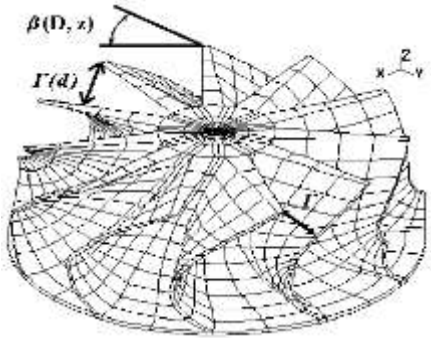
– Improving the reliability of complex systems, optimization of technological solutions in terms of design, operation and reconstruction of workshops and development on their basis of new technical solutions in the field of technology and equipment, and technology creation and development of new binders for molds and cores for cold-technology. ***D.Sc., Prof. O. Ponomarenko.***

– Mathematical modeling of processes and optimization of mechatronic systems.
D.Sc., Prof. D. Demin.

– The hardening of parts made of alloys by innovative methods of chemical-thermal and combined processing. ***Ph.D. Associate Prof. K. Kostyk***.







Foundry Department

Employment perspectives:

Specialization – 131-09
"*Equipment and technology of foundry*"

educational level bachelor:

Employment at the enterprises of any organizational – legal form. Specialists are prepared for organizational , managerial, economic activities in the field of engineering, in particular foundry.

Graduates can work in positions: lab technician (chemical and physical investigations); technician; mechanic; the mechanic on repair of the equipment; mechanic workshop; mechanic technician; technician of automation of production processes; techniques for maintenance and repair of equipment; technician for mechanization of labor-intensive processes technician-constructor (mechanic); technician (mechanic); copier technical documentation; draftsman; draughtsman designer; technician-designer; teacher of vocational training institutions; the referent. Subject to the acquisition of industrial experience and examinations to confirm the presence of the respective professional knowledge and skills it can work as an engineer of the respective divisions of engineering enterprises or Department of the chief Metallurgist.

Foundry Department

Employment perspectives:

Specialization – 131-09
"*Equipment and technology of foundry*"

educational level master:

Employment at the enterprises of any organizational – legal form. Specialists are trained for managerial, engineering, scientific and teaching activities in the field of foundry production as the executives of enterprises; heads of production units in the industry; the chiefs and masters of production sites in the industry; Heads of research units and the scientific and technical preparation of production; the Managers (stewards) in the field of research and development; Professionals in the field of applied mechanics; researcher (applied mechanics); Professionals quality control Professionals safety and quality; and mechanical Engineers.
Teachers of universities and higher education institutions
Graduates can work as: Junior research fellow (applied mechanics); Research scientist (applied mechanics); Research fellow, consultant (applied mechanics); Engineer of automation and mechanization of production processes; design Engineer (mechanic); process Engineer (mechanic), Engineer for implementation of new technology; Assistant

Foundry Department

Employment perspectives:

Specialization – 151-07
"Computerized control of technological processes"

educational level bachelor:

Employment at the enterprises of any organizational – legal form. Specialists are prepared for organizational , managerial, economic activities in the field of automation and computer integrated technologies.
Graduates can work as: — technician - mechanic; technician; mechanic; the mechanic on repair of the equipment; mechanic workshop; mechanic technician; technician of automation of production processes; techniques for maintenance and repair of equipment; technician for mechanization of labor-intensive processes technician-constructor (mechanic); technician (mechanic); technician-programmer; the controller and the controller of industrial robots;educator professional-technical educational institutions; the referent. Subject to the acquisition of industrial experience and examinations to confirm the presence of the respective professional knowledge and skills it can work as an engineer of the respective divisions of engineering enterprises

Foundry Department

Employment perspectives:

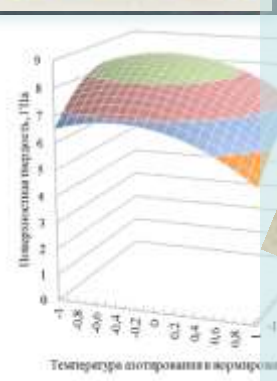
Specialization – 151-07

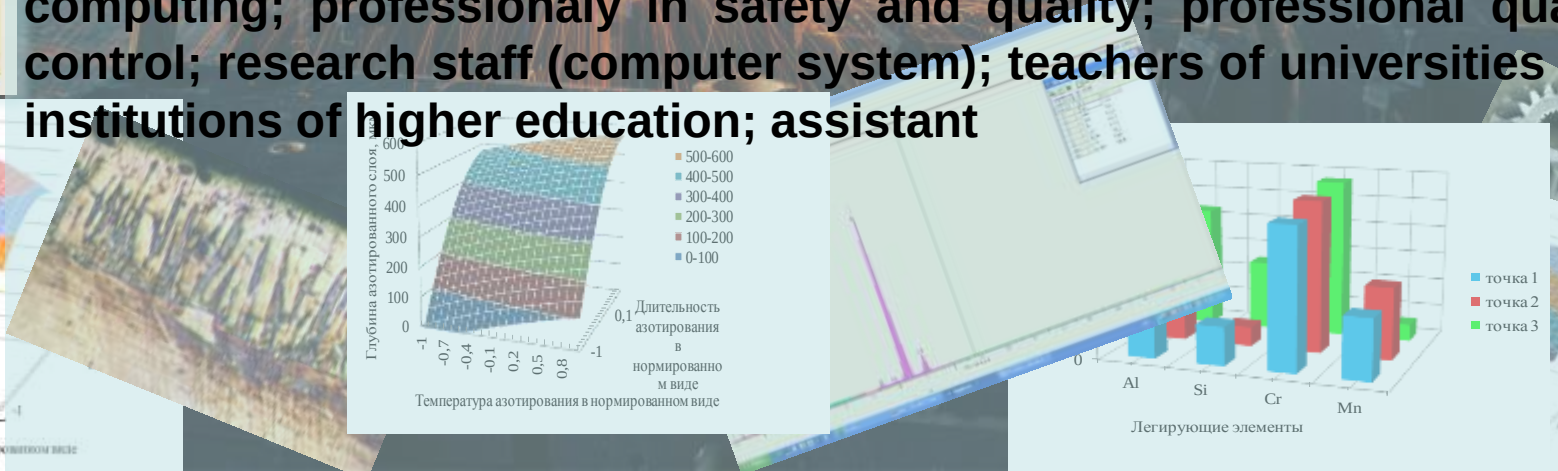
"Computerized control of technological processes"

educational level master:

Employment at the enterprises of any organizational – legal form. Specialists are prepared for organizational, managerial, engineering, scientific and teaching activities in the field of automation and computer integrated technologies.

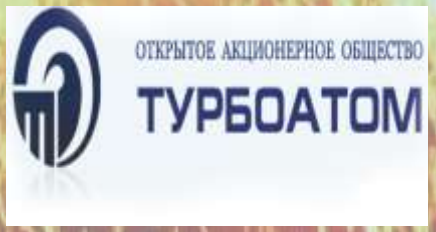
Graduates can work in positions: Heads of divisions of computer services ; managers (stewards) of quality systems ; professionals in the field of computing (computerization); professionals in the field of computing; professionaly in safety and quality; professional quality control; research staff (computer system); teachers of universities and institutions of higher education; assistant

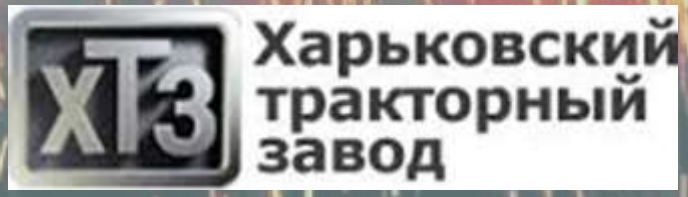




Foundry Department

Our employers:





Foundry Department

General academic disciplines for the students of our department:

Specialization – 131-09

"*Equipment and technology of foundry*"

educational level bachelor:

Design of castings; the Moulding materials and mixtures; Physical and chemical bases of foundry production; foundry Technology; Theory of formation of castings; Cast alloys, and resource and energy efficient smelting technology; energy-efficient furnace foundries; Operation and maintenance of equipment

educational level master:

Bases of scientific researches in foundry manufacture; Computer – integrated technology in the foundry; Analysis and synthesis of foundry systems; Designing foundries; automation of foundry production; Technology of artistic and jewelry casting; Certification foundry; Modern innovative technologies in the foundry; Environmentally friendly and energy-saving processes of casting production

Foundry Department

General academic disciplines for the students of our department :

Specialization – 151-07

"Computerized control of technological processes"

educational level bachelor:

Principles of design of automation systems; Computer integrated technologies; Technology and systems; Installation, repair and commissioning of instruments and automation; Fundamentals of computer-aided design (CAD); automation of technological processes and production; Energy and environmental systems

educational level master:

Computer aided design of technological processes of foundry production; Design and operation of control systems for foundry equipment; Automated control systems of foundry processes;Technological processes of foundry production as objects of management; Optimization of technical systems foundries; multimedia Tools and modern technologies; System engineering and technological preparation of production; management of metallurgical processes; Software computer integrated systems foundry production

Foundry Department

Equipment and laboratory facilities:

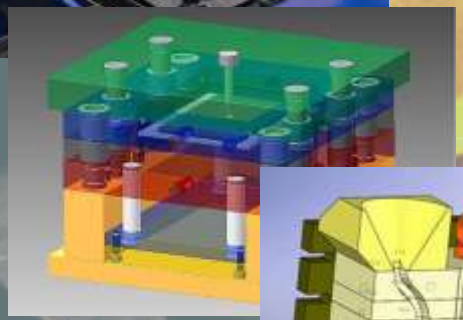
- A high-frequency generator
- Furnace SCHOL 1.1,6/12
- Tamman furnace
- The furnace crucible.-1 – 1 PCs. electric Furnace SCHOL-16
- Visual industrial thermometer
- Express – analyzer an – 7529
- A device for determining porosity
- Chromatograph lxm – 72
- Photoelectrocolorimeter "Spell"
- A device for determining gas LOTS
- Analytical scale AD – 200
- Gas analyzer
- Stands laboratory with instruments for testing physical and chemical processes
- Machine breaking RP-100
- Electrophoretic unit
- Equipment for analysis of the sand mixtures
- Device sieve analysis
- Testing machine
- The device test And-56-01-01
- Device universal magnetic
- UMIP -3
- Laboratory stirrer
- Runners cumshotamateurs laboratory 017
- Hardness in the dry 0731
- A device for determining clay skladovat-1
- Libra technical VLP-5

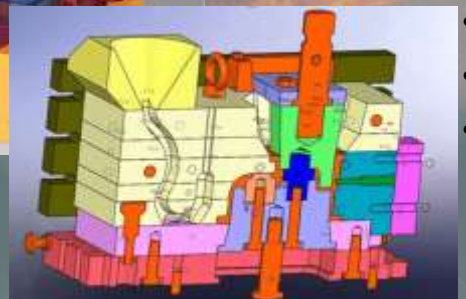
Foundry Department

Equipment and laboratory facilities:

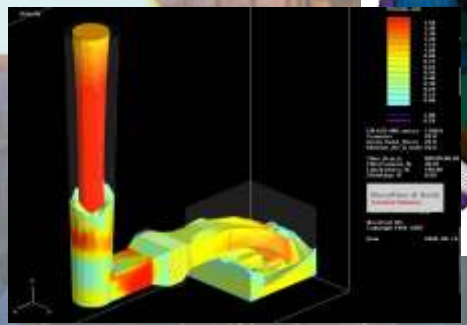
- A device for determining the gas permeability of the blends
- Hardness TM-2
- Machine breaking R5
- The drilling machine universal 2118A
- Machine tool grinding
- The lathe
- Robot COM -1
- Automatic core mod. 455452
- Press machine system Gerasimova
- Machine molding
- Induction furnace IST-06
- The furnace crucible.-1
- Gravity die casting

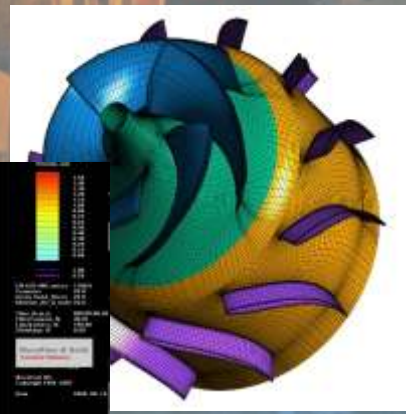
The names of software packages:





- SolidWorks
- Pro/engineer
- Компас
- Autodesk-AutoCAD
- LVMFlow
- Ansys





Foundry Department

Head of the department since 1997 and is currently

D.Sc., Prof. Oleg Akimov

ID http://orcid.org/0000-0001-7583-9976

Staff of the Department:

- ***D.Sc., Prof. O. Ponomarenko***
- ***D.Sc., Prof. D. Demin***
- ***Ph.D. Associate Prof. K. Kostyk***
- ***Ph.D. Associate Prof. V. Al`oxin***
- ***Ph.D. Assistant T. Berlizyeva***
- ***Senior lecturer O. Chybichyk***
- ***Senior lecturer L. Zolotar***
- ***Assistant P. Penzyev***