



National Technical University «Kharkov Polytechnic Institute»

Mechanical Engineering Faculty

DEPARTMENT OF "INTEGRATED TECHNOLOGIES ENGINEERING"



Training course (specialty):

131 – Applied mechanics

Specializations

131-01 Integrated Manufacturing Engineering

131-02 Tool production

131-07 Standardization, certification and product quality control

Directs the Chair Academician of the Academy of Sciences of Higher Education of Ukraine, Honored Worker of Higher School of Ukraine, member of the American ASE / ASM Association, Honorary Doctor of the University of Miskolc (Hungary), Doctor of Technical Sciences, Professor A. Grabchenko.



The educational process at the department lead 18 teachers, including:

- 5** professors (4 doctors of sciences);
- 11** candidates of sciences;
- 2** persons without scientific degrees and titles.

The training program includes:

- ✓ deep ***special training*** (working processes high-tech additive technology (3D Printing), Reverse Engineering, precision and special equipment, diagnostics processing, 3-D modeling, and others;
- ✓ improved ***computer based training***: an object-oriented modeling and programming languages, CAD / CAM / CAE systems (AutoCAD, SolidWorks, Power Solution, Pro-Engineer), Internet-technologies
- ✓ improved ***language training*** (training in Germany, Austria, Hungary);
- ✓ improved ***economic training***;
- ✓ enhanced ***socio-humanitarian*** training.



Graduation with a degree in
"Tool production"

Foreign experts (prof. F. Lierat, prof. J. Matyas, prof. D. Schneider, prof. J. Kundrak, prof. F. Vestkemper, prof. A. Mamalis and others) lecture to our students

The best students of our chair are sent after the 3rd year - for technological practice in University of Miskolc (Hungary)

on the 4th and 5th year - on including semester training and externship at University of Magdeburg (Germany) and the University of Klagenfurt (Austria).



The technical base of the chair:

- ✓ **4 computer labs** with latest software (CAD / CAM systems);
- ✓ **4 educational laboratory** with machine tools and measuring equipment;
- ✓ **3 research laboratories:** integrated technologies, physics processes of cutting and diamond tools;
- ✓ the only Ukrainian **high-tech center of accelerated forming products** (Additive Technology - 3D Printing, Reverse Engineering).

In 2001 the Chair created an educational-scientific-production center of integrated technologies and materials accelerated form of education-based additive manufacturing technology and combined treatment processes.

The cost of equipment Rapid Prototyping composition is 2 million dollars.



Educational-scientific-production center of integrated technologies (Additive Manufacturing)



Installation of
SLA-5000 laser
stereolithography
and control
computer station



Workstation for
preparation
process

Low temperature
cabinet for hardening
of finished parts

The vacuum chamber



Camera UV curing
PCA 500



Educational-scientific-production center of integrated technologies (Additive Manufacturing)



Установка для избирательного
Apparatus for selective laser
sintering Vanguard S12 SLS 3D
Systems manufactured (USA)



High-temperature
furnace and flowing
powder material

Table with hydraulic
lift

Vacuum cleaner



Employment prospects:

- **Engineering factories**
- **Firms in manufacturing and servicing of equipment for various industrial sectors**
- **Scientific departments and laboratories to monitor and analyze the quality of the products, tools and equipment**
- **Companies and design offices for the design of tools and equipment**
- **Commercial firms and certification laboratory determination of the quality of products**

