



Syllabus of the educational component

Program of educational discipline

Technology of artistic and jewelry casting

Code and name of specialty

131 – Applied mechanics

Institute

NNI of Mechanical Engineering and Transport

Educational program

Applied mechanics. Computerized foundry production. Artistic and jewelry Lithuania

Department

Foundry production (142)

Level of education

Master's degree

Course type

Special (professional), Mandatory

Semester

2

Language of instruction

Ukrainian, English

Lecturers and course developers



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Senior lecturer of the foundry department of NTU "KhPI"

Work experience - 3 years. Author and co-author of 9 scientific publications.

Courses: "Technology of artistic and jewelry casting".

[Learn more about the teacher on the department's website](#)

General information

Summary

The discipline "Technology of art and jewelry casting" studies the main aspects and methods of making art and jewelry products using casting. Students are introduced to a variety of materials that can be used for casting, such as metals, paraffins, and other composite materials. The techniques of making molds, impressions, and casting in their various variations are studied. The course also addresses the technical aspects of casting, including equipment selection, handling high-temperature melts, and production safety. As a result of studying this discipline, students acquire the necessary skills for independent production of artistic and jewelry products by casting, expanding their creative possibilities and skills in the field of art and design.

Course objectives and goals:

to acquaint students with the history of the development of artistic and jewelry casting, with the main types of artistic and jewelry products, as well as with the peculiarities of their production.

Format of classes

Lectures, practical classes and laboratory works, independent work, consultations. Individual task. Final control - Credit.

Competencies

GC2. Ability to make informed decisions.

GC4. Ability to generate new ideas (creativity).

GC5. Ability to develop and manage projects.

FC3. Application of appropriate methods and resources of modern engineering based on information technologies to solve a wide range of engineering problems using the latest approaches, forecasting methods with awareness of the invariance of solutions.

FC8. The ability to generate new ideas and the ability to substantiate new innovative projects and promote them on the market.

FC10. The ability to clearly and unambiguously convey one's own conclusions, knowledge and explanations to specialists and non-specialists, in particular, in the process of teaching. Ability to understand the work of others, give and receive clear instructions.

Learning outcomes

LR4 Use modern methods of optimizing the parameters of technical systems by means of system analysis, mathematical and computer modeling, in particular under the conditions of incomplete and contradictory information.

LR 5 Independently set and solve problems of an innovative nature, argue and defend the obtained results and decisions. RN6 Develop, implement and evaluate innovative projects taking into account engineering, legal, environmental, economic and social aspects.

LR 7. It is clear and unambiguous to present the results of research and projects, to convey one's own conclusions, arguments and explanations in national and foreign languages orally and in writing to colleagues, students and representatives of other professional groups of various levels.

LR 8 Master modern knowledge, technologies, tools and methods, in particular through independent study of specialized literature, participation in scientific and technical and educational events.

LR 14. Demonstrate knowledge of the basics of organization and personnel management.

Student workload

The total volume of the discipline is 150 hours. (5 ECTS credits): lectures – 32 hours, practical classes – 16 hours. , laboratory classes 16 hours, independent work - 86 hours.

Course prerequisites

For successful completion of the course, it is necessary have basic knowledge, "Modeling and design of processes, products, equipment".

Features of the course, teaching and learning methods, and technologies

Lectures are conducted interactively using multimedia technologies. On practical ones classes use a project approach to learning, gamification, focus on application of information technologies.

Program of the course

Topics of the lectures

Topic 1. Manufacturing technology of cast art products.

Topic 2. Origin of artistic casting.

Topic 3. Development of art casting technologies.

Topic 4. Equipment and tools for artistic casting.

Topic 5. Architectural casting.

Topic 6. Types of jewelry and their design.

Topic 7. Production of artistic and jewelry products by casting on heated models.

Topic 8. Jewelry stones.

Topics of the workshops

- Topic 1. Paraffins and their solidification speed.
- Topic 2. Production of foundry forms.
- Topic 3. Defects.
- Topic 4. Modeling of a wax product.

Topics of the laboratory classes

- Topic 1. Developing the skills of making art products.
- Topic 2. Improving skills with casting on heated models.
- Topic 3. Making wax models.
- Topic 4. Development and visualization of jewelry.

Self-study

For self-study in the discipline "Technology of artistic and jewelry casting" it is important to grasp the theoretical foundations, acquire practical skills in working with materials and tools, conduct creative experiments and analyze one's own works. One should also learn new technologies, improve casting techniques, and actively collaborate and share experiences with other interested individuals in relevant communities or groups.

Course materials and recommended reading

Basic literature

1. Ivanova L. A Development of artistic and jewelry casting. - Odesa: ONPI, ONPI, 2003. - 155 p
2. Nazimok M.M. Goldsmithing in Ukraine. - Kyiv: Volya, 2003. - 256 p.
3. Sample control. Methods of analysis of precious metals [Text]: textbook / M. M. Nazimok, O. Ya. Borovykov, T. M. Artyukh. - Kyiv: Volya, 2010. - 368 p.
4. Handbook of an expert on precious metals [Text] / M.M. Nazimok, O.K. Shlykov, O.S. Suprinovich; Govt. screening service of Ukraine. — Kyiv: Volya, 2012. — 566 p

Additional literature

1. Jewelry manufacturing technology "Art etching" (specialization in artistic metal processing): study guide / V.I. Horodetskyi. – Ivano-Frankivsk, 2013. – 180 p.

Assessment and grading

Criteria for assessment of student performance, and the final score structure

100% of the final grade consists of assessment results in the form of credit (40%) and current assessment (60%).

Test: written assignment (2 questions from theories) and an oral report.

Current assessment: 2 modular control and calculation task (20% each).

Grading scale

Total points	National assessment	ECTS
90–100	Excellent	A
82–89	Good	B
75–81	Good	C
64–74	Satisfactory	D
60–63	Satisfactory	E
35–59	Unsatisfactory (requires additional learning)	FX
1–34	Unsatisfactory (requires repetition of the course)	F

Norms of academic integrity and course policy

The student must adhere to the Code of Ethics of Academic Relations and Integrity of NTU "KhPI": show discipline, education, benevolence, honesty, responsibility. Conflict situations should be openly discussed in study groups with the teacher, and if it is impossible to resolve the conflict, it should be brought to the attention of the employees of the institute's directorate.

Regulatory and legal support for the implementation of the principles of academic integrity of NTU "KhPI" is posted on the website: <http://blogs.kpi.kharkov.ua/v2/nv/akademichna-dobrochesnist/>

Approval

Approved by

22.08.2023

Head of the department
Oleg AKIMOV

22.08.2023

Guarantor of the educational program
Oleksandr SHELKOVY