COURSE SYLLABUS
Engineering and computer graphics

Degree of higher education first (bachelor)
Areas of knowledge: 01 Education / Pedagogy, 18 Production and technology.
Specialty –015 Vocational education (Technology of light industry products); 182 Consumer industry technologies.
Educational program – Vocational education (Technology of light industry products) ;
Design and technology of sewing products; Styling, design and artistic finishing of industry products; Fashion industry.
Course status – compulsory.
Instructor: Department of Applied Mechanics and Machines Kovaliov Yu.A. Ph.D., Associate Professor.

1. Course description
Semesters: 1
Scope: total number of hours – 180, including: lectures – 24 hours, practical – 12 hours, laboratory – 12 hours, independent work – 132 hours; number of ECTS credits – 6.

Course objectives – mastering competencies – mastering competencies: the ability to form a spatial representation of students, figurative perception of the world around them, necessary in the practical activities of an engineer. Provide the ability to use methods of displaying the spatial shapes of objects and the disclosure of their geometric properties with the help of flat images, for further use in solving engineering problems in various fields of science and technology; acquisition of knowledge and skills of execution and reading of images of objects in accordance with the standards of the design documentation system; master computer graphics as a set of technical, software, language.
Skills in the use of information and communication technologies; Ability to use knowledge and understanding of basic sciences to solve professional problems.

Learning outcomes of the course:
know: basic and applied sciences at the level necessary to achieve other results of the educational program; construction by coordinates of points of object and its parameters of the image of object; methods of solving, using the methods of descriptive geometry, supplemented by methods of computational geometry, engineering problems in various fields of science and technology, the basic rules of execution and design and technical documentation, rules for creating technical drawings using a personal computer;
be able: use spatial modeling skills to develop products in the fashion industry; depict geometric shapes in projection systems; imagine the shape and position of a geometric figure in space according to its projection image; determine the relative position of geometric figures in the drawing; perform geometric and projection drawings; perform graphic constructions using a personal computer;
able to demonstrate: spatial imagination; figurative perception of the world around, which is necessary in the practical activities of the engineer; ability to distinguish images of objects in projection systems (orthogonal and axonometric); effective use of computer design applications;
have the skills: application of graphic techniques for visualization of own ideas in sketches of footwear and leather accessories; execution and reading of drawings; compilation of technical drawings, text documentation, various schemes; performing graphic constructions and creating technical drawings with the help of a personal computer;
solve independently: metric and positional problems.

Required educational components (prerequisites, co-requisites, post-requisites): information systems and technologies, higher mathematics.

Course content: Topic 1. Basic provisions. Topic 2. Straight. Topic 3. Plane. Topic 4. Straight and plane. Topic 5-6. Methods of transforming a complex drawing. Topic 7. Faces and curves of surfaces. Topic 8. Intersection of surfaces in a straight line. Topic 9. Mutual intersection of polyhedra and curved surfaces. Topic 10. Curved lines and curved surfaces. Topic 11. Unfolding curved surfaces. Topic 12. Scanning of facets and curved surfaces. Topic 13. ESKD system. Conjugation. Types, sections and cross-sections. Dimensions and their maximum deviations. Axonometric projections. Topic 14. Detachable and non-detachable connections. Sketches and working drawings of machine parts and footwear. Assembly drawing of mechanical engineering and light industry products. Topic 15. Familiarity with the interface of computer-aided design systems and drawings. Creating documents and drawings.

Forms of final control: exam (semester1).
Tools for diagnosing learning success: individual tasks, namely: presentations, essays, calculation works, exercises, tasks, tests, etc., questions for thematic and final control.
Language of instruction: Ukrainian.

2. Assessment

Distribution of points received by applicants for higher education

Credit

Example 1

Ongoing assessment and independent work																Exam	Total
T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	Thematic control	T13	T14	T15	Thematic control	
3	3	3	3	3	3	4	3	6	3	3	3	5	11	11	18	5	10	100

Distribution of points in the course for the 1th semester

Example 2

Activities evaluated in points	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	Total
Execution of graphic tasks in the workbook	3	1	3	2	3	2	2	3	3	2	3	2	8	8	12	57
calculated graphic work	–	2	–	1	–	1	2	–	3	1	–	1	3	3	6	23
Thematic control	5												5			10
Exam	10															10
Total in the course																100

Compliance with the scales for assessing the quality of learning material

Score on the national scale	Points	Assessment on the ECTS scale	Definition
excellent	90-100	**A**	**Excellent**

			(outstanding performance without errors)
good	82-89	**B**	**Very good** (above the average standard but with minor errors)
	74-81	**C**	**Good** (generally sound work with some errors)
satisfactory	64-73	**D**	**Satisfactory** (fair but with significant shortcomings)
	60-63	**E**	**Fair** (performance meets the minimum criteria)
unsatisfactory	35-59	**FX**	**Fail** (some more work required before the credit can be awarded)
	0-34	**F**	**Fail** (considerable further work is required)

3. Course policy:

3.1 Mandatory observance of academic integrity by higher education students, namely:
- independent performance of all activities, tasks, forms of control provided by the working program of this course;
- references to the sources of information if ideas, developments, statements, information are used;
- compliance with the legislation on copyright and related rights;
- providing reliable information about the results of their own educational (scientific, creative) activities, used research methods and sources of information.
3.2 Recognition of learning outcomes obtained in non-formal education is allowed.

3.3 To obtain a positive grade in the course, it is necessary to obtain the minimum number of points for each type of work, which is evaluated in points.

3.4 To obtain a positive assessment of the discipline it is necessary to obtain a minimum number of points for each laboratory work and individual tasks if they are provided in the guidelines for laboratory work.

3.5 In case of untimely performance of works the estimation for such works can be reduced.

3.6 Postponement of delivery / re-submission:

for good reasons (hospital, academic mobility), the work is processed independently and handed over during the semester;

without good reason, the work is processed independently and handed in during the semester but the grade decreases (75% of the possible maximum number of points).

3.7 Missed classes are processed independently with the obligatory registration of the protocol of laboratory work and the abstract on the topic of the missed lecture.

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In case of disagreement with the assessment, the student has the right to appeal the assessment to the head of the department.