Ministry of Education and Science of Ukraine

ODESA STATE ACADEMY OF CONSTRUCTION AND ARCHITECTURE

ES Architectural and Art Institute
Department of architectural structures

SYLLABUS
educational component - OK 7
Architecture of buildings and structures. Special course

Educational level	second (master's)	
Training program	mandatory	
Branch of knowledge	19	Architecture and construction
Specialty	192	Building and civil engineering
Educational program	EPP "Industrial and civil engineering "	
Scope of the discipline	**4 ECTS credits**(120 academic hours)	
Types of classroom classes	lectures, practical classes	
Individual and (or) group tasks	course project	
Forms of semester control	exam	

Teachers:
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In the process of studying the educational component, students of higher education will develop skills and abilities apply the skills of architectural and construction design and renovation of industrial buildings and special structures, based on the rationality of their volumetric planning and constructive solutions for the economy of Ukraine and the European Union.

Prerequisites for studying the educational component: acquisition of theoretical knowledge and practical skills in the following disciplines: Architecture of buildings and structures; Planning and development of territories.

Program learning outcomes:

PRN3. Ability to use regulatory and legal acts in everyday and professional activities; to navigate in scientific, special literature and laws.

PRN8. Use the technical Ukrainian language orally and in writing.

PRN9. Ability to design structures from modern materials; evaluate the work and stressed state of buildings and structures as a whole, their structural elements, redistribution
of efforts in connection with a change in the structural scheme; solve the issue of assessing the bearing capacity of structures.

PRN14. To design constructions of buildings and structures in order to ensure their strength, stability, durability and safety, to ensure reliability.

PRN15. Perform technical and economic justifications of constructive, technological, organizational solutions for construction or reconstruction of buildings and structures, develop technical documentation for projects and their elements.

PRN16. Ability to take into account social, environmental, ethical, economic and commercial considerations affecting the implementation of construction solutions. PRN17. The ability to find optimal solutions when creating certain types of construction products, taking into account architectural and planning requirements, strength, durability, life safety, quality, cost, deadlines and competitiveness.

Differentiated learning outcomes:

know:

- techniques of architectural composition, volume-planning solutions and structural systems of industrial buildings and special structures;
- regulatory requirements for creating a comfortable climatic, thermal, light and acoustic environment in industrial construction;
- composition of architectural and construction documentation, nomenclature and scope of application of the main types of construction materials and products in the design of industrial construction objects.

understand:

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have:

- skills of architectural and construction design of industrial buildings and special structures;
- methodology of designing modern industrial enterprises.

be able:

- apply the basics of designing construction objects when choosing rational volume planning and constructive solutions of industrial buildings and special structures; - use the basics of planning the general plan of the territory of the industrial enterprise,

including the selection and development of the territory, types and placement of networks of engineering communications and transport routes, types of landscaping and landscaping of the industrial territory;

- to have an idea about the functional-technological, architectural-compositional and constructive principles of designing industrial buildings and special structures.

Thematic plan

Chapter 1. Design of industrial buildings.

Topic 1. General provisions for the design of traditional and modern industrial buildings and structures. Classification according to various characteristics. Lifting and transport equipment. General plans of industrial buildings. Construction of industrial enterprises. Types and features of placement of engineering communications networks. Transport ways. Types of improvement of the industrial territory.

Topic 2. Structural solutions of reinforced concrete and steel frames of industrial buildings. Unification and typification of volumetric planning solutions and elements of industrial buildings.

Topic 3. Foundations, frame columns, half-timbered columns, foundation, binding, crane beams. Connections between columns. Planar and spatial coverings, types and main supporting and enclosing elements. Devices for lighting and aeration. Features of drainage.

Topic 4. Wall filling of industrial buildings. Glazing Floors. Partitions. Suspended ceilings. Stairs. Gates and doors. Deformation seams. Fire prevention measures. Design of auxiliary premises of industrial buildings. Planning solutions of domestic premises depending on the features of the production process. Design solutions of auxiliary buildings.

Topic 5. General provisions of reconstruction and repurposing of industrial buildings. Section 2. Design of special structures.

Topic 1. General information about traditional and modern special buildings of various functional purposes.

Topic 2. Engineering structures, which are independent objects and objects that compositionally connect the elements of the enterprise's construction. Topic 3. Engineering structures, which are elements of plasticity of the earth, elements of buildings, structures and technological installations.

Topic 4. Reconstruction and renovation of special buildings.

Topic 5. Arrangement of protective structures of civil protection.

Evaluation criteria and diagnostic tools

The minimum and maximum assessment level for obtaining a "exam" for the academic discipline " Architecture of buildings and structures. Special course " is from 60 points to 100 points.

Evaluation tools		Minimal scores	Maximum scores
Evaluation tools	Quantity per semester		

Calculation and graphic work	1	30	60
Knowledge control:			
- Current knowledge control (standardized tests), or	2	30	40
- Final (semester) knowledge control	1		
Together		**60**	**100**

Course project provided for in the section "Design of industrial buildings". This course work considers a one-story industrial building that needs to be designed.

The student needs to make a drawing of the facade, plan, section and master plan of a industrial building of a certain functional purpose.

The work consists of two parts: calculation and graphic and is performed in the form of an explanatory note, which includes a graphic part (A-4 format).

Methodological recommendations for the implementation of the course project [2].

Semester control is made in the form exam.

Assessment in the case of semester control in the form of an exam consists of two parts:

1. Accumulation of points during the current control (oral survey, testing, essay, as well as course project) - up to 60 points;

2. Exam - from 24 to 40 points.

A student is considered admitted to the semester control for a specific academic discipline (semester exam) if he has completed all types of work provided for in the curriculum for the semester in this academic discipline. Exams are taken by students during the examination sessions provided by the curriculum.

Exams are held according to the schedule, which is communicated to teachers and students no later than two weeks before the beginning of the session.

Information support

Basic literature

1. Kulikov P.M., Plosky V.O., Getun G.V. Architecture of buildings and structures. Book 5. Industrial buildings.Kyiv: Lira-K, 2020. 816 p.
2. Grynyova I.I., Korobko O.O., Pishchev O.V., Urazmanova N.F., Marianko Ya.H. Guidelines for the implementation of the course project "Design of an industrial building" from the mandatory component "Architecture of buildings and structures (special course)" for students of the second (master's) level of education in the field of knowledge 19 "Architecture and construction" specialty 192 Building and civil engineering of the educational and professional program "Industrial and civil construction". Odesa: OSACEA, 2024. 51 p.

Auxiliary sources of information

3. DBN V.2 .2-5:2023. Protective structures of civil defense. [Effective from 01-11-2023]. Kyiv, 2023. 131 p.
4. Storozhuk S..Industrial infrastructure: [study guide]. OSACEA Odesa, 2021. 75 p.