Course title	**Architecture of Buildings and Structures (ECTS 4)**
Topic/module code	BIA2404
Semester(s) in which the course is taught	Semesters 2/4
Assigned instructor	Janizaqov Abduvahob Esirgapovich, Associate Professor
Language of instruction	Uzbek
Course type	Compulsory
Study workload (including independent study)	**Total: 120 hours.** **Contact hours: 48.** Lectures: 24 hours Laboratory classes: — Practical classes: 24 hours **Independent study: 72 hours**
ECTS	4
Course aim and objectives / learning outcomes	The aim of teaching this course is to develop students' theoretical foundations of architectural knowledge; to study the characteristics of indoor microclimate formation, the reliability and durability of buildings; and to teach the design of residential, public and industrial buildings in accordance with current construction standards and regulations, while developing the ability to apply this knowledge in practice. The objective of the course is to achieve this aim by developing students' theoretical knowledge and practical skills in the discipline "Architecture of Buildings and Structures", a methodological approach to the building design process, and a scientific worldview. Learning outcomes: 1. Can distinguish the types and specific characteristics of residential, public and industrial buildings and structures; 2. Knows the requirements applicable to residential, public and industrial buildings and structures; 3. Can evaluate the design and structural solutions of residential, public and industrial buildings and structures; 4. Has an understanding of the standards and regulations governing the design of buildings and structures.
Course content (topics)	**I. Main theoretical part (Lectures)** Topic 1. General concepts and reference information on building design. Topic 1. General concepts and reference information on building design. Topic 1. Analysis of residential building typologies. Topic 1. Ground conditions and foundations. Topic 1. External walls and their structural components. Inter-floor floors. Topic 1. Partition walls. Windows and doors. Roofs and the basic requirements for them. Stairs and lifts. Topic 1. Large-block buildings. Design of residential and public buildings in seismic areas. Topic 1. Frame-and-panel buildings. Large-panel buildings. Volumetric-block buildings. Topic 1. Public buildings. Buildings for preschool, general secondary, specialised secondary vocational and higher education. Topic 1. Healthcare and social service buildings. Buildings of health and wellness institutions. Topic 1. Buildings for cultural activities, leisure, entertainment, civil and religious ceremonies, physical education and sports. Topic 1. Design of single-storey and multi-storey industrial buildings.

Topic 1. Structural elements of industrial buildings.

II. Guidelines and recommendations for organising laboratory classes.

Laboratory classes are not included in the standard curriculum for this course.

III. Guidelines and recommendations for practical classes

The instructor's preparation for a practical class begins with studying the initial documents (the curriculum, thematic plan, etc.) and concludes with preparing a lesson plan. The instructor should have a clear understanding of the aims and objectives of the practical class and the amount of work each student is expected to complete.

Methodological guidelines are the instructor's principal methodological document for preparing and conducting practical classes.

The aim of practical classes is to understand theory, acquire practical skills, develop the ability to apply them consciously in educational and professional activities, and confidently formulate one's own point of view.

Recommended practical topics:

1. Familiarisation with regulatory and technical documents. Determining the climatic classifications of construction areas.
2. Typology of residential buildings. Study of planning principles.
3. Arrangement of structural sections. Elevations of residential buildings. Structural solutions for foundations.
4. Structural solutions for beam-supported inter-floor floors. Structural solutions for slab-supported inter-floor floors.
5. Structural solutions for pitched roofs with rafters. Structural solutions for combined roofs. Construction of floors and roof coverings.
6. Connections between building structures in seismic areas. Key features of master plan design.
7. Public buildings. Determining the climatic classification of construction areas. Sanitary and fire-safety requirements for public buildings.
8. Development of functional and technological diagrams of buildings and arrangement of spatial-planning solution diagrams. Features of building design in seismic areas: planning and structural measures.
9. Study of the structural elements of frame buildings. Preparation of installation layout drawings for structural elements.
10. Connecting components and joints of fully prefabricated external walls in frame-and-panel buildings.
11. Design and installation of glazed window and door openings. Floor design. Roofs. Design of roof coverings.
12. Design of commercial buildings. Design of indoor market buildings. Design of entertainment buildings. Design of indoor sports facilities. Design of multifunctional complexes.

IV. Independent study and independent work.

Independent learning competencies support students' self-development and help improve the effectiveness of their professional activities. Students complete independent assignments on their mobile devices under the instructor's guidance, in traditional or electronic form.

Recommended topics for independent study:

1. Energy efficiency and climate change.
2. Environmentally friendly, sustainable and smart architecture.

	3. Climatic and engineering-geological data for design. 4. Determining the climatic classification of the construction area. 5. Analysis of the spatial and planning solutions of residential buildings. 6. Preparation of floor plans. 7. Stairs and lifts. Drawing a stair section. Fire-safety requirements in stair design. 8. Developing and drawing building elevations. 9. Analysis and drawing of foundation plans. 10. Analysis of structural solutions for residential buildings. Selection of structural elements. 11. Types of walls and the main requirements for them. Comparative characteristics of load-bearing and enclosing structures. 12. Construction in seismic areas. Analysis and drawing of inter-floor floors. 13. Analysis and drawing of roofs. Pitched roofs with rafters and roof coverings. Combined roofs and roof coverings. Fire-safety requirements in roof design. 14. Drawing structural details. Preparation of the master plan. Calculation of technical and economic indicators. 15. Management of a smart home.
Student assessment	Students' knowledge is assessed during the semester and through the final assessment, based on the level of mastery of the learning materials (test results, assignments, and written and oral work). Throughout the course "Analysis of Building Structures", students are assessed on a 100-point scale. Of these, 50 points are allocated to continuous and midterm assessment (of these 50 points, 60% is allocated to continuous assessment and independent study, and 40% to midterm assessment), while 50 points are allocated to the final assessment. Students who score fewer than 30 points in total in the continuous and midterm assessments are not admitted to the final examination. A student who scores 30 or more points in the final assessment is considered to have passed the course.
Requirements for admission to examinations	The student must fully master the theoretical and practical concepts related to the topic and be able to present the results of the analysis correctly. The student must complete independent work and the assignments set for the continuous and midterm assessment components. In addition, within the established deadlines, the student must obtain the required points in the continuous assessment, midterm assessment, independent study and final assessment for the relevant course. A student who has not submitted the continuous assessment, midterm assessment and independent study assignments, or who has scored fewer than 30 points for these assignments and assessment components, is not admitted to the final assessment. Furthermore, a student who, without a valid reason, misses 25 percent or more of the contact hours allocated to the course is excluded from the course, is not admitted to the final examination and is considered not to have earned the relevant credits for the course. A student who fails the final examination or scores between 0 and 29.9 points in this examination is considered to have an academic debt.
Recommended reading	**Core literature:** 1.Janizaqov A.E. Binolar tuzilishi tahlili. Darslik. Jizzax, JizPI nashriyoti 2026 y. –243 bet. 2. Janizaqov A.E. Turar-joy binolari arxitekturasi. O'quv qo'llanma. Jizzax, JizPI nashriyoti 2025 y. –185 bet. 3. Miralimov M. M., Sayfiddinov S. — Bino va inshootlar arxitekturasi.

Darslik. Toshkent: TAQI nashriyoti, 2021. – 356 b.
4. Qodirova S. A., Raximov L. Sh. — Arxitekturaviy bionika (Binolar tuzilishi va tabiiy konstruktiv shakllar tahlili). Darslik. Toshkent: O‘qituvchi, 2021. – 173 b.
5. Ching, Francis D. K. — Building Construction Illustrated (Konstruktiv tuzilmalar va bino elementlari tahlili bo‘yicha xalqaro darslik). 6-nashr. Hoboken: John Wiley & Sons, 2020. – 496 p.

Additional literature

4.Mirzayev Sh.R., Voxitov M.M. Me’morchilik. I, II, III–qism. Darslik. Toshkent, 2010 y. –256 b.
5. Janizaqov A.E. Arxitekturaviy konstruksiya. Darslik. Jizzax, JizPI nashriyoti 2024 y. –277 bet.
6.Setmamatov M. B., Abdullayeva Sh. I. — Yashil arxitektura va energiya tejamkorlik. Darslik. Toshkent: Fan va texnologiyalar nashriyoti, 2022. – 180 b.
7. O‘rolov A. S., Mamatmusayev T. Sh. — Arxitektura shakllarini uyg‘unlashtirish va bezash. Darslik. Samarqand: SamDAQI, 2020. – 195 b.
8. Schodek, Daniel & Bechthold, Martin — Structures (Bino va inshootlar konstruktiv tizimlarining muhandislik tahlili). 7-nashr. Boston: Pearson, 2019. – 640 p.

Internet resources

9. www.gov.uz — Government portal of the Republic of Uzbekistan.
10. www.lex.uz — National Database of Legislation of the Republic of Uzbekistan.
11. https://t.me/archbookuz
12. www.ZiyoNet.uz