Course title	Sustainable Architecture (ECTS 6)
Topic/module code	BTT 1304
Semesters in which the course is taught	3/6 semestr
Assigned instructor	Janizaqov Abduvahob Esirgapovich, dotsent
Language of instruction	O‘zbek
Course type	Majburiy
Study hours (including independent study)	**Total hours — 180.** **Classroom hours — 72.** Lecture hours — 24. Laboratory hours — none. Practical class hours — 48. **Independent study — 108 hours.**
ECTS	6
Course aim and objectives / learning outcomes	**The aim of teaching the course** is to form an understanding of the importance of environmental factors in the design of architectural objects, acquire basic knowledge of the means and methods of creating a safe, comfortable, and ecologically viable environment in architecture, and become familiar with the principles of forming “Sustainable Architecture” in architectural and urban planning practice. **The objective of the course** is to study the factors and conditions affecting the sustainability of the architectural environment in different types of buildings and structures; master methods for identifying and evaluating environmental factors that determine the basic principles of designing a sustainable architectural environment; conduct a high-quality pre-design environmental analysis for different types of public and residential spaces; and identify priority tasks based on influencing factors, environmental specifics, and the architecture of the object. **Learning outcomes:** 1. Understand the importance of the “Sustainable Architecture” course in studying specialized disciplines. 2. Become familiar with the basic provisions of energy-efficient construction standards that create comfortable living conditions. 3. Explain the principles and characteristic techniques of designing energy-saving structures. 4. Demonstrate the features of designing buildings with minimal impact on the environment.
Course content (topics)	**I. Main theoretical part (Lectures)** Topic 1. Main directions in the development of sustainable architecture. History of the emergence of the concepts of “sustainable development,” “sustainable construction,” and “sustainable architecture.” Topic 2. The modern image of sustainable architecture. Façade technologies and media architecture. Structural, engineering, and technological solutions in the development of sustainable architecture. Principles of forming sustainable architecture. Strategy for forming eco-sustainable architecture. Energy-saving and energy-efficiency systems and sources in Uzbekistan and foreign countries. Topic 3. Main types of energy-efficient buildings and structures. Topic 4. Architectural environment: structure and characteristics. Human living environment and architecture. System of elements of the architectural environment. Topic 5. Typology of environmental objects. Conditions for forming the architectural environment. Selection of an energy-efficient building form. Orientation. Wind regime. Design of external enclosing structures. Topic 6. Environmental comfort. “Green architecture” and the architectural environment. Energy efficiency of the architectural environment. Topic 7. Intelligent or “smart” building. Bioclimatic architecture. A “healthy” building that has a positive effect on health. An environmentally safe, life-supporting building. Human ecology. Topic 8. Design of environmental objects. Features of environmental

	modeling of interiors. Features of environmental modeling of residential spaces. Topic 9. Main types of building service systems for heating, cooling, and ventilation. Energy-efficient lighting. Energy balance of buildings. Topic 10. Sustainable development of residential buildings and structures. Topic 11. Sustainable development of public buildings and structures. Topic 12. Sustainable development of industrial architecture. **II. Guidelines and Recommendations for Organizing Laboratory Classes.** Laboratory classes are not предусмотрены in the standard curriculum of the subject. **III. Guidelines and Recommendations for Practical Classes** The teacher's preparation for a practical class begins with studying the initial documents (curriculum, thematic plan, etc.) and concludes with preparing the lesson plan. The teacher should have a clear understanding of the aims and objectives of the practical class and the amount of work that each student is expected to complete. Methodological guidelines are the main methodological document used by the teacher in preparing and conducting practical classes. The purpose of practical classes is to understand theory, acquire skills, apply them consciously in educational and professional activities, and develop the ability to formulate and confidently express one's own point of view. **Recommended practical topics:** 1. The Modern Image of Sustainable Architecture. Façade Technologies and Media Architecture. 2. Structural, Engineering, and Technological Solutions in the Development of Sustainable Architecture. 3. Main Types of Energy-Efficient Buildings and Structures. 4. Human Living Environment and Architecture. System of Elements of the Architectural Environment. 5. Typology of Environmental Objects. Conditions for Shaping the Architectural Environment. 6. Selection of an Energy-Efficient Building Form. Orientation. Wind Regime. Design of External Enclosing Structures. 7. "Green Architecture" and the Architectural Environment. Energy Efficiency of the Architectural Environment. 8. Intelligent or "Smart" Building. Bioclimatic Architecture. Health-Promoting ("Healthy") Building. Ecological, Life-Supporting Building. 9. Sustainable Development of Residential Buildings and Structures. 10. Conditions and History of the Mass Construction of Large-Panel Housing. 11. Sustainable Development of Public Buildings and Structures. 12. Sustainable Development of Industrial Architecture. **IV. Independent Study and Independent Work.** The independent learning competency helps students develop themselves independently and contributes to improving the effectiveness of their professional activities. Students complete independent assignments on their mobile devices, under the guidance of the teacher, either in traditional or electronic form. **Independent study of the recommended topics:** 1. Energy Efficiency and Climate Change. 2. Environmentally Friendly, Sustainable, and Smart Architecture. 3. Climatic and Physical-Geological Data for Design. 4. Determining the Climatic Classifications of the Construction District. 5. Theoretical Foundations of Energy Saving and Energy Efficiency of Buildings. 6. Climatic Characteristics. 7. Main Types of Facilities Based on Energy-Efficient and

	Environmentally Friendly Technologies. 8. Selection of an Energy-Efficient Building Form. 9. Building Orientation and Insolation. Wind Regime. 10. Heating, Ventilation, and Air Purification Systems.
Student assessment	Students' knowledge is assessed during the semester and final assessment based on the level of mastery of the teaching materials (test, assignment, written and oral work results). During the "Sustainable Architecture" course, students are assessed on a 100-point scale. Of these, 50 points are allocated to current and midterm assessment (60% of the 50 points for current assessment and independent study, and 40% for midterm assessment), while 50 points are allocated to the final assessment. Students whose combined current and midterm score is below 30 points are not admitted to the final examination. A student who obtains 30 or more points in the final assessment is considered to have successfully completed 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 correctly present the results of analysis. The student must complete the assignments given in independent work and current and midterm assessment. In addition, within the established period, the student must obtain the required number of points from current assessment, midterm assessment, independent study, and final assessment in the relevant course. A student who has not submitted current assessment, midterm assessment, and independent study assignments, or who has scored less than 30 points for these assignments and types of assessment, is not admitted to the final assessment. A student who, without a valid reason, misses 25% or more of the classroom hours allocated to the course is removed 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 literature	**Main literature:** 1. Janizaqov A.E. Analysis of Building Structures. Textbook. Jizzakh, JizPI Publishing House, 2026. — 243 pages. 2. Janizaqov A.E. Architectural Structures. Textbook. Jizzakh, JizPI Publishing House, 2024. — 277 pages. **Additional literature:** 3. Tabunshchikov, Yu.A., Brodach, M.M., Shilkin, N.V. Energy-Efficient Buildings. Moscow: AVOK-PRESS, 2003. — 200 pages. 4. Janizaqov A.E. Architecture of Residential Buildings. Study Guide. Jizzakh, JizPI Publishing House, 2025. — 185 pages. **Internet resources:** 6. www.gov.uz — Government Portal of the Republic of Uzbekistan. 7. www.lex.uz — National Database of Legislation of the Republic of Uzbekistan. 8. https://t.me/archbookuz 9. www.ZiyoNet.uz