Subject name	**Introduction to the course (ECTS 4)**
Topic/module code	YK2304
Science taught semesters	3 semestr
Attached teacher	Rahmonov Navruzbek Ergashevich
Language of instruction	Uzbek
Science type	Selection
Study hours (including independent study)	**Jami soat - 120 .** **Auditoriya mashg‘ulotlari soati - 48.** Ma’ruza mashg‘uloti soati - 24 Amaliy o‘quv soati - 24 **Mustaqil ta’lim -72 soat**
ECTS	4
Aims and objectives of science/ learning outcomes	**The goal of teaching the subject** is to prepare students with a broad range of knowledge in the field of construction and other sectors of the national economy, highly qualified personnel who know the history of the development of architectural forms, construction methods, and the constructive foundations of architecture. The task of the course is to provide students with basic knowledge of the architectural, structural, and technological solutions of buildings and structures, construction structures, construction processes, and modern design technologies, as well as to develop their skills in construction engineering. **Learning Outcomes:** 1. Demonstrate knowledge of the main types of buildings and structures and their structural solutions. 2. Explain the functions of building structures and their interrelationships. 3. Demonstrate an understanding of the fundamental principles of construction structures and construction processes. 4. Demonstrate an understanding of the basic seismic resistance and fire safety requirements for the design of buildings and structures. 5. Demonstrate knowledge of methods for analysing construction processes and technological solutions. 6. Demonstrate an understanding of the advantages of using modern computer technologies to evaluate construction solutions.
Course content (topics)	**I.Main Theoretical Part (Lectures)** **Topic 1:** Introduction. Development of industrial and residential construction in the Republic of Uzbekistan and current challenges facing construction professionals. **Topic 2:** The role, objectives, and tasks of the course “Architecture of Industrial and Civil Buildings. Building Physics” in the training of civil engineers, and general principles of design. **Topic 3:** The role, objectives, and tasks of the course “Assessment of the Technical Condition of Buildings and Structures” in the training of civil engineers. **Topic 4:** The role, objectives, and tasks of the course “Soil Mechanics, Foundations and Footings” in the training of civil engineers. **Topic 5:** The role, objectives, and tasks of the course “Computer Technologies in the Design of Building Structures” in the training of civil engineers. **Topic 6:** The role, objectives, and tasks of the course “Metal Structures” in the training of civil engineers.

Topic 7: The role, objectives, and tasks of the course "Reinforced Concrete and Masonry Structures" in the training of civil engineers.

Topic 8: The role, objectives, and tasks of the course "Timber Structures" in the training of civil engineers.

Topic 9: The role, objectives, and tasks of the course "Construction Process Technology and Construction Machinery" in the training of civil engineers.

Topic 10: The role, objectives, and tasks of the course "Technology of Building and Structure Construction" in the training of civil engineers.

Topic 11: The role, objectives, and tasks of the course "Energy Efficiency Engineering of Buildings" in the training of civil engineers.

Topic 12: The role, objectives, and tasks of the course "Earthquake Resistance of Buildings and Structures" in the training of civil engineers.

II. Guidelines and Recommendations for Practical Classes

The teacher's preparation for practical classes begins with the study of preliminary documents (curriculum, thematic plan, and other relevant materials) and concludes with the preparation of a lesson plan. The teacher should have a clear understanding of the aims and objectives of each practical class, as well as the scope of work to be completed by each student. Methodological guidelines serve as the main instructional document for teachers in preparing and conducting practical classes.

The purpose of practical classes is to develop students' understanding of theoretical knowledge, acquire practical skills, apply this knowledge consciously in academic and professional activities, and develop the ability to formulate and confidently defend their own opinions.

Recommended Topics for Practical Classes:

1. Development of Industrial and Residential Construction in the Republic of Uzbekistan and Current Challenges Facing Construction Professionals.
2. General Information about Buildings and Structures. Classification of Buildings and Structures.
3. Determination of Deformations in Building Structures.
4. General Concepts of Foundations and Requirements for Them.
5. Analysis of a Single-Span Frame.
6. General Concepts of the Design and Analysis of Metal Structures.
7. Basic Physical and Mechanical Properties of Concrete.
8. Timber Structures. Effects of Temperature on Timber Structures.
9. General Information about Construction Machinery.
10. Calculation of Construction Work Quantities and Labour Requirements.
11. Thermal Conductivity of Walls.
12. Factors Improving the Earthquake Resistance of Buildings and Structures.

III. Independent Study and Self-Study

Independent learning competencies help students develop their ability to improve themselves independently and enhance the effectiveness of their professional activities. Students complete independent assignments using their mobile devices, either in traditional or electronic formats, under the guidance of the instructor.

Recommended Topics for Independent Study:

	1. History of Architecture and Construction in Uzbekistan. 2. Construction of Residential and Public Buildings in Uzbekistan. 3. Types of Walls and Their Main Requirements. 4. Frame-Panel Buildings. 5. Loads Acting on Frames. 6. Reinforcement of Reinforced Concrete Structures. 7. Stress-Strain Behaviour of Reinforced Concrete Structures. 8. Design and Analysis of Secondary Beams. 9. Ensuring the Structural Strength and Earthquake Resistance of Historical Monuments. 10. Analysis of Spatial Planning Solutions for Residential Buildings. 11. Analysis of Structural Solutions for Residential Buildings. 12. Frame Elements and Their Reinforcement. 13. Bending and Compression Steel Structures. 14. Behaviour of Steel Under Static Loads. 15. Causes of Emergency Situations in Buildings and Structures.
Student assessment	Students' knowledge is assessed during the semester and final examinations based on the level of mastery of the course materials, including test results, assignments, and written and oral assessments. Throughout the Introduction to the Specialization course, students are assessed on a 100-point grading scale. Of the total score, 50 points are allocated to current and midterm assessments (60% of these 50 points for continuous assessment and independent study, and 40% for midterm assessment), while the remaining 50 points are allocated to the final examination. Students who obtain less than 30 points in the combined current and midterm assessments are not admitted to the final examination. Students who score 30 points or more in the final examination are considered to have successfully completed the course.
Requirements for examinations	Students must demonstrate a full understanding of the theoretical and practical concepts covered in the relevant topics and be able to present the results of their analyses accurately. Students must complete the assignments set as part of independent study and the ongoing and midterm assessment components. In addition, within the prescribed period, students must obtain the required number of points in ongoing assessment, midterm assessment, independent study and the final assessment. A student who has not submitted the ongoing assessment, midterm assessment and independent study assignments, or who has obtained 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% or more of the contact hours allocated to the course will be excluded from the course, will not be admitted to the final examination and will be considered not to have earned the credits assigned to the course. A student who fails the final examination or obtains a score in the range of 0–29.9 points in this examination is considered to have an academic debt.

Recommended reading	**Core literature:** 1. N.A.Asatov Qurilish jarayonlari texnologiyasi – O'quv qo'llanma. Jizzax 2021y. 170 b. 2. N.A.Asatov Bino va inshootlarni barpo etish texnologiyasi. O'quv qo'llanma. Jizzax 2021. 192 b. 3. Ablayeva O'.Sh "Qurilish konstruksiyalari" darslik. Jizzax – 2021 y.196 bet 4. Aliyev M.R. "Bino va inshootlarning texnik holatini baholash " darslik,. Jizzax – 2021 yil 180 b. 5. Matkarimov S.Yu., Asatov N.A., Djurayev U.U., Boymatov A.A., Normatova N.A. "Qurilish konstruksiyalarini loyihalashda kompyuter texnologiyalari". O'quv qo'llanma. Jizzax 2020. 237 bet **Additional literature:** 6. Turar joy binolari. SHNQ 2.08.01.2019. Toshkent .2020 y. 167 b. 7. Seysmik hududlarda qurilish QMQ 2.01.03-26. Toshkent .2026 y. 111 b. **Online resources:** 8. https://www.ziyonet.uz/ 9. Academia.edu