REPUBLIC OF UZBEKISTAN

MINISTRY OF HIGHER EDUCATION, SCIENCE AND INNOVATIONS

FERGANA STATE TECHNICAL UNIVERSITY

Technology of construction of special structures

MODULE HANDBOOK

Field of knowledge: 700000 – Engineering and construction industries

Field of Education: 730 000 - Architecture and construction

Educational program: 60730300 - Civil Engineering

Fergana 2025

Module title	*Technology of construction of special structures*
Code (if available)	*TVSST86*
Semester(s) of module teaching	*8*
Responsible for the module	*Abdullayev Ibroxim Numanovich, Department of Construction Engineering, Doctor of Technical Sciences, Professor.* *Yunusaliyev Elmurad Maxammatyakubovich, Department of Construction Engineering, Doctor of Science (DSc), docent.* *Abdurakhmanov Ulugbek Arabdzhonovich, Department of Construction Engineering, PhD, Senior Lecturer.*
Language of instruction	*Uzbek*
Connection to the curriculum	*Elective*
Teaching methods	*Lecture, practical training, independent study.*
Study load (including classroom and independent study hours)	*Total hours: 180 hours* *Auditorium hours: 72 hours* *Lecture – 22 hours, practical training – 50 hours, independent study – 108 hours*
Credit units	*6*
Required and recommended prior knowledge for studying the module	*Physics, Advanced Mathematics, Strength of Materials, Construction Mechanics and Earthquake Resistance of Structures, Life Safety and Occupational Health, Construction Machinery, Construction Process Technology, etc.*
Module objectives/intended learning outcomes	***The purpose of the module is** to teach bachelor-level specialists the rules for fully considering the requirements of normative documents in the processes of designing, constructing, and utilizing buildings and structures, and to develop their practical skills in applying these requirements in professional practice. Specifically, it involves instructing the fundamentals of designing buildings and structures in seismic regions. This encompasses a comprehensive understanding of the geological and hydrogeological conditions of the construction site, as well as independently selecting and applying the necessary calculations, design principles, volumetric-planning and structural solutions, and estimate documentation to ensure compliance with all requirements during construction, restoration, and operation processes.* *Furthermore, to achieve this objective, the course aims to equip students with theoretical knowledge, practical skills, a methodological approach to construction processes, and a scientific worldview.* *The following requirements are imposed on the knowledge, skills, and competencies of students in the subject.* ***The student must:*** • *Understand the scientific foundations of the technology and organization of the assembly of special structures;* • *Know the organizational and technological principles of assembling special buildings and structures;* • *Possess an understanding of the technological assessment of structural elements of special structures;* • *Be familiar with the technological and structural characteristics of erecting special structures;* • *Have knowledge of the methods for assembling metallurgical*

	facilities, tall and long-span structures, metal reservoirs, and gas holders, and be able to apply them; • *Be able to determine the technical and economic indicators of assembly work projects and evaluate the efficiency of assembly processes performed using continuous-flow and generalized methods;* • *Develop and justify alternative assembly method variants in work execution plans and make final decisions;* • *Possess practical skills in applying assembly technologies and technological preparation specific to special structures;* • *Be capable of measuring work volumes, accepting completed work, controlling their quality, preparing schedules for specific types of construction and installation works, and implementing variant methods of erecting buildings and structures in accordance with individual and complex work categories.*
Content	***Module 1. Organizational and Technological Foundations of Erecting Special Buildings and Structures*** *Introduction to the course "Technology of Constructing Special Structures."* *Technological and structural characteristics of assembling special buildings and structures.* *Organizational and technological preparation.* *Organization of storage facilities for structures and equipment. Temporary buildings at the construction site.* *Comprehensive mechanization of assembly works.* ***Module 2. Assembly of Metallurgical Buildings and Structures*** *Assembly of blast furnace (furnace hearth) and oxygen converter sections.* *Assembly of electric steel melting shop sections.* *Assembly of continuous casting sections for steel production.* *Assembly of rolling mill workshops.* ***Module 3. Assembly of Ultra-High Buildings and Structures*** *General principles and selection of structural schemes.* *Assembly of multi-storey precision buildings.* *Assembly of cooling towers and water pressure towers.* *Assembly of headframe buildings and hoisting platforms..*
Forms of assessment	*Oral presentations, presentations, written assignments, practical tasks, and the final exam.*
Requirements for study and assessment	*To successfully complete the module, the student must attend classes and achieve the minimum required scores in current, mid-term, and final assessments.*
Bibliography	1. *Usmonov F.B. Technology of Construction of Buildings and Structures, Parts 1 and 2. Textbook. Bukhara, 2021.* 2. *2.N. Bozorboyev, Kh.I. Yusupov et al. Technology of Construction of Buildings and Structures, Parts 1 and 2. Textbook. Tashkent, 2014.* 3. *3.R.A. Narov. Technology of Repair and Reconstruction of Buildings and Structures. Study Guide. Tashkent, 2019.* 4. *4.R.A. Narov. Technology of Construction of Underground Parts of Buildings and Structures. Study Guide. Tashkent, 2019.*

	5. *5.M. Mirakhmedov, Kh.I. Yusupov et al. Organization and Planning of Construction. Textbook. Tashkent, 2022.* 6. *6.P.P. Oleynik. Organization of Construction Production during Engineering Preparation of Construction Sites. Methodical Manual, 2018.* 7. *7.N.A. Ponyavina, D.I. Emelyanov. Technology and Organization of Construction Production. 2021.* 8. *8.Kh.I. Yusupov, A.M. Ilmuradov, A.M. Rakhimov et al. Technology of Construction Processes, Part 1. Textbook. Tashkent: Innovation-Zioy, 2021.* 9. *9.Kh.I. Yusupov, R.A. Narov et al. Construction Processes, Technology of Erection of Buildings and Structures, Part 1. Textbook. Tashkent, 2019.* 10. *10.Kh.I. Yusupov, R.A. Narov et al. Construction Processes, Technology of Erection of Buildings and Structures, Part 3. Textbook. Tashkent, 2019.* 11. *11.R.M. Khadzhayev. Cost Management in Construction: Textbook. Tashkent State Technical University, 2022.*
Reviewers	*K.I. Maksimov – docent, Department of Civil Engineering, Fergana State Technical University;* *D.T. Abdukarimov – Head of Gulshan LLC.*