

CITY ENGINEERING INSTALLATIONS

MODULE HANDBOOK

Field of knowledge:	700000	- Engineering, processing and construction industries
Field of education:	730 000	- Arcitecture and construction
Educational program:	60730300	- Civil Engineering

Module title	CITY ENGINEERING INSTALLATIONS
Code, if applicable	MEST84
Semester(s) of module teaching	8
Responsible for the module	<i>Xamitov Rasuljon Xasanjon o'g'li</i>
Language of instruction	<i>Uzbek</i>
Connection to the curriculum	<i>Elective</i>
Teaching methods	<i>practical training, independent learning</i>
Study load (incl. contact hours, self-study hours)	<i>Total hours: 120 hour Auditorium hours: 48 hour practical training – 36 hour, c 72 hour.</i>
Credit units	4
Required and recommended prior knowledge for studying the module	<i>Construction mechanics, Soil mechanics, Construction technology of buildings and structures, Building structures.</i>
Module objectives/intended learning outcomes	Module Objective: <i>The purpose of teaching the subject is to provide students with knowledge about the types, structures, development, basics of their design and calculation of urban engineering structures (transport bridges, sports facilities, tunnels, river embankments, garages, towers, masts, etc.), to form the necessary skills and qualifications in them.</i> <i>The task of the subject is to teach students to use effective types of structures in each specific case based on the knowledge gained during their studies in the field of design and construction of urban engineering structures. After all, the role and function of these structures in the urban infrastructure system is incomparable..</i> <i>Scientific, theoretical and practical issues of the subject are studied through practical exercises, as well as independent learning using educational literature.</i> <i>The following requirements are imposed on the knowledge, skills and qualifications of students in the subject. Student:</i> <i>Within the framework of educational tasks carried out in the process of mastering the subject of urban engineering structures, the bachelor should:</i> <i>Have knowledge and imagination in calculating the tasks and design features of underground and above-ground engineering structures in the city, modern urban structures, transport structures, urban bridges, urban river banks, tunnels, garages and other similar structures by type;</i> <i>Have the skills to calculate transport structures, urban bridges, pedestrian bridges and roads, underground structures, urban river banks, garages, parking lots, sports facilities, reservoirs and water towers, markets, towers and masts, urban engineering structures;</i> <i>Have the skills to use computer programs in the design and calculation of urban engineering structures using the theoretical knowledge obtained.</i>
Content	Module 1. Transport structures. Introduction. <i>Fundamentals of calculation of complex transport structures and bridge elements.</i> <i>Calculation features of devices of wooden, metal and reinforced</i>

	concrete pedestrian bridges. Module 2. Design of urban river embankments. Features of volumetric and architectural solutions of urban river embankments Devices of retaining walls of embankments made of stone concrete and reinforced concrete Fundamentals of calculation and construction of retaining walls of river embankments Natural embankment walls Loads, influences and their sum. Soil pressure on retaining walls Module 3. Parking lots and garages. Calculation and equipment of garages. Equipment of parking lots, loads and calculation methods Calculation of underground and semi-underground garages and parking lots Module 4. Sports facilities and public buildings. Fundamentals of calculation of sports facilities. Principles of calculation of swimming pools. Reinforced concrete, metal and wooden structures of diving towers Features of construction and execution of structures of prestressed reinforced concrete stands Principles of calculation of swimming pools, swimming pools Calculation and equipment of stadium stands Requirements for the volumetric and planning solution of indoor markets Module 5. Towers and masts. Features affecting towers and masts. Determination of conditions for the calculation of tower arches and lattices Selection and verification of sections. Tower assembly joints. Construction and calculation of towers Module 6. Design of metro systems in cities. Railway stations and platforms Tunnels (road, rail, metro, pedestrian) Design of metro systems in cities Surface metro lines: durability of structural systems and structures Underground metro lines: durability of structural systems and structures Underground passages and galleries (for communications) Underwater tunnels: important factors in design, construction and operation
Forms of assesment	oral, presentation, written work, practical assignments, and final exams..
Requirements for study and assessment	To successfully complete the module, the student must attend classes and earn the minimum scores set in the current, midterm, and final assessments.
Bibliography	1. Tursunov S.M., Nazarov A.A. – “Urban engineering structures”, Tashkent, 2017 2. Alekseev A.V., Belov V.V. – “Urban engineering structures”, Moscow, 2015 3. Tashkoziev N. and others – “Building structures” (for secondary specialized and higher education) 4. Solod V.V. - Urban engineering networks and structures, Moscow, 2016

	5. <i>Kamensky S.M. - Transport structures in cities, St. Petersburg, 2018</i> 6. <i>Efimov Yu.A. - Design of urban infrastructure facilities, Moscow, 2020</i>
Reviewers	<i>Q.I. Maksimov - Fergana State Technical University, Associate Professor of the Department of "Civil Engineering";</i> <i>S.M. Mirzababayeva - Associate Professor of the Department of "Civil Engineering" at Fergana State Technical University;</i>