ERAMCA

Co-funded by the Erasmus+ Programme of the European Union

Environmental Risk Assessment and Mitigation on Cultural Heritage assets in Central Asia

ERAMCA

ERASMUS+ CBHE Project nr. 609574

Deliverable D2.1

List of existing curricula close to seismic engineering, hydrogeology, restoration (e.g., civil, building, environmental engineering, architecture, conservation)

Date	Version	Author(s)
12.03.2020	Draft sent to PL	Shuhrat Usmonov
14.03.2020	Final	Shuhrat Usmonov
01.04.2020	Integration of SamSACII bachelors	Shuhrat Usmonov

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1. Introduction

The Task 2.1 includes identifying existing curricula for assessing and mitigating environmental risk. A list of existing curricula for bachelor, master and PhD studies of KPITTU, TTU, TTPU and SamSACII that are close to seismic engineering, hydrogeology, restoration (for example, civil, building, environmental engineering, architecture, conservation) is provided.

1. List of existing curricula close to seismic engineering, hydrogeology, restoration of KPITTU

In Khujand Polytechnic Institute of Tajik Technical University named after academician M.S.Osimi (KPITTU) semester consists of 21 weeks, and classes are held in cycles. There are 20 working days in each cycles - 16 days of classes, the rest are examination and for independent work.

Of the 240 credits of the training program, 219 credits are academic disciplines in three blocks - a block of humanitarian disciplines, a block of natural - scientific disciplines, a block of general professional disciplines, and a block of professional disciplines. 21 credits are intended for educational practice, industrial practice and graduate work of the bachelor.

The Ministry of Education and Science of the Republic of Tajikistan has determined the list of disciplines and their contents, which are mandatory for all undergraduate specialties and their total volume are 66 credits.

In each cycle one discipline is taught with a volume of 6 credits (rarely 2 disciplines of 3 credits each, or 2 disciplines of 4 and 2 credits each).

***Table 1**. 700101 - MANUFACTURE OF CONSTRUCTION PRODUCTS AND STRUCTURES (BACHELOR)*

№	Discipline Name	Credits
Semester 1 (Total 7 disciplines, 31.5 credits)		
1	Foreign language	6
2	Information Technology	6
3	Chemistry	6
4	Mathematics for Engineers	6
5	Physical Culture	1,5
6	The concept of modern science	3
7	Economic theory	3
Semester 2 (Total 7 disciplines, 25.5 credit)		
1	The engineering geodesy	6
2	Mathematics for Engineers	6
3	Tajik language	4
4	Foreign language	2
5	Physical Culture	1,5
6	Cultural studies	3
7	Elective disciplines	3

Table 1 (cont.). *700101 - MANUFACTURE OF CONSTRUCTION PRODUCTS AND STRUCTURES (BACHELOR)*

№	Discipline Name	Credits
	Semester 3 (Total 8 disciplines, 34.5 credits)	
1	History of the Tajik people	6
2	Russian language	6
3	Engineering and computer graphics	6
4	Physical Culture	1,5
5	Construction Materials	3
6	Physics	3
7	Optional classes	3
8	Elective Disciplines	6
	Semester 4 (Total 10 disciplines, 33.5 credits)	
1	Architecture	6
2	Physical Culture	1,5
3	Heat and ventilation	3
4	Engineering geology	3
5	Hydraulics	3
6	Water supply and sewerage	3
7	Production internship	3
8	World civilization	2
9	Elective Disciplines	6+3
	Semester 5 (Total 7 disciplines, 33 credits)	
1	Philosophy	5
2	Mechanical equipment of a construction organization	7
3	Religion	3
4	Law	3
5	Optional classes	3
6	Elective Disciplines	6+6
	Semester 6 (Total 7 disciplines, 30 credits)	
1	Production internship	6
2	Political science	4
3	Sociology	3
4	Design of factories for the production of building materials	8
5	Elective Disciplines	6+1,5+1,5

Table 1 (cont.). *700101 - MANUFACTURE OF CONSTRUCTION PRODUCTS AND STRUCTURES (BACHELOR)*

№	Discipline Name	Credits
	Semester 7 (Total 6 disciplines, 32 credits)	
1	Methodology for the final qualification work	6
2	Processes and devices of technology for the production of building products	6
3	Organization of production and enterprise management	6
4	Culture relationship to the labor market	2
5	Elective Disciplines	6+6
	Semester 8 (Total 6 disciplines, 32 credits)	
1	The technology of concrete, building materials and construction	6
2	Undergraduate practice	9
3	Qualification practice	3
4	Culture relationship to the labor market	2
5	Elective Disciplines	6+6

Table 2. *700201-CIVIL ENGINEERING (BACHELOR)*

№	Discipline Name	Credits
	Semester 1 (Total 11 disciplines, 33.5 credits)	
1	Tajik language	2
2	Foreign language	4
3	Russian language	3
4	Information Technology	3
5	Mathematics for Engineers	6
6	Physics	3
7	Chemistry	3
8	The concept of modern science	3
9	Economic theory	3
10	Physical Culture	1,5
11	Relationship Culture at Universities	2
	Semester 2 (Total 10 disciplines, 33.5 credits)	
1	The engineering geodesy	6
2	Russian language	3
3	Information Technology	3
4	Tajik language	2
5	Foreign language	4
6	Physical Culture	1,5
7	Cultural studies	3
8	Educational practice	3
9	Mathematics for Engineers	6
10	Relationship Culture at Universities	2

Table 2 (cont.). *700201-CIVIL ENGINEERING (BACHELOR)*

№	Discipline Name	Credits
	Semester 3 (Total 9 disciplines, 36.5 credits)	
1	History of the Tajik people	6
2	Engineering and computer graphics	6
3	Construction Materials	6
4	The economic geography of Tajikistan and its demographic basis	3
5	Physical Culture	1,5
6	Foreign engineering languages	3
7	Optional classes	3
8	World civilization	2
9	Elective Disciplines	6
	Semester 4 (Total 9 disciplines, 33.5 credits)	
1	Theoretical mechanics and resistance of materials	6
2	Architecture of low buildings	6
3	Building Physics	6
4	Physical Culture	1,5
5	Ecology	1,5
6	Civil defence	1,5
7	Production internship	3
8	World civilization	2
9	Elective Disciplines	6
	Semester 5 (Total 8 disciplines, 35 credits)	
1	Philosophy	5
2	Architecture of civil and industrial buildings	7
3	Religion	3
4	Law	3
5	Optional classes	3
6	The role of personality in history	2
7	Elective Disciplines	6+6
	Semester 6 (Total 8 disciplines, 32 credits)	
1	Production internship	6
2	Political science	4
3	Sociology	3
4	Reinforced concrete structures	8
5	Logics	1,5
6	Ethics and Aesthetics	1,5
7	The role of personality in history	2
8	Elective Disciplines	6

Table 2 (cont.). *700201-CIVIL ENGINEERING (BACHELOR)*

№	Discipline Name	Credits
	Semester 7 (Total 6 disciplines, 32 credits)	
1	Metal structures and welding	6
2	Methodology for the final qualification work	6
3	Technology of construction production	6
4	Culture relationship to the labor market	2
5	Elective Disciplines	6+6
	Semester 8 (Total 6 disciplines, 32 credits)	
1	Technology for the construction of buildings and structures	6
2	Undergraduate practice	9
3	Qualification practice	3
4	Culture relationship to the labor market	2
5	Elective Disciplines	6+6

Table 3. *57010101-ECOLOGY OF INDUSTRY AND THE RATIONAL USE OF NATURAL RESOURCES (BACHELOR)*

№	Discipline Name	Credits
	Semester 1 (Total 9 disciplines, 33 credits)	
1	Tajik language	2
2	Foreign language	4
3	Russian language	3
4	Information Technology	3
5	Introduction to Environmental Engineering	6
6	Mathematics	6
7	The concept of modern science	3
8	Economic theory	3
9	Physical Culture	3
	Semester 2 (Total 9 disciplines, 33 credits)	
1	Organic chemistry	6
2	Russian language	3
3	Information Technology	3
4	Tajik language	2
5	Foreign language	4
6	Physical Culture	3
7	Cultural studies	3
8	Microbiology	6
9	Educational practice	3

Table 3 (cont.). *57010101-ECOLOGY OF INDUSTRY AND THE RATIONAL USE OF NATURAL RESOURCES (BACHELOR)*

№	Discipline Name	Credits
	Semester 3 (Total 6 disciplines, 30 credits)	
1	History of the Tajik people	6
2	Engineering cartography	6
3	Environmental Engineering	6
4	The economic geography of Tajikistan and its demographic basis	3
5	Qualification project	3
6	Elective Disciplines	6
	Semester 4 (Total 6 disciplines, 30 credits)	
1	Environmental Engineering	6
2	Engineering air cleaning control	6
3	Engineering control of physical pollution	6
4	Production internship	3
5	Elective Disciplines	6+3
	Semester 5 (Total 8 disciplines, 30 credits)	
1	Philosophy	5
2	Qualification project	1
3	Religion	3
4	Law	3
5	Environmental control	6
6	Elective Disciplines	6+6
	Semester 6 (Total 7 disciplines, 30 credits)	
1	Qualification project	2
2	Political science	4
3	Sociology	3
4	Technical control of water purity	6
5	Production internship	6
6	Elective Disciplines	6+3
	Semester 7 (Total 5 disciplines, 30 credits)	
1	Ecological expertise and environmental impact assessment	6
2	Environmental Management and Audit	6
3	Groundwater protection against pollution and depletion	6
4	Elective Disciplines	12
	Semester 8 (Total 5 disciplines, 30 credits)	
1	Soil pollution control	6
2	Drainage network design	3
3	Undergraduate practice	9
4	Elective Disciplines	6+6

***Table 4**. 690101-ARCHITECTURE (BACHELOR)*

№	Discipline Name	Credits
	Semester 1 (Total 7 disciplines, 33 credits)	
1	Foreign language	6
2	Architectural Physics	6
3	Information Technology	6
4	Mathematics	6
5	The concept of modern science	3
6	Economic theory	3
7	Physical Culture	3
	Semester 2 (Total 10 disciplines, 33 credits)	
1	Foreign language for engineers	3
2	Architecture basics	3
3	Painting 1	3
4	Tajik language	4
5	Foreign language	2
6	Physical Culture	3
7	Cultural studies	3
8	Painting 2	6
9	The economic geography of Tajikistan and its demographic basis	3
10	Educational practice	3
	Semester 3 (Total 5 disciplines, 30 credits)	
1	History of the Tajik people	6
2	Russian language	6
3	Painting 3	6
4	Descriptive Geometry and Drawing	6
5	Elective Disciplines	6
	Semester 4 (Total 5 disciplines, 24 credits)	
1	Fundamentals of Surveying and Terrain Planning	6
2	Basics of architectural design	6
3	Architectural and building structures	6
4	Production internship	3
5	Elective Disciplines	3
	Semester 5 (Total 6 disciplines, 30 credits)	
1	Philosophy	5
2	Design of low buildings	7
3	Religion	3
4	Law	3
5	Elective Disciplines	6+6

Table 4 (cont.). *690101-ARCHITECTURE (BACHELOR)*

№	Discipline Name	Credits
	Semester 6 (Total 6 disciplines, 30 credits)	
1	Political science	4
2	Sociology	3
3	Design of settlements	8
4	Production internship	6
5	Elective Disciplines	3+6
	Semester 7 (Total 5 disciplines, 30 credits)	
1	Design of sports facilities	6
2	Service Building Design	6
3	Theory of Architecture and Urban Planning	6
4	Elective Disciplines	6+6
	Semester 8 (Total 5 disciplines, 30 credits)	
1	National Building Constructions	6
2	Fundamentals of Professional Communication and Modeling	6
3	Organization, management and planning in construction	6
4	Elective Disciplines	6+6
	Semester 9 (Total 5 disciplines, 30 credits)	
1	Architectural design of multifunctional buildings	6
2	Design in hot climates and earthquake resistance of buildings	6
3	Methodology for the final qualification work	6
4	Elective Disciplines	6+6
	Semester 10 (Total 5 disciplines, 30 credits)	
1	Metrology, standardization and certification	6
2	Qualification practice	3
3	Undergraduate practice	9
4	Elective Disciplines	6+6

***Table 5**. 700201- CIVIL ENGINEERING (MASTER)*

№	Discipline Name	Credits
	Semester 1 (Total 6 disciplines, 30 credits)	
1	Philosophy and Methodology of Science	4
2	Foreign language	4
3	Building climatology	4
4	Research work	10
5	Engineering Research Methodology	4
6	Elective Disciplines	4
	Semester 2 (Total 8 disciplines, 30 credits)	
1	Pedagogy and Psychology of Higher Education	4
2	Informatics by directions	4
3	Structural Dynamics	4
4	Scientific and pedagogical practice	3
5	Scientific and pedagogical practice (scientific seminar)	3
6	Research work	4
7	Russian language	4
8	Elective Disciplines	4
	Semester 3 (Total 5 disciplines, 26 credits)	
1	The complex impedance materials	4
2	Structural stability and thin-walled spatial structures	4
3	Calculation of buildings and structures taking into account seismic effects	4
4	Research work	10
5	Elective Disciplines	4
	Semester 4 (Total 2 disciplines, 12 credits)	
1	Scientific and pedagogical practice	6
2	Research practice	6

***Table 6**. 700201-08- RENEWABLE ENERGY AND ENERGY SAVING IN CONSTRUCTION (MASTER)*

№	Discipline Name	Credits
	Semester 1 (Total 6 disciplines, 30 credits)	
1	Philosophy and Methodology of Science	4
2	Foreign language	4
3	Building climatology	4
4	Research work	10
5	Engineering Research Methodology	4
6	Elective Disciplines	4
	Semester 2 (Total 8 disciplines, 30 credits)	
1	Pedagogy and Psychology of Higher Education	4
2	Informatics by directions	4
3	Renewable energy sources	4
4	Scientific and pedagogical practice	3
5	Scientific and pedagogical practice (scientific seminar)	3
6	Research work	4
7	Russian language	4
8	Elective Disciplines	4
	Semester 3 (Total 5 disciplines, 26 credits)	
1	Basics of designing energy-efficient buildings	4
2	Energy saving during the reconstruction of buildings	4
3	Thermal protection of buildings	4
4	Research work	10
5	Elective Disciplines	4
	Semester 4 (Total 2 disciplines, 12 credits)	
1	Scientific and pedagogical practice	6
2	Research practice	6

***Table 7**. 6D072900- CONSTRUCTION (DOCTORAL STUDIES PhD)*

№	Discipline Name	Credits
	Semester 1 (Total 7 disciplines, 27 credits)	
1	Teaching Methodology in Higher Schools	1,5
2	Research methodology	1,5
3	Constructive and heat-insulating materials in construction	6
4	Scientific research and laboratory research	6
5	Doctoral dissertation in the specialty	3
6	Elective Disciplines	6+6
	Semester 2 (Total 8 disciplines, 30 credits)	
1	Modern methods of computer modeling of building structures	6
2	Scientific research and laboratory research	3
3	Doctoral dissertation in the specialty	6
4	Pedagogical practice	3
5	Elective Disciplines	3+3+3+3
	Semester 3 (Total 3 disciplines, 30 credits)	
1	Scientific research and laboratory research	15
2	Execution of doctoral theses in the specialty	12
3	Pedagogical practice	3
	Semester 4 (Total 3 disciplines, 30 credits)	
1	Scientific research and laboratory research	18
2	Doctoral dissertation in the specialty	6
3	Professional practice (scientific)	6
	Semester 5 (Total 3 disciplines, 30 credits)	
1	Scientific research and laboratory research	21
2	Pedagogical practice	3
3	Professional practice (scientific)	6
	Semester 6 (Total 2 disciplines, 27 credits)	
1	Scientific research and laboratory research	9
2	Doctoral dissertation in the specialty	18

2. List of existing curricula close to seismic engineering, hydrogeology, restoration of TTU

***Table 8**. 690101-ARCHITECTURE (BACHELOR)*

№	Discipline Name	Credits
	Semester 1 (Total 7 disciplines, 30 credits)	
1	History of the Tajik people	6
2	Foreign language	3
3	Russian Language	6
4	Mathematics	6
5	Painting-1	3
6	Fundamentals of Architectural Design	3
7	Fundamentals of Architecture	3
	Semester 2 (Total 8 disciplines, 30 credits)	
1	Tajik language	4
2	Foreign language	5
3	Information technology	3
4	Fundamentals of Geodesy and Local Design	6
5	Descriptive geometry and design	3
6	Painting-1	3
7	Fundamentals of Architectural Design	3
8	Educational Practice (Architecture and Geodesy)	3
	Semester 3 (Total 9 disciplines, 30 credits)	
1	Sociology	3
2	Law	3
3	Cultural studies	3
4	The geography of Tajikistan with its demographic basis	3
5	Information technology	3
6	Descriptive geometry and design	3
7	Painting-1	6
8	Architectural Design	6
9	Elective Disciplines	6
	Semester 4 (Total 7 disciplines, 30 credits)	
1	Philosophy	5
2	Political science	4
3	Religious studies	3
4	The Concept of Modern Naturalism	3
5	Painting-1	6
6	Architectural Design	6
7	Elective Disciplines	3

Table 8 (cont.). *690101-ARCHITECTURE (BACHELOR)*

№	Discipline Name	Credits
	Semester 5 (Total 5 disciplines, 24 credits)	
1	Architectural Design	9
2	Interior and office equipment	6
3	Elective Disciplines	3+3+3
	Semester 6 (Total 6 disciplines, 30 credits)	
1	Architectural and construction designs	6
2	Architectural Design	9
3	Elective Disciplines	15
	Semester 7 (Total 6 disciplines, 30 credits)	
1	Designer (Passenger)	6
2	Architectural Design	6
3	Restoration of Architectural Monuments (Restoration)	3
4	Elective Disciplines	9+6
	Semester 8 (Total 6 disciplines, 30 credits)	
1	Economic Theory	3
2	Designer (Passenger)	6
3	Architectural Design	9
4	Production internship	3
5	Elective Disciplines	6+3
	Semester 9 (Total 5 disciplines, 30 credits)	
1	Architectural Design	9
2	Designing of urban development taking into account the historical and architectural heritage	6
4	Elective Disciplines	9+6
	Semester 10 (Total 6 disciplines, 30 credits)	
1	Rural Environment Architecture	3
2	Architectural Designer	6
3	Renovation of buildings and structures	3
4	Pre-diploma internship	6
5	Elective Disciplines	6+6

3. List of existing curricula close to seismic engineering, hydrogeology, restoration of TTPU

Turin Polytechnic University in Tashkent (TTPU) officially was established in April 2009. In present, over 1500 students are studying on accredited undergraduate (BS) programs (ECTS system) at four departments and two graduate (Master's) program.

The university have 3 departments: "Mechanical and Aerospace Engineering" (ME), "Civil Engineering and Architecture" (CIA) and "Information Technologies and Automatic Control System in Industry" (IT) and also in two specialties of the Master's program: "Mechanical Engineering" and "Mechatronics".

"Civil Engineering and Architecture" (CIE) department was established on 1st of March, 2018. Courses related to the ERAMCA project are belong to this department. In TTPU, a bachelor's degree is a four-year undergraduate degree.

***Table 9**. TTPU - BACHELOR*

№	Disciplines	Credits
Courses for 1st year **(Preparatory Level) bachelor students, 66 Credits**		
1	Mathematics	10
2	Chemistry	9
3	Physics	8
4	Drawing	6
5	Computer Science	5
6	English language (Technical)	18
7	History of Uzbekistan	4
8	Constitution of Republic of Uzbekistan	2
9	Economics	4
10	Russian Language	
11	Physical training	
Courses for 2nd year **– First level, 60 Credits**		
1	Mathematical Analysis I	10
2	Chemistry	8
3	Physics I	10
4	Linear Algebra and Geometry	10
5	Computer Science	8
6	Mathematical analysis II	8
7	Drawing	6
8	English language	
9	Italian/French language	

Table 9 (cont.). *TTPU - BACHELOR*

№	Discipline Name	Credits
	Courses for 3rd year – **Second level, 60 Credits**	
1	Physics II	6
2	Structural mechanics	12
3	Fundamentals of Engineering Thermodynamics and heat transfer	8
4	Geology / Safety and civil protection	8
5	Analytical Mechanics	8
6	Statistical Methods for Engineering	4
7	Science and technology of materials	6
8	Land surveying	8
	Courses for 4th year – **Third level, 60 Credits**	
1	Fluid mechanics	10
2	Transportation system and infrastructures	10
3	Geotechnics	10
4	Structural Engineering	10
5	Numerical Methods for Engineering	4
6	Selective course	6
7	Final Project	10
8	Internship	10
	Total	60
	Total by ECTS	**180**

Elective courses for 4th year CIE students and all selective courses are six credits:

1. Environmental management engineering for industrial activities
2. Introduction to geographic information system
3. Testing agricultural techniques and technologies

After spring semester, 4th year student should select final project or internship. At the end of the 4th year, after completing the final project or internship, student should gather at least 180 credits to get the diploma. 1 credit consist of 7 lessons (Lessons could be lecture, practice and laboratory). One lesson is 80 minute.

Each academic year consist of fall and spring semesters. Fall semester starts around 9th September and ends 21st of December. Spring semester starts around 24th of February and ends 11th of July. CIE department has more than 100 students.

4. List of existing curricula close to seismic engineering, hydrogeology, restoration of SamSACII

Based on the educational plan the higher educational institution develops the working curriculum annually. In this case, a higher education institution is entitled to change up to 10% of the block's content, while maintaining a weekly student load. Composition of competitive disciplines is formed based on author's courses and problem reports of leading national and foreign experts in the field, based on the latest achievements of science, economics and technology, as well as the needs of personnel.

Practical training and laboratory work in the specialty disciplines included in the curriculum are conducted in higher educational institutions and basic organizations and enterprises. Undergraduate research internships are conducted at basic organizations and enterprises to ensure the integrity of theory and practice.

The curriculum was developed based on the Standard Curriculum approved by the Ministry of Higher and Secondary Special Education on August 25, 2018.

***Table 10**. 5340100- ARCHITECTURE (BACHELOR)*

№	Discipline Name	Credits
Semester 1 (Total 9 disciplines, 30 credits)		
1	Uzbek language	3
2	Foreign language	4
3	Freehand Drawing	4
4	Foundations of Design	4
5	Mathematics	4
6	History of Uzbekistan	3
7	Descriptive Geometry and Engineering Graphics	4
8	Physical Culture	2
9	Elective Disciplines	2
Semester 2 (Total 9 disciplines, 30 credits)		
1	Foundations of Design	6
2	Russian language	2
3	Information Technology	4
4	Foreign language	4
5	Physical Culture	2
6	Freehand Drawing	4
7	Descriptive Geometry and Engineering Graphics	2
8	Engineering Geodesy	2
9	Philosophy	4

Table 10 (cont.). *5340100- ARCHITECTURE (BACHELOR)*

№	Discipline Name	Credits
	Semester 3 (Total 9 disciplines, 30 credits)	
1	Foundations of Design	5
2	Information technology	2
3	Construction Materials	4
4	Computer graphics	4
5	Freehand Drawing	4
6	Foreign languages	2
7	Strategy of Development. Civil society.	3
8	History of Architecture	2
9	Engineering mechanics	4
	Semester 4 (Total 7 disciplines, 30 credits)	
1	Computer graphics	4
2	Architectural Physics	4
3	Architectural Constructions	4
4	History of Architecture	4
5	Architectural Design 1	8
6	Typology of Buildings	4
7	Foreign languages	2
	Semester 5 (Total 7 disciplines, 30 credits)	
1	Foreign languages	2
2	Architectural Design 2	6
3	History of Architecture	4
4	Construction technologies	4
5	Engineering constructions	4
6	Computer graphics	6
7	Interior Design	4
	Semester 6 (Total 8 disciplines, 30 credits)	
1	Foreign languages	2
2	Engineering Improvement and Transport	4
3	Engineering constructions	4
4	Engineering facilities of buildings	4
5	Architectural Design 3	6
6	Interior Design	4
8	Elective Disciplines	6

Table 10 (cont.). *5340100- ARCHITECTURE (BACHELOR)*

№	Discipline Name	Credits
	Semester 7 (Total 7 disciplines, 30 credits)	
1	Engineering Improvement and Transport	4
2	Architectural Design 4	6
3	Restoration and Reconstruction of Architectural Monuments	4
4	Urban Design	6
5	Design of Social Spaces	4
6	Elective Disciplines (2)	6
	Semester 8 (Total 6 disciplines, 30 credits)	
1	Urban Design	6
2	Restoration and Reconstruction of Architectural Monuments	6
3	Urban Design	6
4	Design of Social Spaces	6
5	Elective Disciplines (2)	6
	Semester 9 (Total 4 disciplines, 30 credits)	
1	Restoration and Reconstruction of Architectural Monuments	12
2	Design of Social Spaces	12
3	Elective Disciplines (2)	8

Table 11. 5340200-CIVIL ENGINEERING (BACHELOR)

№	Discipline Name	Credits
	Semester 1 (Total 10 disciplines, 32 credits)	
1	Uzbek language	2
2	Foreign language	4
3	Russian language	3
4	Information Technology	4
5	Mathematics for Engineers	4
6	Physics	3
7	Chemistry	3
8	History of Uzbekistan	3
9	Descriptive Geometry and Engineering Graphics	4
10	Physical Culture	2
	Semester 2 (Total 10 disciplines, 32 credits)	
1	The engineering mechanics	4
2	Russian language	3
3	Information Technology	3
4	Uzbek language	2
5	Foreign language	3
6	Physical Culture	2
7	Physics	3
8	Descriptive Geometry and Engineering Graphics	4
9	Mathematics for Engineers	4
10	Philosophy	4
	Semester 3 (Total 9 disciplines, 32 credits)	
1	Strategy of Development. Civil society.	3
2	Information technology and computer graphics	4
3	Construction Materials	4
4	Engineering Geodesy	2
5	Mathematics for Engineers	4
6	Foreign engineering languages	3
7	The engineering geodesy	4
8	Architecture of buildings	4
9	Engineering mechanics	4

Table 11 (cont.). *5340200-CIVIL ENGINEERING (BACHELOR)*

№	Discipline Name	Credits
Semester 4 (Total 9 disciplines, 32 credits)		
1	Engineering mechanics	4
2	Architecture of civil and industrial buildings	4
3	Engineering Geodesy	2
4	Engineering facilities of buildings	4
5	Timber constructions	4
6	Construction Machines and Technologies	4
7	Construction Materials	4
8	Foreign engineering languages	2
9	Engineering Geology	4
Semester 5 (Total 7 disciplines, 32 credits)		
1	Foreign engineering languages	2
2	Architecture of civil and industrial buildings	4
3	Engineering mechanics	4
4	Building information modelling technologies	4
5	Metal constructions	4
6	Construction Machines and Technologies	6
7	Elective Disciplines	8
Semester 6 (Total 8 disciplines, 32 credits)		
1	Foreign engineering languages	2
2	Building information modelling technologies	4
3	Engineering mechanics	4
4	Reinforced concrete structures	6
5	Metal constructions	4
6	Technology of construction industry	6
8	Elective Disciplines	6
Semester 7 (Total 7 disciplines, 30 credits)		
1	Energy efficiency of buildings	4
2	Assessment of buildings technical conditions	4
3	Economics of Civil Engineering	4
4	Mechanics of Soils and Foundations	4
5	Organization and Governing of Civil Engineering	4
6	Reinforced concrete structures	6
7	Elective Disciplines	4

***Table 11 (cont.)**. 5340200-CIVIL ENGINEERING (BACHELOR)*

№	Discipline Name	Credits
	Semester 8 (Total 7 disciplines, 30 credits)	
1	Energy efficiency of buildings	4
2	Assessment of buildings technical conditions	4
3	Management of Civil Engineering	4
4	Mechanics of Soils and Foundations	4
5	Organization and Governing of Civil Engineering	4
6	Seismic resistance of Buildings	4
7	Elective Disciplines	6

***Table 12**. 5434010 - THEORY AND HISTORY OF ARCHITECTURE, RESTORATION OF ARCHITECTURAL MONUMENTS (MASTER)*

№	Discipline Name	Credits
	Semester 1 (Total 8 disciplines, 30 credits)	
1	Research methodology	2
2	Practical foreign language	2
3	Architectural monuments of Uzbekistan	4
4	Scientific basis for the revival of historical city centers	4
5	Harmonizing and decorating architectural forms	4
6	The scientific-research and scientific-pedagogical work, the preparation of a master's thesis	8
7	Scientific activity	2
8	Elective Disciplines	4
	Semester 2 (Total 7 disciplines, 30 credits)	
1	Practical foreign language	2
2	Architectural monuments of Uzbekistan	4
3	Scientific basis for the revival of historical city centers	4
4	Harmonizing and decorating architectural forms	4
5	The scientific-research and scientific-pedagogical work, the preparation of a master's thesis	8
6	Scientific activity	2
7	Elective Disciplines	6
	Semester 3 (Total 5 disciplines, 30 credits)	
1	Methods of teaching special subjects	2
2	Reconstruction and use of Architectural Monuments	4
3	The scientific-research and scientific-pedagogical work, the preparation of a master's thesis	16
4	Scientific activity	4
5	Elective Disciplines	4
	Semester 4 (Total 1 disciplines, 30 credits)	
1	Preparation of Master's thesis on research and scientific-pedagogical work	30