

Civil Engineering

Peter the Great St. Petersburg Polytechnic University

Degree or qualification is awarded: **Master of Civil Engineering**

Language of study: **Russian**

Mode of study: **full-time, extramural**

Duration: **2 years**

Availability of free education: **yes**

Price: **224 400 - 234 600 RUB per year**

Programme curator: **Mr. Mikhail Romanov**

Tel.: **+ 7 (812) 297-59-28**

E-mail: rom@spbstu.ru

The program provides profound knowledge, pertinent experience and practical skills in the field of Civil Engineering in the key subjects of structural, geotechnical and hydraulic engineering, project management and design, energy efficient technologies and solutions; building information modeling (BIM skills), capital investment planning.

Specializations within this programme

Organization and management of investment and construction projects

The program focuses on training highly qualified specialists of industrial and civil construction, design, ensuring design and working documents, including the use of universal and specialized software and computer systems, CAD systems of buildings and structures. The teaching staff consists of highly qualified specialists with longstanding scientific and practical experience in the design and construction. Teaching and laboratory facilities equipped with the necessary specialized equipment, it provides support for a master's publishing activity. In order to improve the international competitiveness of graduates a significant amount of study time allotted to learning English. Compulsory profile disciplines: Technology and organization of design, Special course on technology of erection of buildings, Buildings and structures of reinforced concrete, Scientific problems in the construction economy, Modern problems of construction science, engineering and technology. After graduation an alumnus has the necessary professional competences allowing employment in construction companies, design and research institutes, municipal organizations and institutions of public service, as well as in educational organizations.

Design and calculation of buildings and structures

The program prepares highly qualified specialists ready to self-development, self-realization, using creative potential and actions in unusual situations. It provides team leadership skills in their professional activities, considering with tolerance social, ethnic, religious and cultural differences. A graduate can use the depth theoretical and practical knowledge some of which is an advanced branch of science. By means of information technology, they can acquire and use off one's own bat a new knowledge and skills, including new areas of knowledge that are not directly related to the scope of activities to expand and deepen their scientific outlook. Teaching and laboratory facilities equipped with the necessary specialized equipment, it provides support for a master's publishing activity. In order to improve the international competitiveness of graduates a significant amount of study time allotted to learning English. Compulsory profile disciplines: Technology and organization of design, Special course on technology of erection of buildings, Modern problems of construction science, engineering and technology, Theoretical basis of structural dynamics, Automation of architectural and structural design, Computer technology in economics of industry, Automation of organizational and technological design. After graduation an alumnus has the necessary professional competences allowing employment in construction companies, design and research institutes, municipal organizations and institutions of public service, as well as in educational organizations.

Civil Engineering and Urban Planning

The goal of the program is preparing masters in "Construction" for professional activity in all sectors of urban development and management.

The training is based on the implementation of research and practice-oriented work under the guidance of highly qualified supervisors, including top-rated universities of the world. Teaching and laboratory facilities equipped with the necessary specialized equipment, supported the publication activities of the master. With the aim of increasing the international competitiveness of graduates a significant amount of teaching time devoted to learning English. Upon completion of training, graduates possess the necessary professional competencies that enable employment in construction organizations and institutions of housing and communal services, design and scientific research institutions, municipal organizations and institutions of the public service profile, as well as in educational institutions. Main profile subjects: Urban planning and architectural design. Planning, development and reconstruction of city areas. Urban Economics. Energy resources saving in construction and municipal services. Repair and service of municipal objects. Improvement of municipal services. Municipal administration and social planning.

Environmental Engineering in urban construction (in English)

The goal of the program - training of masters in the direction of "Construction" for professional activities to provide environmental engineering in urban construction and municipal economy. The training is based on the implementation of research and practice-oriented work under the guidance of highly qualified supervisors, including top-rated universities of the world. Teaching and laboratory facilities equipped with the necessary specialized equipment, supported the publication activities of the master. With the aim of increasing the international competitiveness of graduates a significant amount of teaching time devoted to learning English. Upon completion of training, graduates possess the necessary professional competencies that enable employment in construction organizations and institutions of housing and communal services, design and scientific research institutions, municipal organizations and institutions of the public service profile, as well as in educational institutions. Main profile subjects: physical and chemical foundation of environmental protection. Colloid-chemical bases of environmental protection. Technologies and equipment for monitoring and protection of water systems. Technologies and equipment for water monitoring systems. Urban water supply and canalization. Methods and technologies of purification of waste water. Waste management. Management and regulation in the construction industry. Sustainable management and protection of water resources.

Engineering systems of buildings and structures

The program is aimed at training high-level specialists in the field of research and design and working documentation of engineering systems of buildings and structures. The program is designed for target preparation (in cooperation with foreign partner universities) managers and specialists in the field of engineering systems of buildings and structures. In connection with the increase of energy efficiency requirements, safety and manufacturability buildings, structures and their complexes, at the design stage and construction should be implemented by the latest solutions and technology for device engineering networks and systems. In recent times in engineering maintenance of buildings and structures actively developed both in the field of automation engineering and in the field of engineering equipment for systems of heat supply and heating, ventilation, air conditioning and air purification, water supply and sanitation. The program is aimed at training managers and leading specialists of constructional and design companies, specializing in the design and device engineering networks and systems, the respective heads of departments, chief project engineers, leading designers of engineering networks and systems.

- Construction and operation of hydraulic structures

The program is aimed at training highly qualified specialists in the field of hydrotechnical construction for the main types of production activities: designing, using computational substantiation of the adopted technical solutions are universal and specialized software complexes, computer aided design, structures, surveys and research operation of structures. Training integrated with leading design and research organizations of JSC "RusHydro", etc. The leading specialists of JSC "Lengidroproekt", JSC "VNIIG im. B. E. Vedeneeva" etc are invited to give lectures. Students make presentations on course projects and final qualifying works at scientific conferences; participate in grant competitions and Olympiads on specialties. The study of new information technologies for hydraulic design of hydropower facilities and evaluating their security in particular:

- preparation of three-dimensional solid geometric models of river and marine structures in a 3D environment AutoCAD, estimation the inertial characteristics of the designed object;
- preparation of three-dimensional geometric surface models of river and marine structures in a 3D environment of AutoCAD and transfer them to other software systems for performing calculations;
- preparation of three-dimensional models of the terrain in the environment of Civil 3D design work for land

management in this software environment, preparation of master plans, design of roads and other infrastructures;

- mathematical modeling of hydraulic behavior of hydropower projects in the environment of Anchored Structures, the calculation of the external loads on the structure from wind, current, waves, ice; the study of the behavior of objects under natural stress conditions and survival;
- modeling of the stress-strain state of structures hydraulic engineering hydropower facilities with the help of finite element analysis using ANSYS software, the use of a program complex for solving problems of continuum mechanics; – use virtual environment moodle for more information and for communication between teachers and students.

Graduates are prepared for research activities to experimental and theoretical scientific research in the field of hydrotechnical construction and other sectors related to construction.

Highway, bridges and tunnels

The program is aimed at the preparation of the specialists in the field of survey, design, building and exploitation of the automobile roads, bridges and vehicle tunnels, calculative design and working documentation provision, including those with the use of basic and specialized program complexes and systems of automated design of transport infrastructure and building management. Study education according to norms is 2 years on the intramural basis and 2-2,5 years on the ex-tramural basis. The education is held on the budget and contract terms. The admission is based on the entrance examination results. Targeted recruitment is possible. The entering student must have a degree not lower than a bachelor: on the direction of construction or technical and economic direction, provided that a student had the experience of at least 3 years of working on the construction company.