ST. PETERSBURG STATE MARINE TECHNICAL UNIVERSITY

SAINT PETERSBURG – NAVAL CAPITAL OF RUSSIA AND EUROPE

Saint Petersburg was founded in 1703 by Tsar Peter the Great. It is located on the banks of the Neva River and Finland Gulf of the Baltic Sea. The city's coat of arms is the heraldic red shield with a field featuring two silver anchors – the Sea anchor and the River anchor.

Saint Petersburg is the administrative center of the Northwestern Federal District of the Russian Federation with the population over 5 million people.
Nowadays the city is cultural and educational, scientific and industrial center of Russia, a major transportation hub in Europe.

St. Petersburg brings together 60 academic institutes and scientific research institutions of the Russian Academy of Sciences. There are more than 70 leading public and private Universities and 250 research institutes and centers in the city.

The main economic sectors of St. Petersburg are industry and tourism. One of the leading industrial sectors is shipbuilding. The city hosts leading shipbuilding and naval engineering design and research institutes and industrial enterprises.

Saint Petersburg is one of the most beautiful cities in the world with numerous museums, theaters, historical and cultural monuments, which attract students and millions of tourists from all over the world.

RECTOR'S WELCOME

Gleb A. TURICHIN,
Rector
Doctor of Technical Sciences, Professor

Since its foundation, Saint Petersburg State Marine Technical University (SMTU) has been training highly qualified engineers keen on fundamental science and eager to make the shipbuilding and marine technologies better, safer and meeting demands of time and society.

Nowadays, that spirit still guides the educational process and developing new digital learning technologies to make SMTU accessible for students from around the world.

We proudly keep tradition of integration fundamental sciences and state-of-the art engineering approaches in education, science and industry. The result of such integration is the emergence of new competitive technologies, design and construction solutions in shipbuilding and marine equipment, and launching of new departments, such as IT, technosphere safety, ocean engineering, which are of high demand in the world economy.

Our efforts are aimed to development and modernization of SMTU as a leader in marine scientific research, shipbuilding technologies and world-class science-based innovations. The University does its best for our students to obtain a professional education and live a life full of interesting and important events.

Our University is used to have popular and well-known informal name of "Korabelka". In Russian the word "ship" sounds as "korabel", which is also relative to Spanish "carabel" or French "caravelle." Thus, SMTU is like a fearless ship keeps moving forward with innovative technologies and design approaches to new achievements.

SMTU HISTORY

The history of the University goes back to 1902, when the Polytechnic Institute was founded in Saint Petersburg, where the first in Russia Shipbuilding Faculty was established.

In 1930 the Shipbuilding Faculty was transformed into the institution of higher education named the Leningrad (former name of St. Petersburg) Shipbuilding Institute (LKI in Russian).

LKI made a major contribution to the establishment of the Soviet Navy and strengthening the defense of the USSR. During the World War II, after the announcement of the nation-wide mobilization, the LKI Rector Ivan I. Yakovlev became one of the first Institute's volunteers and 1200 students followed him. Detachments of local air defense and a special machine-gun squadron were formed of students and teachers of the Institute. Many of those who stayed in the Sieged Leningrad city had died of starvation and bombing.

World War II showed that many pre-war concepts in shipbuilding had to be updated or fully replaced. Mainly, the shipbuilding industry became focused on construction of advanced navigation, submarines, and military equipping of all vessels. A new Instrumentation Faculty was established. LKI graduates were actively employed by famous Soviet design bureaus and shipbuilding enterprises. They were playing the key role in the establishment of the Russian Ocean fleet.

LKI high educational standards combined with profound fundamental education and science allowed the Institute to be one of the first five technical schools of higher education in Russia to obtain the status of a Technical University which was granted in 1990.

In 1992, the University received its present name of Saint Petersburg State Marine Technical University (SMTU).

During the 90 years of LKI – SMTU

history, more than 60 thousand highly qualified specialists have been trained. The list of alumni includes the world-known Russian and foreign scholars, academicians, ministers, CEOs of leading enterprises, engineers and chief designers of marine and naval equipment.

SMTU TODAY

Saint Petersburg State Marine Technical University is in vanguard of naval shipbuilding in Russia and one of recognized world leaders in shipbuilding and ocean engineering educational and scientific center.

SMTU graduates are employed at numerous shipyards of the Russian Federation and shipbuilding enterprises abroad. It is hardly possible to find a technologically advanced domestic naval and civil ship, which our graduates would not have contributed to.

University is a founder of Consortium of Russian leading Universities and scientific organizations in shipbuilding industry; a member of Consortium of Aerospace Universities of Russia; an educational and scientific hub of the Russian Hydrogen Consortium; a partner of Pan Asian Association of Maritime Engineering Societies and Institute of Marine Engineering, Science and Technology, others.

The University includes more than 50 scientific departments and laboratories, research facilities.

6 Faculties:

- **Faculty of Shipbuilding and Ocean Engineering**
- **Faculty of Ship Power Engineering and Automation**
- **Faculty of Marine Instrumentation,**
- **Faculty of Digital Industrial Technologies,**
- **Faculty of Engineering and Economics,**
- **Faculty of Natural Science and Humanities Education**

THE MAIN DIRECTIONS OF SCIENTIFIC AND EDUCATIONAL ACTIVITIES:

- design, construction and repair of ships, platforms, equipment and structures
- marine and offshore engineering
- marine robotics
- digital industrial technologies
- laser and welding technologies
- technologies for the development of Arctic resources
- methods and technical means of studying and developing the World Ocean
- ecology and environmental protection, other.

Faculty of Shipbuilding and Ocean Engineering

The Faculty of Shipbuilding and Ocean Engineering (FSOE) is the oldest and leading faculty of the St. Petersburg State Marine Technical University.

The faculty trains specialists in the field of design, construction and technical operation of maritime civil vessels of various purposes, surface and underwater ships of all classes, ocean engineering facilities for exploration of the World Ocean, exploration and production of oil, gas and other minerals on the seabed. The faculty also trains specialists in welding technology, materials science, process engineers, research engineers in the field of hydro-aerodynamics and strength, engineers, mathematicians and programmers, specialists in the development and application of modern information technologies.

TECHNICAL FACILITIES OF THE FACULTY

SHIP THEORY UNIT:

- Experimental Pool - 100*25*6 m (where tests of the submersible model as well as towing and sea trials are conducted)
- Ship model workshop - 25*25*25 m, machines for ship model making; store of ship models
- Laboratory of ship statics (small pool, ship model workshop).

HYDRODYNAMICS UNIT:

- Hydrodynamics (cavitation) tunnel, workshop
- Aerodynamic/wind tunnel
- Aerodynamic stand.

VESSEL DESIGN AND TECHNICAL OPERATION UNIT:

- Laboratory of Computer Aided Design of Ship Constructions.

STRUCTURAL MECHANICS AND SHIP'S STRENGTH UNIT:

- Composite materials laboratory (chemical workshops, testing machines);
- Laboratory of Strength of Ship Constructions (testing machines, facilities for electrotensometry).

OCEAN ENGINEERING AND MARINE TECHNOLOGIES UNIT:

- Laboratory for studying ice properties and ice strength (refrigerators, machines, etc.).

WELDING OF SHIP STRUCTURES UNIT:

- Welding and surfacing training laboratory (modern equipment for arc, plasma, gas-flame and mechanical treatment of materials, equipment for electronic data recording and processing are used in laboratory work).

DEPARTMENTS

- Department of Ship Theory
- Department of Hydroaeromechanics and Marine Acoustics
- Department of Design and Technical Operation of Ships
- Department of Ocean Engineering and Marine Technologies
- Department of Ship Design
- Department of Welding of Ship Structures
- Department of Ship Mechanics
- Department of Shipbuilding Technology
- Department of Theoretical Mechanics and Materials Strength
- Department of Materials Science and Materials Technology

SUBDIVISIONS

- STUDENT DESIGN WORKSHOP
- YACHTING CLUB WITH CRUISER AND SPORT YACHTS.

Faculty of Ship Power Engineering and Automation

Modern ships and vessels are the most complicated engineering systems, where the central place is taken by automated power plants. Training of engineers at the Faculty is based on studying laws of nature, calculation methods, designing methods and skills, mastering of production and technological activity in the field of ship power plants based on turbines, internal combustion engines, nuclear and hydrogen installations.

Educational programs are based on knowledge and practical use of basic provisions of system analysis, materials science, thermodynamics, aerodynamics, fluid mechanics, solid mechanics, methods of mathematical modeling, theory of experiment.

Much attention is paid to studying modern systems of ship electrical engineering, information systems, diagnostics and automatic control of complex engineering constructions.

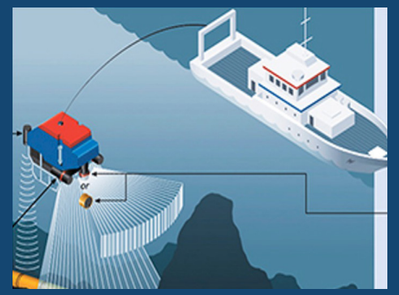
The faculty laboratories provide an opportunity to visualize the operation of special facilities. Full-size internal combustion engines, diesel generators and diesel-compressors are installed and maintained in the laboratory. And one of the diesels belongs to the type of the most widespread engines on modern Russian submarines. The laboratory also has diesel engine of diesel locomotive type, equipment for scientific and educational works on studying the working process, unique laboratory equipment for the study of fuel supply.

DEPARTMENTS

- Department of Ship Automation and Measurements
- Department of Machine Parts and Hoisting and Transport Mechanisms
- Department of Ship Internal Combustion Engines and Diesel Engines
- Department of Shipbuilding Technology
- Department of Ship Turbines and Turbine Units
- Department of Power Engineering
- Department of Thermophysical Foundations of Ship Power Engineering
- Department of Electrical and Electrical Equipment of Ships
- Department of Ship Power Installations, Systems and Equipment
- Department of Ecology of Industrial Zones and Water Areas

Faculty of Marine Instrumentation

Marine Instrumentation Faculty is a unique educational and scientific center, the oldest and almost the only Faculty in the country training civil engineers of underwater marine technical systems.



The Faculty is developing as a scientific and pedagogical school, training highly qualified technicians and scientists in the following fields of activity:

- marine instruments and devices;
- marine information and measurement systems;
- information and control systems of marine equipment;
- naval armament;
- robotic systems and underwater robots;
- self-propelled, positional and towed unmanned submersibles.

The faculty trains bachelors in five profiles of «Naval armament» and general technical profiles: «Informatics and Computer Engineering», «Mechatronics and Robotics» and «Management in Technical Systems».

The faculty provides training of specialists (engineers with a 5-year term of study) in two specialties: «Application and operation of systems of surface ships and submarines» and «Design, production and testing of ship armament and information and control systems».

All these areas of training are directly related to a promising and constantly in-demand field of engineering activity - marine underwater robotics. Underwater robots with elements of artificial intelligence are increasingly successfully replacing scuba divers, divers and manned submersibles, as they can more effectively solve scientific, industrial and naval tasks in the entire range of ocean depths, without exposing human life and health to unacceptably high risks.

DEPARTMENTS

- Department of Shipborne Automated Systems and Information-Control Systems
- Department of Hydrophysical Search Tools
- Shipbuilding, shipboard armament and marine robotics
- Department of Physical Fields of Marine Engineering and Oceanic Objects
- Department of Automatic Control Systems and Onboard Computer Facilities
- Department of Marine Technical Systems Life Cycle Management
- Department of Design and Technology of Production of Marine Submarines and Robots
- Department of Marine Information Systems and Technologies
- Department of designing marine information systems
- Department of Mechatronics and Robotics
- Department of Marine Electrical Engineering
- Laboratory of Marine Robotics
- Department of Medical Robotics

Faculty of Digital Industrial Technologies

The goal of the Faculty is to provide the industry with engineers who are fluent in classical methods of ship design and construction as well as innovative digital technologies of Industry 4.0 and the world's best practices of their application. Graduates of the Faculty of Digital Industrial Technologies will be the leaders in the development and implementation of the most advanced digital technologies.

The faculty was founded on the basis of the following departments: Computer Science and Information Technology, Applied Mathematics and Mathematical Modeling, Computer Graphics and Information Law, Marine Electronics. In addition, four new departments were created at the faculty - production digital and laser technologies, cyberphysical systems, cognitive manufacturing and information protection.

Since 2020 along with the Faculty of Shipbuilding and Ocean Engineering the admission to the new specialization of shipbuilding «Digital Engineering in Shipbuilding» has been announced.

The research base of the Faculty is created by two already existing institutes - Information Technologies Institute and Laser and Welding Technologies Institute.

The Institute of Laser and Welding Technologies carries out research and development in the field of laser and hybrid laser-arc technologies for material processing. Today it is one of the largest structures in Europe in the field of laser technologies. Unique experience, human resources potential and scientific and technical base allow the Institute to build and maintain reliable partnership relations with enterprises and scientific organizations within the framework of Russian and international projects.

THE MAIN DIRECTIONS OF THE INSTITUTE'S ACTIVITY ARE:

- development and implementation of digital manufacturing and laser technologies
- design and development of laser and laser-arc technological equipment
- services for metallographic examination of metallic, composite and ceramic materials
- development of equipment and technologies for direct laser growing of articles from metal powders.

The Institute of Information Technologies was founded in 2000. The institute includes the center of hybrid engineering in shipbuilding, Incubator «IncuBis» business incubator, engineering center of marine equipment life cycle management technologies, laboratories of digital transformation in industry, artificial intelligence, digital manufacturing technologies. Based on many years' experience in successful implementation of information technologies at the leading Russian enterprises of shipbuilding and related industries, the Institute is actively developing new directions of its scientific and practical activity:

- research work and innovative activities in the field of digital industrial technologies
- development of mathematical models of complex processes and objects
- designing business and technological processes (development of process and business models)
- consulting in the field of digital transformation of industrial companies
- development of cyber-physical systems and implementation of the Internet of Things
- big data analysis and application of distributed registry technologies in industry and transport
- development of artificial intelligence systems to solve industrial and transport problems
- implementation of technologies for life cycle management of complex physical and infrastructure objects
- development of digital twins of complex physical and infrastructure objects
- intelligent engineering analysis of industrial prototypes of complex equipment.

Business incubator «IncuBis» implements the boldest ideas of university students and employees and industry specialists, brings startups to the market, and forms the innovative environment of the faculty. The transfer of the results of intellectual activity to industry is carried out by a specially created small innovative enterprise.

The leading foreign and domestic companies-developers of digital industrial technologies are among the technological partners of the Faculty: IBM, Dassault Systemes, SAP, Phoenix Contact, LMS, Hexagon Manufacturing Intelligence, others.

DEPARTMENTS

- Department of Computer Science and Information Technology
- Department of Applied Mathematics and Mathematical Modeling
- Department of Computer Graphics and Information Law
- Department of Cyberphysical Systems
- Department of Digital Laser Technology
- Department of Cognitive Manufacturing
- Department of Digital Security

Faculty of Engineering and Economics

The Faculty of Engineering and Economics trains highly qualified economists for the work in the global environment. The educational process is focused on training managerial staff, qualified economists and managers for industrial enterprises, state corporations, banking sector and high-tech businesses.

Faculty of Engineering and Economics, with many years of experience in educational activities, with extensive connections with leading industrial and financial enterprises of St. Petersburg and the Northwestern region of Russia, as well as with foreign partners, accumulating knowledge obtained as a result of its scientific research, sets itself the task to contribute to the creation of business leaders.

DEPARTMENTS

- Department of Shipbuilding Production Management
- Department of Economics of the Shipbuilding Industry
- Department of Accounting and Auditing
- Department of Information Technology in Economics
- Department of Innovative Economics
- Department of International Economic Relations

Faculty of Natural Science and Humanities

The Faculty of Natural Sciences and Humanities is one of the largest departments of the University, combines natural sciences and humanities. The faculty trains theoretical physics, chemistry, mathematics, law, history and culture, sociology and philosophy, foreign languages.

The Department of Foreign Languages trains students of all levels (bachelors, masters, PhD students) in all fields, including foreign students (Russian as a foreign language).

The main scientific direction of the Department of chemistry is connected with development of ecologically safe materials and technologies of temporary protection from corrosion. Currently, the Department of Chemistry is the only center for new conservation technologies in the city. These technologies are used in oil and gas industry, machine building and also in construction and restoration of unique Saint Petersburg objects such as Ladozhsky and Vitebsky railway stations, fountain complexes of Peterhof, metro stations and many others.

The Department of Physics conducts basic theoretical research in the field of solid state and quantum physics; semiconductors; two-electron photoionization; multi-electron atoms and photoionization of clusters.

In the field of physical acoustics, the department carries out the following works: theoretical and experimental studies of sound waves propagation and absorption in confined media; processes of energy formation and dissipation in the acoustic boundary layer; sound propagation and absorption in heterogeneous media; thermoacoustic effect and its manifestations in various physical conditions; thermoacoustic sound sources - thermophones; studies of sound propagation processes in layered systems.

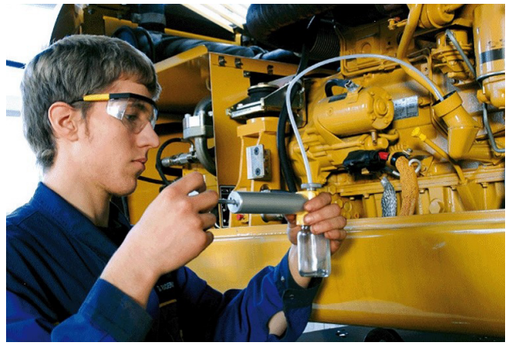
Research in the field of technical acoustics is conducted in the following areas: control of airborne noise on board ships and in industrial premises of enterprises; diffraction of sound waves on non-analytical shape bodies; control of noise and vibration in ship piping systems; creation of hydroacoustic screens; acoustics of two-phase media; ultrasound methods of plastic products formation.

DEPARTMENTS

- Department of Ergonomics, Ecology and Labor Law
- Department of Math
- Department of History and History of Culture
- Department of Foreign Languages
- Department of Philosophy and Sociology
- Department of Physical Education
- Department of Physics
- Department of Chemistry
- Department of State and International Law
- Department of Criminal and Administrative Law
- Department of Civil and Commercial Law
- Department of International Maritime Law
- Department of Humanities education

St. Petersburg State Marine Technical University College

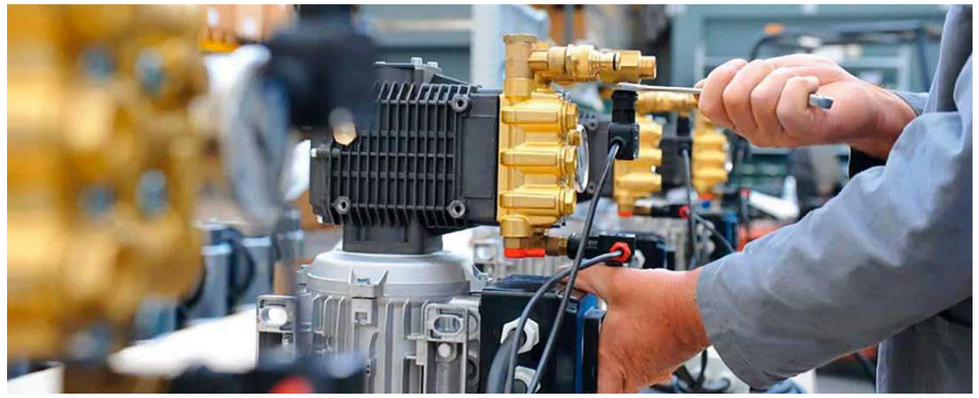
(Secondary Technical Faculty for 15-17 year-old secondary school graduates)



St. Petersburg State Marine Technical University College (Secondary Technical Faculty) is an educational institution that implements programs in accordance with the requirements of federal state educational standards and is part of the continuing education system. The curricula are adapted to the higher education model.

The College accepts students for marine engineering courses in «Installation and maintenance of marine machinery and mechanisms» and «Mechatronics and mobile robotics»; the period of study is 3 years and 10 months.

After graduation from the college, graduates obtain the qualification of technician or mechatronics technician in shipbuilding field, and have an opportunity to continue their education in higher school.



OBJECTS OF PROFESSIONAL ACTIVITY OF GRADUATES OF THE SPECIALTY:

- vessels of mixed navigation and inland and sea water transport, fishing fleet
- ship machines and mechanisms, their units, parts, systems
- technical and technological documentation
- technological equipment; control processes for production, maintenance and repair
- shipbuilding and ship repair organizations.
- articles from metal powders.

THE MAIN ACTIVITIES OF THE ROBOTICS AND MECHATRONICS TECHNICIAN ARE:

- installation, programming and commissioning of mechatronic systems
- maintenance, repair and testing of mechatronic systems
- development, modeling and optimization of mechatronic systems
- operation of mobile robotics complexes
- design, installation, maintenance and repair of mobile robotic complexes.

SMTU SCIENCE AND INNOVATION

Research Laboratories and Institutes:

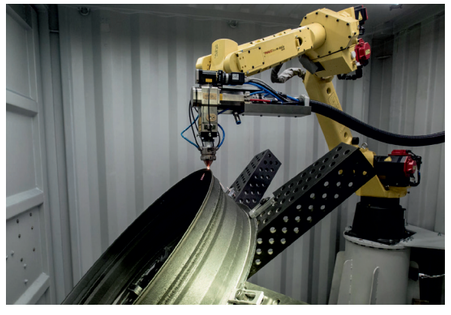
ИНСТИТУТ ЛАЗЕРНЫХ И СВАРОЧНЫХ ТЕХНОЛОГИЙ

The Institute of Laser and Welding Technologies - one of the largest institutes in the field of laser technologies in Europe. Conducts research and development in the field of laser and hybrid laser-arc technologies for material processing. **Web-site http://www.ilwt-stu.ru/**

MAIN ACTIVITIES

- Engineering and consulting in the laser and welding technology field;
- Technology and equipment for laser and hybrid laser-arc welding of steels and alloys, including high-strength steel, stainless and specialty steels, as well as aluminum and titanium alloys;
- Laser welding of dissimilar materials, such as various types of steel, Al-Ti, Al-Cu, Al-bronze, steel, bronze, etc;
- Laser cladding and surface hardening;
- Laser-Based Additive Manufacturing;
- Development of automatic process control systems for laser material treatment;
- Development of mathematical algorithms and software for modeling of laser, hybrid and electron-beam materials processing;
- Development of express control systems of process quality;
- Metallographic analysis and mechanical tests of weld joints;
- Development of engineering and technological documentation, feasibility analysis.

Scientists from SMTU and National University of Science and Technology printed a large-size VK-2500 helicopter engine casing on a 3D printer for the first time in Russia.



The ILWT produced a unique propeller, obtained by direct laser growing. The application of ultramodern production technology led to reduce the propeller weight by 25%.

INSTITUTE OF HYDRODYNAMICS AND CONTROL PROCESSES http://hydro.smtu.ru/ consists of 4 Laboratories:

- Research Laboratory of cyber-physical systems and artificial intelligence;
- Applied Hydrodynamics Laboratory;
- The problem research Laboratory - works in two demanded directions of energetics: nuclear monoblock steam generating units, electrochemical power plants based on fuel cells with solid polymer electrolyte;
- Virtual reality and Simulation Systems Research Laboratory (founded in 2020 http://vrlab.smtu.ru/en/) - develop projects based on the concept of a digital virtual multi-user environment — universal and scalable VR suite that includes both software and hardware modules. Has developed the unique Digital Multiuser Virtual Environment and Manipulator, which was applied for the development of such Projects as: Modernization of Onega Shipbuilding and Ship Repair Plant with the creation of the first digital shipyard in Russia; Modeling of iceberg towing and development of optimal towing system design; others.

Research Technological Laboratory – was initiated in 1975 and combines all stages of creating a modern industrial tool: development, design, creation of prototypes, laboratory testing and research, prototyping, full-scale testing and production.

Systems Modeling Laboratory – was founded in 1980 and nowadays focuses on Computer simulators-simulators of ship systems, Computer simulation test benches and mock-ups of shipboard control systems, Software for shipboard automated control systems, Computer simulators and operational training models.

Primorskaya educational and scientific base is a subdivision of SMTU, which is located in the city suburbs, in of Karasevka. The base includes:

- Research sector of experimental works
- Research sector of advanced installations

Research Laboratory of Active Means for Improving Ship and Underwater Object Performance - was organized at the Department of Ship Theory in 1985. The scientific adviser is General Designer of Submarines and Deep Water Technical Facilities with Non-Nuclear Power Plants, Doctor of Engineering, Professor Yuri N. Kormilitsin. The main goals: to solve urgent theoretical, applied and implementation research problems, as well as to conduct experimental and development work in the field of marine equipment.

Research Laboratory Special Design Bureau – focuses on the development of underwater vehicles. The Bureau has successfully completed the development and mastering of small-scale production of a new-generation diving tugger. The tugboat is designed to solve search and rescue tasks of the EMERCOM diving units and inspection tasks of the customs service.

- Testing Laboratory of Technical Systems for Electromagnetic Compatibility Requirements Shipboard Systems Dynamics Research Laboratory
- Research Laboratory of Hardware and Software Control Systems for Marine Equipment
- Automatic Systems Research Laboratory
- Research Laboratory of Diving Systems and Complexes
- Information Computer Systems Research Laboratory
- Scientific and educational center for underwater production complexes «Equipment for offshore oil and gas facilities»
- Center for Arctic Innovative Technologies
- Laboratory for studying the properties of ice and ice-resistant structures

Student Design Bureau

Student Design Bureau has been working under the Department of defense research and development of the University. It was created on the basis of the student section of robotics, initiated by a graduate of the Marine Instrumentation Faculty in 2010.

Nowadays, the SDB consists of two design offices; teachers of Marine Instrumentation Faculty and Shipbuilding and Ocean Engineering Faculty, permanent employees and about 30 trainee students participate in educational and production activities. The main directions of the SDB work are the following:

WORKS IN THE FIELD OF HYDROACOUSTICS:
- Creation of modems for digital underwater data transmission
- Underwater positioning
- Sonar location

MARINE ROBOTIC VEHICLES:
- Autonomous underwater vehicle
- Remotely operated underwater vehicle
- Surface and semi-submersibles
- Resident submersibles

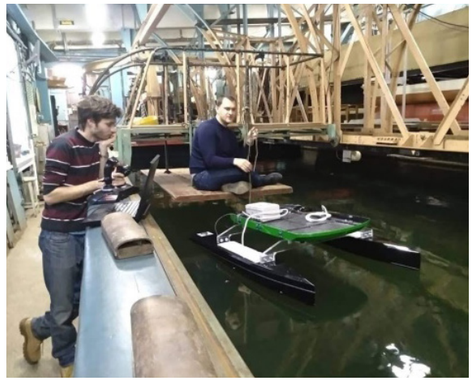
SIMULATION OF ROBOTICS OPERATIONS:
- Hydroacoustics simulation
- Submarine vehicle dynamics simulation

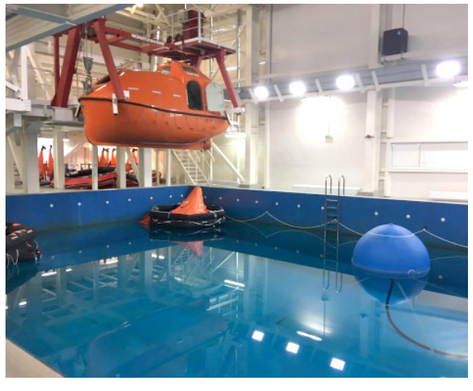
SUBMARINE CONTROL THEORY
- Controllers (PID, LQR, LQRG, H-norm, adaptive control, etc.)
- Elements of artificial intelligence (neural networks, decision trees, etc.)

ELECTROMECHANICAL DEVELOPMENTS:
- Rim motors
- Bionic motors
- Manipulators

THE RECENT ACTIVITIES OF THE BUREAU HAS BEEN RESULTED AT:

- Implementation of such projects as: wave glider, autonomous underwater vehicle «Akara», remotely operated underwater vehicle «Variola», sounding robotic catamaran MAAOOK, water bikes «Matryoshka» and «Nevalyashka»
- Organization of an Interuniversity Festival of robotics
- Providing technical facilities for preparing of student graduation papers and thesis
- Design and development of marine robotic vehicles with participation and winning prizes at student competitions in Russia and abroad (MATE International ROV Competition, USA)
- Development of cooperation with Russian commercial enterprises working in the field of underwater robotics and hydroacoustics
- Working on the projects: autonomous underwater vehicles «Barbus», «Guppy», model of multi-agent system, sailboat for athletes with disabilities, other.





Annually the International Student Schools are arranged at SMTU. We invite students to take part at “Naval Architecture and Ocean Engineering” International Student School.

Museum of SMTU History https://museum.smtu.ru/ru/

PARTNERS

Among SMTU partners are the leading Russian shipbuilding, naval, industrial and engineering companies.

SMTU actively cooperates with the leading Russian and many international research institutions in the fields of shipbuilding, ocean engineering, marine environment, operation and renovation of marine equipment, etc. In the course of studying at SMTU, our students take internships and get jobs at these prominent companies after graduation.

Admiralty Shipyards

Baltic Shipyard

Vyborg Shipyard

Gidropribor JSC

Zvezda PJSC

Krylov State Research Center

Russian Maritime Register of Shipping

Pella, OJSC

Central Design Bureau for Maritime Engineering

Shipyard Northern Wharf OJSC

The Almaz Central Marine Design Bureau

Shipbuilding & Shiprepair Technology Center JSC

Sredne-Nevskiy Shipyard JSC

INTERNATIONAL COOPERATION

SMTU has been currently maintaining and increasingly developing cooperation with overseas Universities, research institutions and companies.

Aalto University

BeAM-Machines (BEAM)

Leibniz University Hannover
University of Rostock
Bundesanstalt für Materialforschung und -prüfung (BAM)
Brandenburg University of Technology Cottbus-Senftenberg (BTU)

Universidad Politécnica de Madrid, La Escuela Técnica Superior de Ingenieros Industriales de la Universidad Politécnica de Madrid

National Maritime Foundation (NMF)
Academy of Maritime Education and Training (AMET)
Cochin University of Science and Technology
Indian Maritime University
Defence Institute of Advanced Technology

National Technical University of the Republic of Belarus

Technical University of Varna

Sharif University of Technology

Universitas Gadjah Mada

High Technology Application One Member Company Limited (HITACO)

Embassy of the Republic of Myanmar to the Russian Federation
High Education Center of the Defence Services Academy of the Republic of Myanmar

Majlis Amahan Rakyat (MARA)
Universiti Teknologi PETRONAS (UTP)
University of Kuala Lumpur (UniKL)

Mukhtar Auezov South Kazakhstan State University
Caspian University

Harbin Engineering University
Harbin Institute of Technology
Northwestern Polytechnical University
Zhejiang Ocean University
Guangdong Ocean University
Huaihai Institute of Technology (Jiangsu Ocean University)

Seoul National University Inha University
SANGSANGIN SHIP MACHINERY CO., LTD

SMTU IS A UNIQUE SCIENTIFIC AND ENGINEERING CENTER. AMONG THE ACTUAL JOINT SCIENTIFIC PROJECTS ARE THE FOLLOWING:

- "Simulators for improving Cross-Border Oil Spill Response in Extreme Conditions" with Finland
- "Creation of "digital shipyard" at the Onega shipbuilding and ship repair plant", "
- Additive technologies in 4.0. industry" (by SMTU Center of Arctic innovation technologies)
- "Development of technologies for direct laser growth and repair laser cladding of high-strength ship engineering parts operated in the Arctic" (by Institute of laser and welding technologies)
- Russian-Chinese Laboratory of Polar technology and equipment under the "Belt and Road" Initiative.

SMTU has successfully passed the procedure of international accreditation of five master's programs through the Institute of Marine Engineering, Science and Technology.
SMTU is holding numerous international conferences: "PAAMES/AMEC-2021", "Marine Robotics", "Beam technologies and laser application", "Naval Architecture and Ocean Engineering Student Summer School", others.

University issues Scientific Journal "Marine Intellectual Technologies" included at international

Web of Science database http://morintex.ru/en/

Famous SMTU foreign graduates and Honorary Doctorates

Xu Binghan (China)
(21 August 1933 – 14 June 2007)
Institute graduate in 1961 with an associate doctorate degree.
Specialist in Ship Structure Mechanics, Academician of Chinese Academy of Engineering, Doctoral candidate, Director of Research Bureau of China Shipbuilding Research Center, Deputy Chief Engineer, Deputy Chief Engineer Director.

Ali Hasan Nayfeh (USA)
(21 December 1933 – 27 March 2017) - a Palestinian-Jordanian mathematician, mechanical engineer and physicist.
He is regarded as the most influential scholar and scientist in the area of applied nonlinear dynamics in mechanics and engineering. His pioneering work in nonlinear dynamics has been influential in the construction and maintenance of machines and structures that are common in daily life, such as ships, cranes, bridges, buildings, skyscrapers, jet engines, rocket engines, aircraft and spacecraft. Honorary Doctor of SMTU.

Li Peizhi (China)
President and Board Chairman of Xinhua Group. Leningrad Shipbuilding Institute graduate in 1961. Honorary Doctor of SMTU.

A. Sivathanu Pillai (India)
CEO and Managing Director of the BrahMos Aerospace Corporation, Professor Honorary Doctor of SMTU.

Adilov Zheksenbek (Kazakhstan)
Advisor to the Rector of the Satbayev University
Honorary Doctor of SMTU

Thurein Kyaw Lwin (Republic of the Union of Myanmar)
SMTU graduate in 2007. Higher Education Center Head, Myanmar Defense Services Academy. Honorary Doctor of SMTU.

SMTU ADMISSION FOR INTERNATIONAL STUDENTS

Along with regular full-time studies overseas students are offered a short-term Russian language training and individual professional studies designed to meet a wide range of applicants' interests. SMTU proposes contract-based and scholarship of the Russian Government studies.

STUDY PROGRAMS AT SMTU FOR INTERNATIONAL STUDENTS AND PROFESSIONALS

BACHELOR'S DEGREE PROGRAMS		
Programs	Mode of study	Duration of study (Years)
Applied mathematics 01.03.04 • Computer and mathematical modeling in science and engineering (01.03.04.01)	Full time	4
Informatics and computer engineering 09.03.01 • Software for computer and digital technology (09.03.01.02) • Intelligent technologies of cyber-physical systems (09.03.01.03)	Full time	4
Power engineering 13.03.03 • Internal combustion engines (13.03.03.01)	Full time	4
Mechanics engineering 15.03.01 • Equipment and technology of welding production (15.03.01.01)	Full time	4
Technological machines and equipment 15.03.02 • Offshore oil and gas facilities (15.03.02.01)	Full time	4
Applied mechanics 15.03.03 • Structural engineering (15.03.03.02)	Full time	4
Design and technology provision for machinery production 15.03.05 • Technology of shipbuilding (15.03.05.01)	Full time	4
Mechatronics and Robotics 15.03.06 • Intelligent robotic and mechatronic systems (15.03.06.03)	Full time	4
Technosphere safety 20.03.01 • Environmental engineering protection (20.03.01.01)	Full time	4
Materials science and engineering 22.03.01 • Materials science and material engineering (22.03.01.01)	Full time	4

Shipbuilding, ocean and system engineering for marine infrastructure facilities 26.03.02 • Shipbuilding and technical exploitation of ships (26.03.02.01) • Ocean engineering (26.03.02.03) • Design and production of marine equipment structures from composite materials (26.03.03.05) • Computer simulation of ship dynamics (26.03.02.06) • Ship power plants (26.03.02.07) • Systems of power engineering and automation of ships (26.03.02.09)	Full time	4
Technology of artistic processing of materials 29.03.04 • Technology of artistic processing of materials (29.03.04.01)	Full time	4
Economics 38.03.01 • Global economics and international economic relations (38.03.01.04) • Economics and management at the enterprise (38.03.01.05) • Financial control and economic security of business (38.03.01.09) • Economics and entrepreneurship (38.03.01.10)	Full time	4
Management 38.03.02 • Production management (38.03.02.01) • International industrial management (38.03.02.03)	Full time	4
Sociology 39.03.01 • Sociology of business communications (39.03.01.01)	Full time	4
Jurisprudence 40.03.01 • Jurisprudence (40.03.01.01)	Full time	4

- The educational process is in the Russian language.
- Entrance exams: "Mathematics" and "Russian as a foreign language".
- Availability of a Certificate proving the level of knowledge of the Russian language – B1 (ToRFL-I: the first level) is recommended.

MASTER'S DEGREE PROGRAMS		
Programs	Mode of study	Duration of study (Years)
Informatics and computer engineering 09.04.01 • Technologies of virtual augmented reality and artificial intelligence (09.04.01.04)	Full time	2
Mechanical engineering 15.04.01 • Digital laser and additive technologies (15.04.01.01)	Full time	2
Applied mechanics 15.04.03 • Mechanics of deformable solids (15.04.03.02)	Full time	2
Shipbuilding, ocean and system engineering for marine infrastructure facilities 26.04.02 • Shipbuilding and technical exploitation of ships and marine equipment (26.04.02.01) • Ship theory and hydrodynamics (26.04.02.06) • Design of welded ship structures (26.04.02.10) • Ship power systems (26.04.02.24) • Power plants for marine equipment (26.04.02.25) • Energy complexes and marine equipment (26.04.02.27) • Ensuring environmental safety of marine power equipment (26.04.02.29) • System engineering of automated objects of marine facilities (26.04.02.33)	Full time	2
Economics 38.04.01 • Economics of innovation and financial consulting (38.04.01.01) • International economics (38.04.01.02)	Full time	2
Management 38.04.02 • International business (38.04.02.02) • Maritime logistics and customs affairs (38.04.02.03) • Technological entrepreneurship (38.04.02.05)	Full time	2
Sociology 39.04.01 • Sociology of management (39.04.01.01)	Full time	2
Jurisprudence 40.04.01 • Jurisprudence (40.04.01.01) • International Maritime law (40.04.01.02)	Full time	2

- The educational process is in the Russian language.
- Entrance exam: "Speciality" (test/examination in the major subjects) according to the chosen Master's degree program.
- Availability of a Certificate proving the level of knowledge of the Russian language – B1 (ToRFL-I: the first level) is recommended.

POSTGRADUATE STUDY PROGRAMS (PHD)	
Field of research / Programs	Duration of study (Years)
Energy and electrical engineering 2.4 • Electrotechnical complexes and systems (2.4.2)	4
Mechanical engineering 2.5 • Mechanical engineering technology (2.5.6) • Welding, related processes and technologies (2.5.8) • The theory of ship and structural mechanics (2.5.17) • Ship design and construction (2.5.18) • Technology of shipbuilding, ship repair and organization of shipbuilding (2.5.19) • Marine power plants and their elements (main and auxiliary) (2.5.20)	4
Historical sciences 5.6 • History of science and engineering (5.6.6)	3
Philosophy 5.7 • Philosophy of science and engineering (5.7.6)	3

- The educational process is in the Russian language.
- Entrance exams: "Philosophy", "Foreign language", "Specialty" ((test/examination in the major subjects of the chosen program).
- Availability of a Certificate proving the level of knowledge of the Russian language – B1 (ToRFL-I: the first level) is recommended.

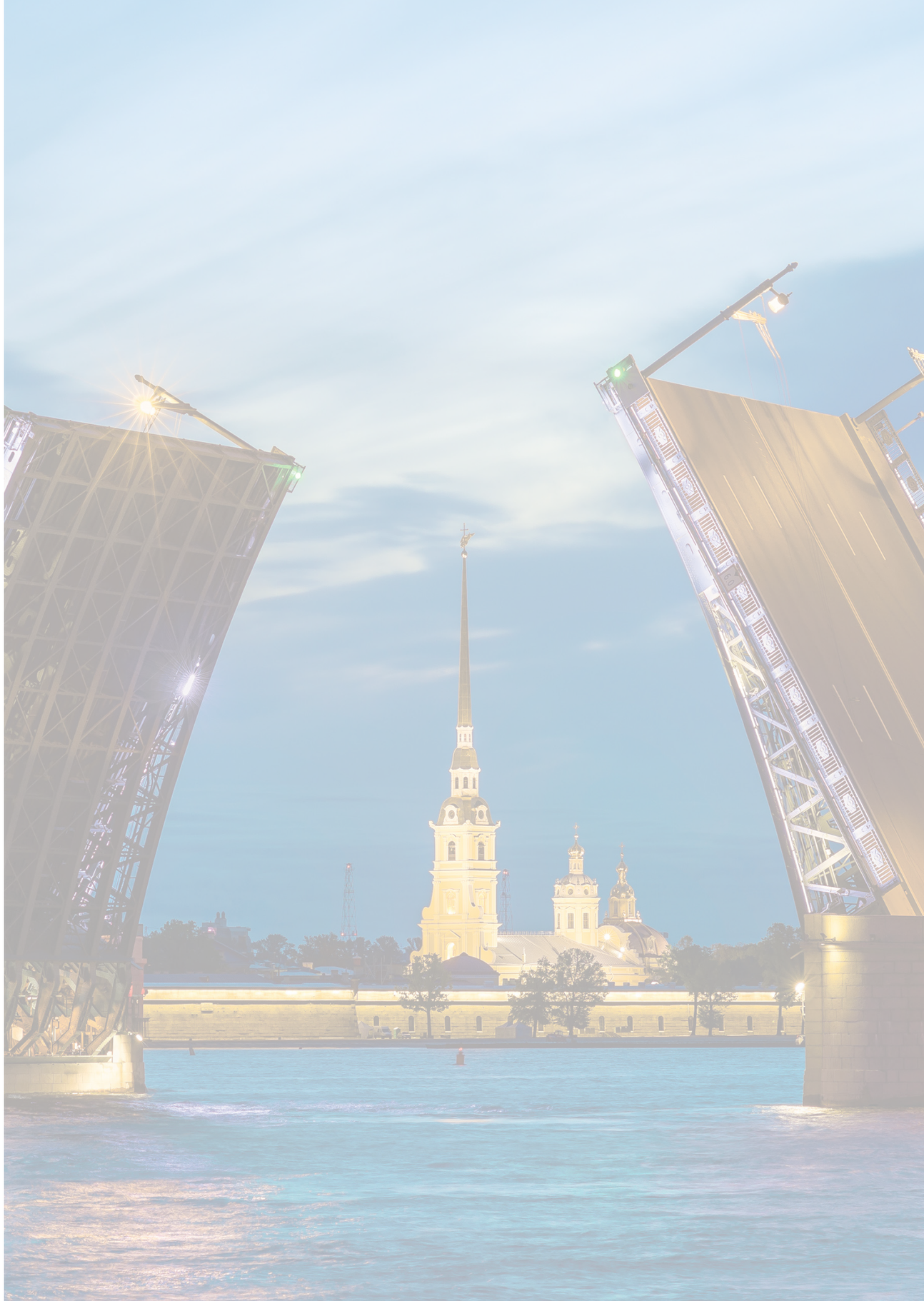
ADDITIONAL EDUCATIONAL PROGRAMS AND PROFESSIONAL DEVELOPMENT PROGRAMS (WITH ISSUING OF CERTIFICATES, IN ENGLISH OR OTHER LANGUAGE WITH INTERPRETER)
Hydro aerodynamics of marine vehicles
Laser Processing Technologies
Introduction to Shipbuilding
Fundamentals of Arctic shipbuilding and navigation
Technical vocabulary in shipbuilding and related fields
Interpretation in the field of construction of ice navigation vessels, methods for calculating and modeling ice loads on hull structures
Design of ice-going ships, methods of calculation and modeling of ice loads on hull structures
The lexical minimum in technical fields for students
The Russian language as a foreign language students in shipbuilding and related technical areas of study
• Modern computer technologies" for postgraduate students • Innovative technologies in shipbuilding" for postgraduate students • Marine Ice Engineering" for postgraduate students, other

SMTU WELCOMES FOREIGN APPLICANTS TO OBTAIN SCHOLARSHIP OF THE RUSSIAN GOVERNMENT FOR THE FOLLOWING STUDY PROGRAMS.

Programs	Number of Scholarship
BACHELOR PROGRAMS	
09.03.01 Informatics and Computer Engineering	5
15.03.02 Technological machines and equipment	4
15.03.03 Applied mechanics	2
26.03.02 Shipbuilding, ocean engineering and systems engineering of marine infrastructure facilities	7
MASTER PROGRAMS	
09.04.01 Informatics and Computer Engineering	3
26.04.02 Shipbuilding, ocean engineering and system engineering of marine infrastructure facilities	10
15.04.03 Applied mechanics	3
PHD PROGRAMS (POST-GRADUATE STUDIES)	
2.5.17 The theory of ship and structural mechanics	1
2.5.18 Ship design and construction	1

The documents must be submitted annually since December to February.

For detailed information please see the web-site or contact us by e-mails: dms@smtu.ru, inter@smtu.ru.



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