Peter the Great St. Petersburg Polytechnic University National Research University

MASTER OF SCIENCE IN ENGINEERING AND TECHNOLOGY



Why Master's Degree Program in Engineering and Technology at Peter the Great St. Petersburg Polytechnic University?

RET FACTS	
Admission requirements	Candidates are required to hold a Bachelor's, Specialist's or Master's degree in any subject area, all applicants must demonstrate English language proficiency at B+ level.
Admission tests	Examination in the field of material science and engineering interview in English language with program coordinator (option - via Skype).
Admission procedure	Written on-line application. Application deadline – June, 30. International applicants may find additional information concerning admis- sion at the official web-site of SPbPU www. eng.spbstu.ru.
Program starts	Autumn semester – September, 1
Duration of program	2 years
Total workload	120 ECTS
Degrees awarded	Master of Science (MSc)
► Tuition fee	for Russian students — 190 000 RUB / year for foreign students — 260 000 RUB / year



### CONTACT DETAILS:

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# INNOVATIVE TECHNOLOGIES IN METALLURGY AND MATERIAL SCIENCE

International Master's Degree Program in English

Key information about the study program in Saint-Petersburg, Russia



www.eng.spbstu.ru

#### Master's degree program "Innovative technologies in metallurgy and material science" is fully delivered in English.

- World-class professors from SPbPU and leading European Universities.
- Unique opportunities for international mobility. Possible semester abroad at academic partners of SPbPU. Double degree options with European Universities.
- Wide-range of basic and elective courses for building individual track based on personal interests. Our capabilities are to provide experience in metallurgy and materials science.
- "Innovative technologies in metallurgy and material science" represents principles of technical education with the content based on the current real-world experience.





# Peter the Great St. Petersburg Polytechnic University

In 2010 SPbPU became a "National Research University", also known as Polytech — a recognized Russian leader in the field of higher engineering and management education. Nobel Prize winners P. L. Kapitsa, N.N. Semenov, Zh. I. Alferov — are just a few names among hundreds of talented scientists whose activities are connected with Polytech.

SPbPU Institute of Metallurgy has been operating since the inception of SPbPU in 1899 when Russian Finance Minister. Count Witte signed the document on the establishment of the metallurgical department. At present the University has over 30 000 students, it is a well known leader of technical education in Russia.

# Curriculum

#### 1st SEMESTER (30 ECTS)

- Numerical simulation of crystallization processes (4 ECTS) Modern problems of materials treatment processes (4 ECTS) Computer and information technologies in science and manufacturing (4,5 ECTS)
- High effective technologies of materials treatment (4 ECTS) Master's research work (9 ECTS)

### 2nd SEMESTER (30 ECTS)

- Simulation of metals and alloys microstructure and properties formation (4,5 ECTS) Simulation of thermal, diffusion and deformation processes (4,5 ECTS) Modern and prospective materials: science and technology (4,5 ECTS)

- Applied thermodynamics and kinetics (3,5 ECTS) Master's research work (8,5 ECTS)

#### 3rd and 4th SEMESTERS (60 ECTS)

- Fundamentals of metallurgical expertise (4 ECTS) Innovative technologies of materials treatment and deformation / Severe plastic deformation techniques for nanostructured materials (4 ECTS) Technological processes monitoring / Special types of materials joining

- Pedagogic practice (5 ECTS) Master's research practice (17,5 ECTS) Final state assessment (5 ECTS)

Master's thesis has to be defended in front of committee consisting of professors and corporate representatives.

#### **TEACHING METHODS**

The focus of the program is to accumulate practical skills in material science and engineering, to enrich previous skills with help of unique equipment and modern analysis methods. The best lecturers of SPbPU will be involved in educational process. Our students will have opportunity to have practices in different universities and industrial laboratories.

# MSc in Engineering and Technology

## Objective of the program

The mission of the program is to provide students with modern knowledge in fields of material science and engineering, formation of material structure and properties research and simulation, laser technologies, additive advanced technologies etc. Participants will be gualitatively prepared to work in industrial companies, will study independent and multidisciplinary courses which combined science and engineering to reach well opportunities in a future carrier.



### **KEY ADVANTAGES**

- 1. The program gives our students a deep knowledge and experience in interdisciplinary courses. Studying in English language allows to arrange regular science researches in industrial sectors.
- The program offers a unique opportunity for joint study of extracurricular activi-ties of SPbPU.
- practices abroad at academic partners of SPbPU. Double degree

### Duration and format

2 years, full-time

Total workload

120 ECTS

# PARTNERS

1. Technical University of Berlin, Berlin, Germany - The internationally renowned Technische Universität Berlin is located in Germany's capital city at the heart of Europe. Our academic activities are focused on achieving sharplydefined goals: building a distinctive profile for our

university, ensuring exceptional performance in research and teaching, providing our graduates with excellent qualifications and a modern approach to university administration. The TU Berlin strives to promote the dissemination of knowledge and to facilitate technological progress through adherence to the core principles of excellence and quality. Strong regional, national and international networking with partners in science and industry are an important aspect in these endeavors.

2. Leibniz University of Hannover, Hannover, Germany — Today there are around 24,000 students in the natural Leibniz 102 sciences and engineering, the humanities and Universität 1004 Hannover social sciences as well in law and economics. In the

future, too, studying, teaching and research are to be enjoyable, and therefore one of the declared goals of Leibniz Universität Hannover is to continually improve the quality of teaching and research.

3. Brandenburg Technical University, Cottbus, Germany — With approximately 1.600 international students on its campus, b-tu BTU Cottbus-Senftenberg forms an academic melting University of Technology pot in Southern Brandenburg. Combining the profile of a traditional research-focused Technical University with

application-oriented study programs in engineering, social science, economics and health care BTU offers the best features of German academic education. BTU was among the pioneer institutions to launch international study programs. Today it offers a large variety of international programs in various niches of excellence.

4. Lappeenranta University of Technology, Lappeenranta, Finland —



Lappeenranta University of Technology (LUT) has been a pioneering scientific university, bringing together the fields of science and business since

1969. Our international community is comprised of approximately 6,500 students and experts engaged in scientific research and academic education. Our strength lies in our way of working together across scientific and departmental boundaries. We constantly establish networks in both the business and the academic community.









