

Laser Technologies (Master)

Saint Petersburg Electrotechnical University "LETI"

Degree or qualification is awarded: **Master**

Language of study: **English**

Mode of study: **full-time**

Duration: **2 years**

Availability of free education: **yes**

Price: **200 000 rubles per year**

Programme webpage at the university website: <https://etu.ru/en/study/masters-degree/laser-technologies>

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Students learn to develop laser devices and systems based on the latest achievements of quantum electronics, holography and interferometry. Master's students can apply for double degree programs.

The Master's program mainly focuses on technologies for developing laser and quantum-based electronic devices and systems. Quantum electronic devices have a variety of unique characteristics combined in them (high coherence, achromatism, high stability and wavelength resettability, high directivity and capability to deliver large amounts of energy to a small space). This is a key factor that leads to breakthroughs in measuring technology, optics, recording and transfer of data, environment monitoring, material processing, medicine and biology. While studying, Master's students can learn about these technologies in a lot of detail and become very successful in the fields of science and technology mentioned before.

The program infrastructure and resources:

- Adaptive optics systems, Fizeau interferometer, laser and optical fiber gyros, liquid-crystal cell, etc.
- High-precision angular displacement measurement systems for both static and dynamic modes;
- Laboratory classes in laser systems learning how to use a laser goniometer, laser anemometer, etc.

Master's students take internships both at the university with university professors and at partner institutions with their staff. The university cooperates with such institutions as JSC LOMO, Mendelev Metrology Institute, Vavilov State Optical Institute, Small Enterprise Laser Physics, etc.

Examples of Research

- Principles of Holographic Projection Display
- Script Development for Modeling Automation of Whispering Gallery Modes
- Accuracy Increase Methods for Laser Goniometric Systems
- Accuracy of 3D Laser Scanning
- Principles of Adaptive Optical Systems
- Principles of Holographic Wavefront Sensors
- Methods for Laser Gyroscope Performance Analysis
- Methods for Analyzing Optical Connection to Reflecting Faces in Goniometry
- Laser Scanners in Rail Profile Control
- Seismic Signal Identification in the Output of Large Ring Laser Gyros

Specializations within this programme