

Division: *School of Electronic Engineering and Computer Science*

Academic programme: *15.04.01 Mechanical Engineering, Additive Technologies*

Mode of study: *full-time*

Programme length: *2 years*

Programme level: *Master's degree*

Language of instruction: *Russian*

Programme description:

Graduates on this profile are prepared for design, manufacturing and engineering, organizational management, and research, at both design organizations and industrial enterprises of the Ural region and Russia implementing additive technologies.

Completing this programme will allow graduates to work on the creation of competitive products in mechanical engineering, instrument engineering, aircraft engineering, oil and gas processing, metallurgical technologies, etc., and to restore and repair expensive high-tech equipment using additive technologies. The competencies required by the Federal Educational Standard are formed among students using modern teaching methods and means. Teachers of the department have at their disposal modern design, mathematical, physical, and computer modelling tools and a large pool of industrial and laboratory equipment, including 3D printers, scanners and industrial plants for the implementation of additive technologies.

Industrial and scientific partners of the department in this programme include world leaders in additive technologies: SMS Group (Germany) and the National Engineering School of Saint-Etienne (ENISE, Saint-Etienne, France).

Internships (fully paid for by partners) at these companies (both in Russia and abroad) are available for students.

One of the laboratories for mastering the subjects is headed by the President and CEO of SMS group, Prof. Dr. Pino Tese, who is a professor at SUSU. Experts from the world's leading companies in relevant fields are invited to hold lectures.

For more than 10 years we have been working closely with the National Engineering School of Saint-Etienne (ENISE, France), a structural division of the University of Lyon. Each year, SUSU Master's degree students study at ENISE within the Master2 programme; as a result they defend their final qualifying project and receive a

European Master's degree. The programme in France lasts 2 semesters (2nd year of the SUSU Master's degree programme; programmes taught in English) and counts towards SUSU studies.

Main programme-specific classes:

- *Computer Modelling and Design Tools;*
- *Computing Technologies in Industry;*
- *Engineering Analysis Systems;*
- *Topological Optimization of Construction Elements;*
- *Additive Manufacturing Materials;*
- *Additive Manufacturing Equipment;*
- *Technology of Laser Cladding;*
- *Technology of Selective Laser Fusion;*
- *Technology of Thermal Spraying;*
- *Theory of Mechanical System Reliability;*
- *Robotic Systems Programming; and more.*

Programme manager: *Marina N. Samodurova, Doctor of Sciences (Engineering), Professor of the Department of Informational and Measuring Technology*