Division: *Institute of Engineering and Technology*

Academic programme: *15.04.02 Technological Machinery and Equipment (Hydraulic and Pneumatic Automatic Systems and Machinery)*

Mode of study: *full-time*

Programme length: *2 years*

Programme level: *Master's degree*

Language of instruction: *Russian*

Programme description: *The SUSU Department of Hydraulics and Hydraulic and Pneumatic Systems is the only one in the Ural Federal District that trains specialists in the field of hydraulic, vacuum and compressor equipment. This in-demand profession and fundamental knowledge allow graduates to get a high-paying job anywhere in the world since practically all productions are based on hydraulic and pneumatic systems.*

In-depth training of highly qualified specialists is achieved thanks to the use of modern methods of design, calculation, mathematical, physical and computer modelling with the application of tools of design-engineering informatics and computer-aided design systems.

Students obtain their practical skills while taking the obligatory internship at the most modern industrial enterprises in the Chelyabinsk Region.
Master's degree students are involved in research work starting from the first semester and are guided by research fellows within the frameworks of the relevant research studies being conducted at the Department and with consideration to the students' fields of interest.

Main programme-specific classes:

- *Computer-aided Design Systems*
- *Computer Modelling and Design Tools*
- *Microprocessor-based Control Systems (Programmable Logical Controllers)*
- *Additive Technologies in Production of Technological Machinery and Equipment*
- *Hydraulic and Pneumatic Automatic Systems*
- *High-precision Servo Drives*
- *Hydraulic and Pneumatic Mechatronic Systems*
- *Theory of Controlling Hydraulic and Pneumatic Systems*

- *Multidimensional Flows and Non-stationary Phenomena in Hydraulic and Pneumatic Systems*

Programme manager: *Dariia F. Khabarova, Candidate of Sciences (Engineering), Head of the Department of Hydraulics and Hydraulic and Pneumatic Systems*