

Educational Research Center "Metallurgy"

The university has an educational research and production center "Metallurgy". This center has educational, laboratory and semi-industrial equipment. This equipment is used for conducting educational, laboratory classes, scientific research, and production practices. University professors, as well as students, undergraduates and doctoral students actively participate in scientific research.



Educational, laboratory classes and scientific research are conducted for the following specialties:

- metallurgy;
- materials science;
- mineral processing;
- mechanical engineering;
- technological machines and equipment;
- technology of material processing by pressure;
- nanomaterials and nanotechnology.



The educational research center has a large list of educational, laboratory and semi-industrial equipment that allows you to reproduce the processes of a

complete closed metallurgical cycle: from crushing metallurgical ore to obtaining finished products and the production of castings and ferroalloys.

1). Metallurgical ore preparation site, which includes crushers, mills and sample preparation.

2). Metallurgical ore enrichment site with a magnetic separator.

3). Pelletizing site, which has an agglomeration plant with testing devices for mechanical strength and wear resistance of the agglomerate.

4). A thermal section in which there are two chamber electric furnaces, a salt bath furnace designed for heat treatment of blanks and castings, as well as for heating blanks before subsequent deformation, as well as for melting non-ferrous metals and alloys.

5). A melting section that has the only single-electrode electric arc furnace in Kazakhstan with a capacity of 250 kV*A for the smelting of ferroalloys, metallic silicon. There is also an induction furnace for melting steel and non-ferrous alloys at this site.

6). A section of metal processing by pressure, in which there are rolling mills for the production of sheet and long products and a mechanical hammer for forging workpieces.

7). A foundry site for the manufacture and casting of molds using manual molding methods to obtain castings.

8). A section of metal-cutting machines with various types of machines: turning, milling, planing, drilling and grinding, cutting scissors.

9). A welding post for electric arc welding.

10). A foundry laboratory with operating models of a blast furnace and steelmaking workshop.



Electric arc furnace 250 kVA



Electric arc furnace 150 kVA



Section of crushing machines



Ore preparation site



Agglomeration station



Sintering process of agglomerate



The release process