

## CNC Laboratory

### Principal goals and activities

- Manufacturing of machinery components using CNC machines.
- Manufacturing of complex shapes and prototypes in a single clamping of stock.
- Training in CNC programming.

### General focus of laboratory

- Proposal of technology procedure for manufacturing specific components by CNC machining.
- Preparation of NC programs, principally in the ISO-code format.
- Manufacturing of prototypes or short production series of complex-shape parts by CNC machining.

The laboratory is equipped with a modern, 5-axis milling and turning centre the benefits of which include the machining of complex-shape parts at a single clamping while using a lower number of tools thanks to the modularity of the system (tilting of the B axis). Combined and special tools can be used too.

The laboratory also offers EMCO educational machines which are suitable for training in basic adjustment and programming skills and to produce simple parts from easily workable, usually non-ferrous materials.

### Specific instruments and outcomes

#### Mazak Integrex 100-IV

This is a 5-axis milling and turning machining centre. The device is used for production of complex-shape parts, primarily prototypes, or short production series, from rotating semi-products. The machine is equipped with a Capto C6 tool clamping system – a modular system that provides rigid connection of the tool and spindle, and repeatable accuracy.

The system is suitable for turning, milling and boring tools that can use in-tool cooling. The clamping system is only one of the reasons of high precision machining. Other, special, multipurpose tools, such as CoroPlex MT, FlashTool, etc. can be used.

#### EMCO educational machines

They are a 2-axis CNC lathe and a 3-axis CNC mill. Due to the small volume of worksite area and relatively low rigidity of the machines, these are used primarily for educational and training purposes in CNC programming.

