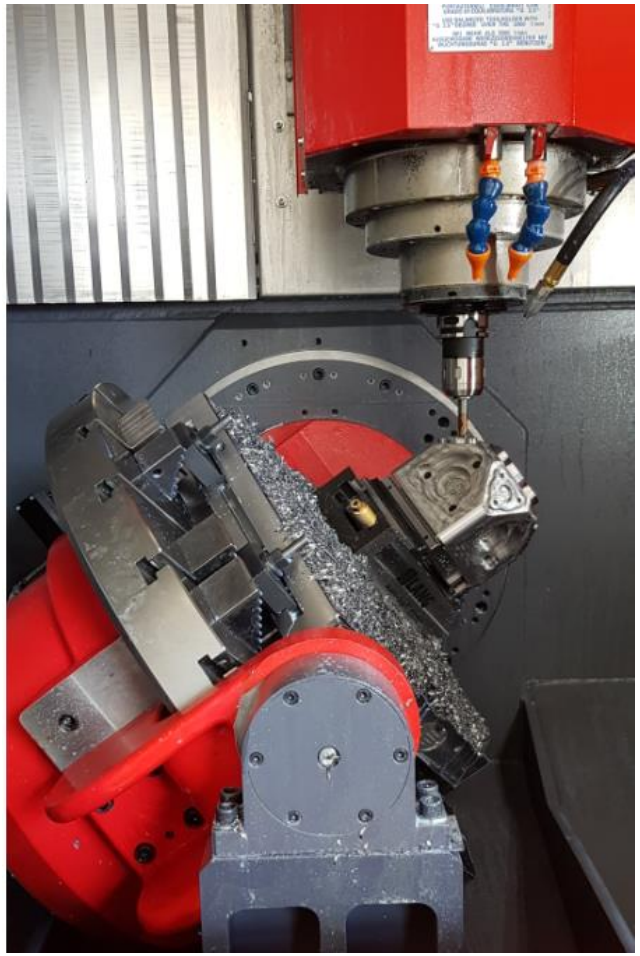
Kofinanziert durch das Programm Erasmus+ der Europäischen Union



# CNC Technology at SC Škofja Loka

**Primož Šturm, prof.**
**Secondary school of mechanical engineering**

At our school CNC technology is taught in the following educational programs:

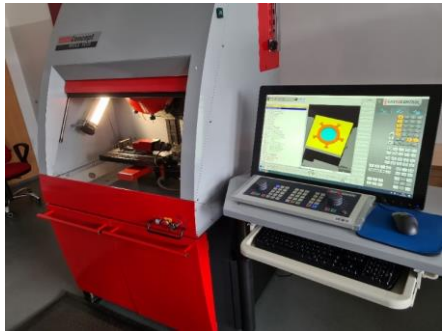
Secondary technical education (4 year program)
-last 2 years 160 hours (mechanical technicians)

Vocational-technical education (2 year program)
-last year 160 hours (mechanical technicians)

Secondary vocational education (3 year program)
- last 2 years 200 hours (toolmakers)

SC Škofja Loka –
Secondary school of mechanical engineering
uses the following CNC machines for practical education and training:

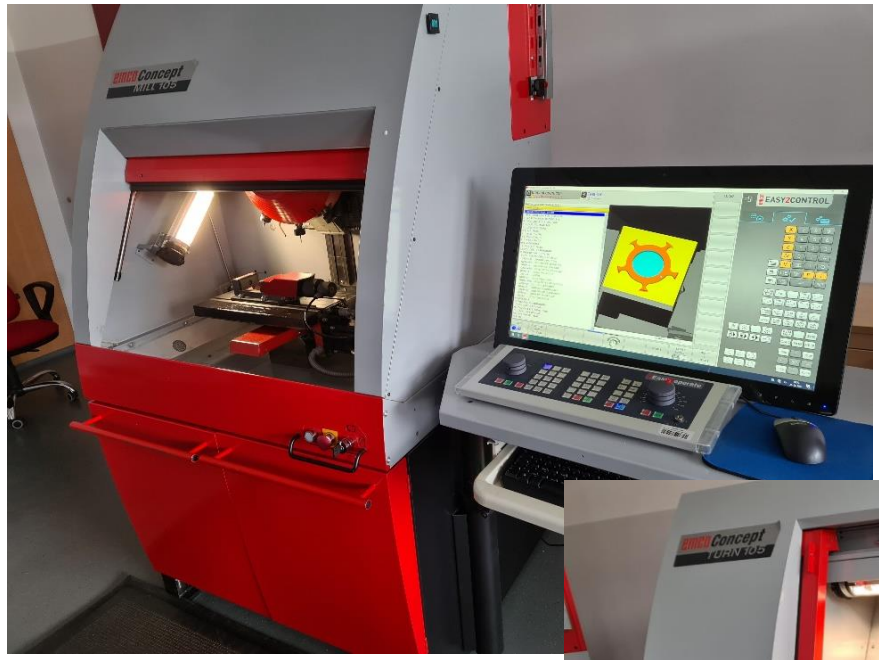
Emco Concept TURN 105
Emco Concept MILL 105
Emco Concept MILL 300
Emco Concept TURN 450
Emco Concept MILL 450
Emco Umill 750



Emco Concept TURN 105
Emco Concept MILL 105

Classic CNC machines with:
- 2 axes TURN and
- 3 axes MILL.

- used for basic, initial training of CNC technology.



## Emco Concept MILL 300

CNC machine with:
- 3 axes and
- a distributor.

-can be used for turning and milling at the same time.

Emco Concept TURN 450
Emco Concept MILL 450

CNC machines with:
- 2 axes TURN with driven tools,
- 5 axes MILL,
- 450 mm working length and
- 20 interchangeable tools

## Emco UMLL-750

CNC machine with:

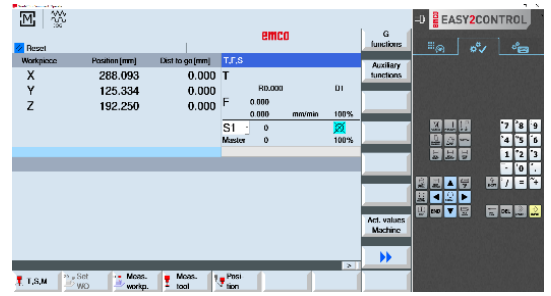
- 5-axis simultaneous machining
- Solid swivel-rotary table
  (C-axis 360°, B-axis +/- 100°)
- Table dimensions 750 x 600 mm
- Motor-Spindle 15000 rpm
- 40 interchangeable tools

For operating CNC machines the following controls can be used:

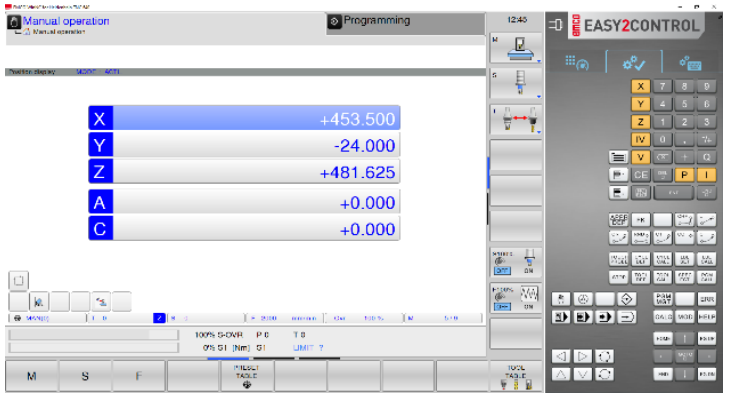
- Fanuc
- Heidenhain
- Sinumerik operate
- Sinumeric 840D

## FANUC

## SINUMERIK OPER.




## HEIDENHAIN




## SINUMERIK 840D

## WinNC

### the concept of the interchangeable control

The interchangeable control can be fitted in all CNC concept machines.

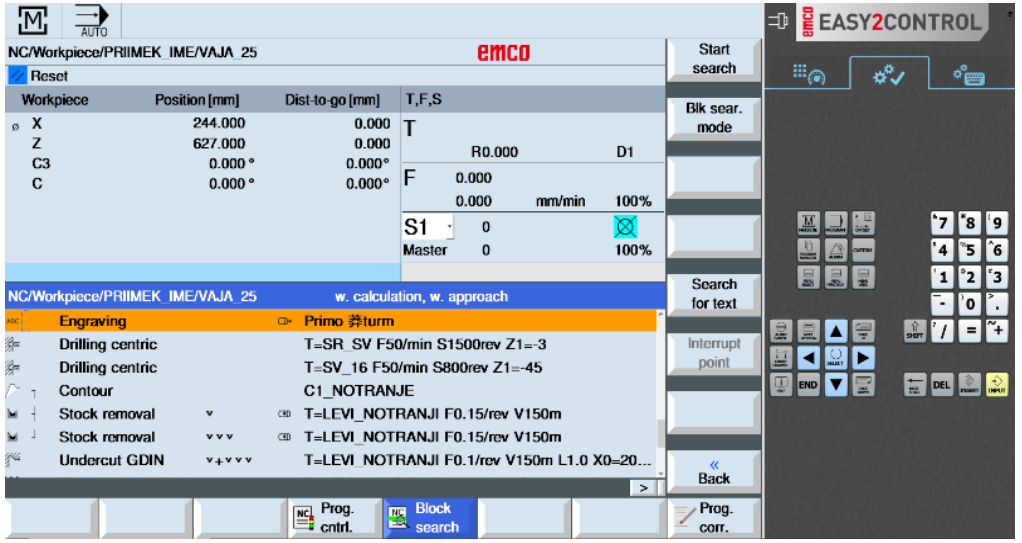
The student can be trained on all CNC industry controls that are common on the market.

Up to nine different control units can be installed and taught on one single machine.

## Sinumerik Operate,
## HEIDENHAIN TNC-640

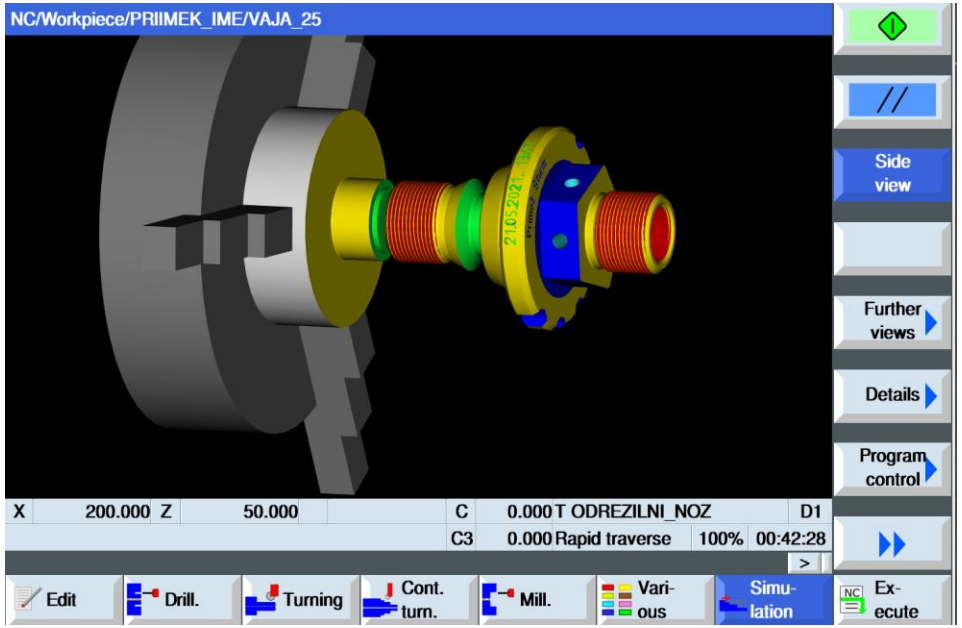
It is a part of the changeable control WinNC, which allows the user to learn all CNC industry controls that are common on the market, on a single machine.

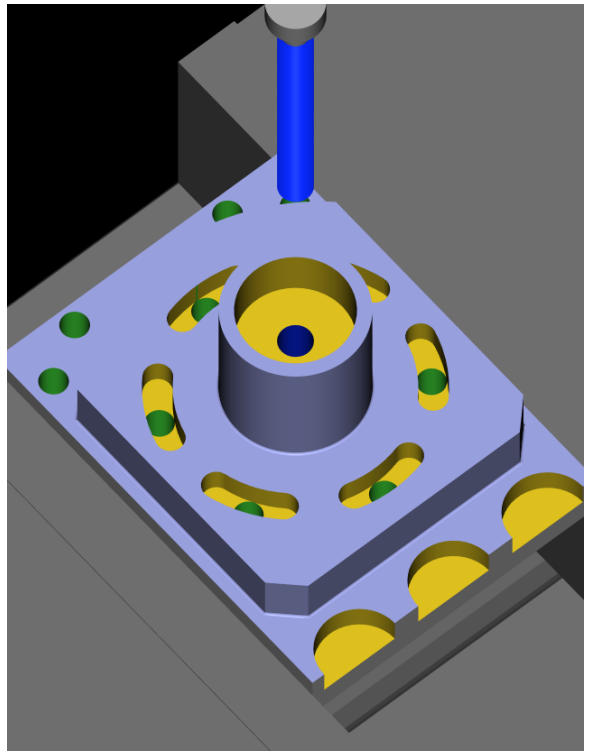
The user has the possibility to work on the PC as well as on the machine control and gets familiar with all aspects of control programming in detail.




- Handling by soft keys like the original industry control
- Touchscreen
- 3D-graphic simulation
- Modern user interface
- Different languages available

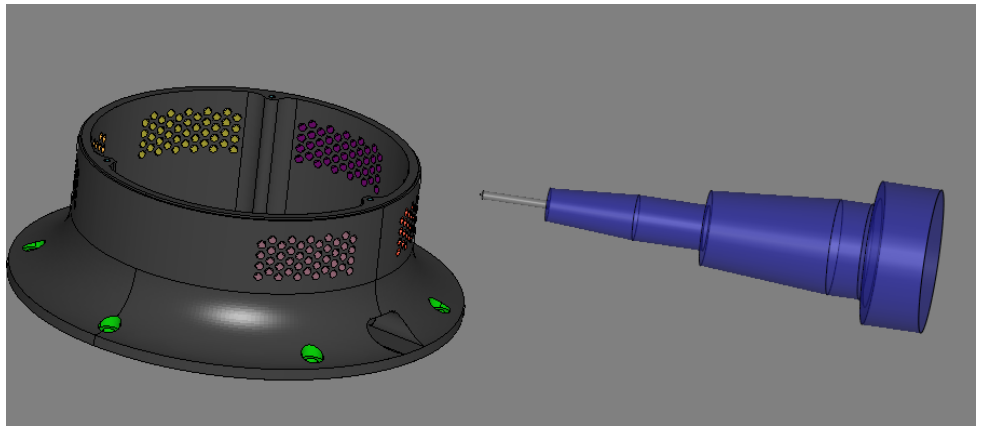
3D simulation and virtual machining processes close the gap between theory and practical work on the machine.

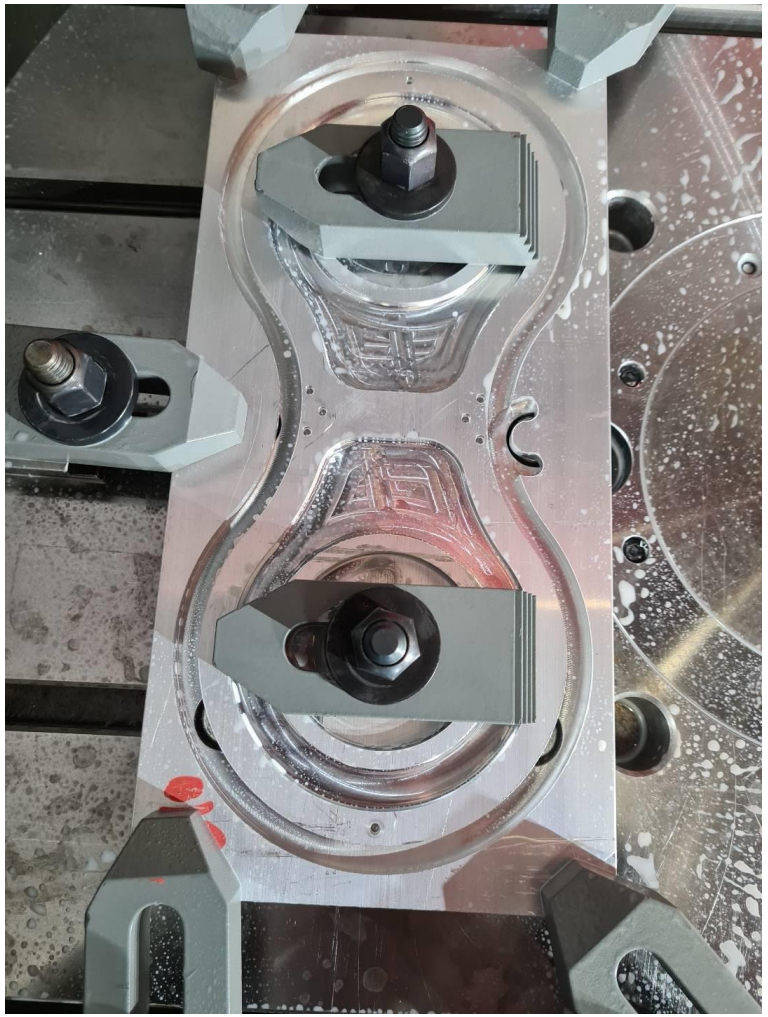


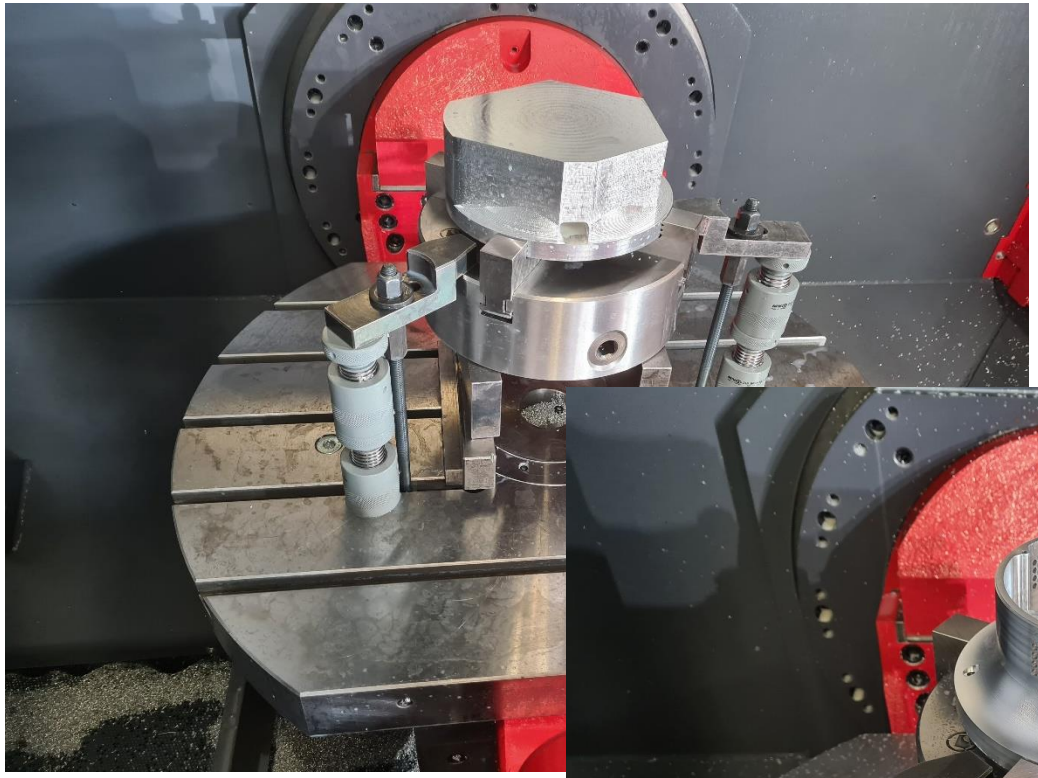



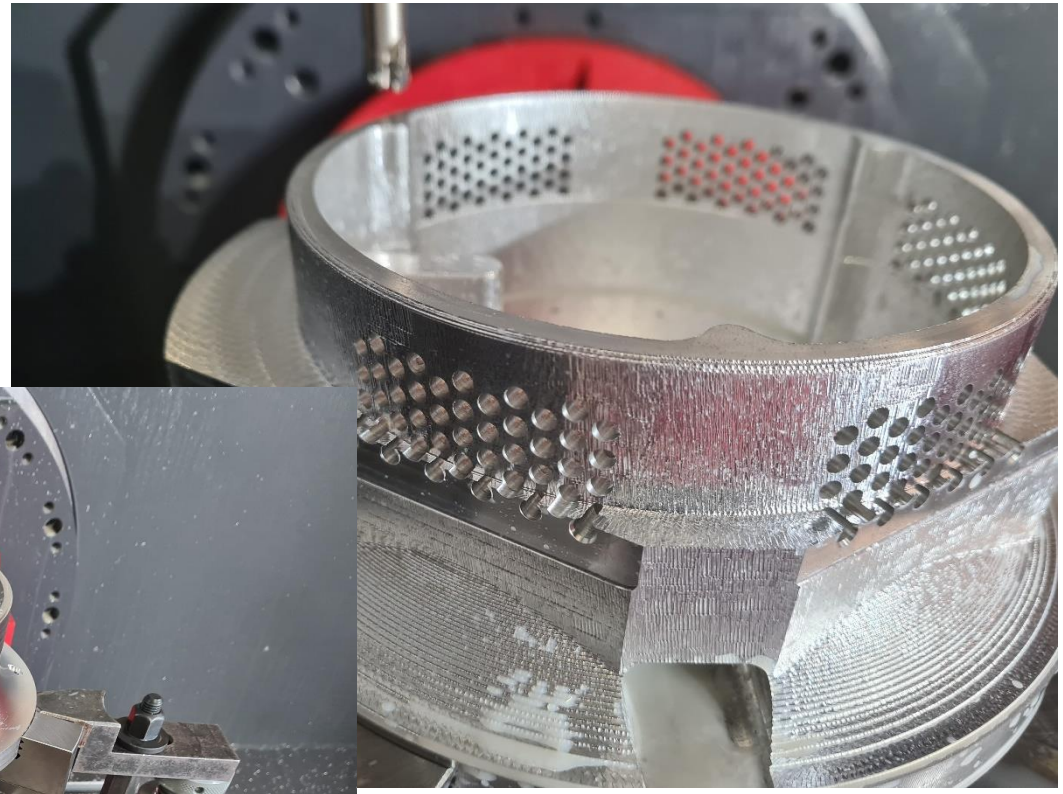
The training concept is made up of a complete software program for CNC training. It is featured by high didactical quality and its very close relation to the industry

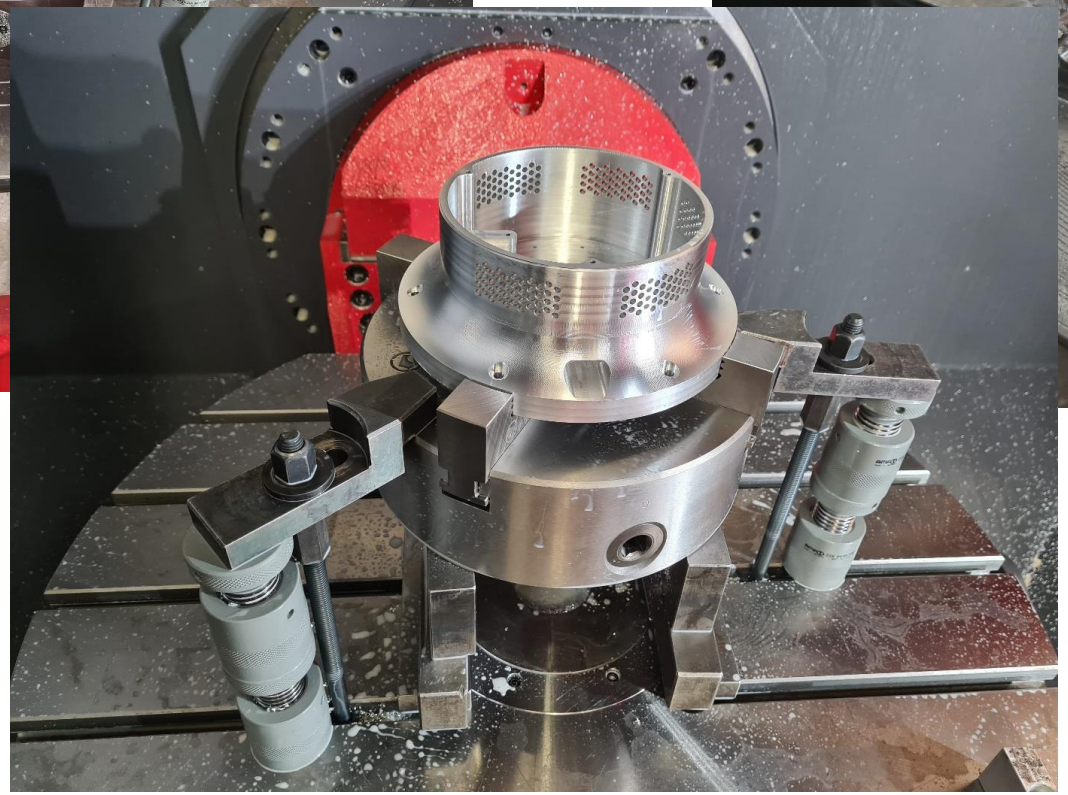
At the end of education for mechanical technicians, students are brought closer with cam technology, which is now mandatory equipment for every CNC programmer or operator Ourcschool uses NCG-cam software, witch is very common in near by industry











ŠC Škofja Loka, Srednja šola za strojništvo
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