

Institute of Manufacturing Technology Faculty of Mechanical Eng. BUT

Foundry department

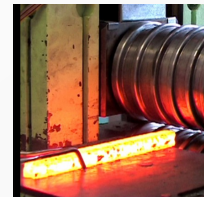


<http://ust.fme.vutbr.cz/slevarenstvi/>

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- **Dept. of Machining Technology**
- **Dept. of Metal Forming and Plastics**
- **Dept. of Welding Technology and Surface Treatment**
- **Dept. of Foundry Engineering**



- 1921 - Prof. František Píšek founds at the Czech Technical University in Brno and the Institute of Mechanical Technology with foundry teaching. The first graduates of Foundry Technology graduated in 1929
- 2004 - the foundry department is a part of the Institute of Manufacturing Technology
- 2013 - the extensive reconstruction and modernization of the school foundry used for research, development, and teaching of foundry technology begins
- 2018 – establishment of a workplace LaBUT for investment casting technology

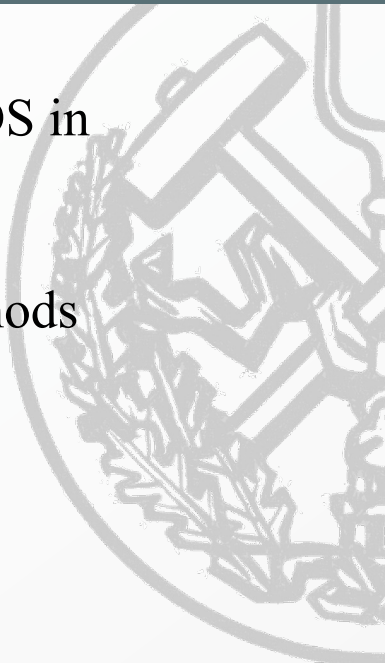
Student profile - knowledge of all areas of technology and metallurgy of casting production and the method of production management and foundry

- casting production technology, moulding mixtures, casting machining and welding and casting production control, simultaneous engineering, technical preparation of castings and analysis and prediction of casting defects
- metallurgy of steel, cast iron, alloys based on Al, Cu, Mg, Ni and Ti
- numerical simulations of foundry processes
- involvement of students in scientific research projects and cooperation with industry
- possibility of studying (1-2 semesters) at foreign universities within the Erasmus project (Montanuniversität Leoben and TU Magdeburg)

Successful graduates of the field can deepen their knowledge in DS in the field of manufacturing technology.

Scientific approach to solving technical problems, analytical methods and the ability of independent scientific work.

- participation in scientific research activities (research projects, contracts)
- cooperation with foundries and manufacturers of foundry materials
- internship in the field of foundry and metallurgy (internship in a school foundry)
- active participation in conferences and seminars (Fridays with metallurgy)



School Foundry



School Foundry



Induction furnaces 250, 500 kg



Heraus -vacuum induction furnace (20kg)

School Foundry

Consarc -vacuum induction furnace 80 kg





Self-hardening mixture (GeoPol, ceramic shell)

Casting of steel (unalloyed, low-alloyed and high-alloyed), cast irons, nickel, aluminum, cobalt and copper alloys

Chemical composition analysis laboratory

spectral analyzer, S + C analyzer, O + N analyzer



Spectrometr Q4 TASMÁN



ICARUS CS HF – combustion analyzer



RTG analyzer

Investment casting laboratory

LANIK



BUT



+

LABUT



Foundry department

OBJECTIVES

The main objective is to bring together partners from universities and industry to maximize the potential of all partners in innovative projects in investment casting.



R&D

- Casting design and optimisation
- Virtual prototyping
- Metallurgical research
- Casting material research and analyses
- Ceramic slurry and stucco testing



Technology

- Gating and feeding system optimisation via numerical simulation
- Suggestion of proper usage of ceramic filters and ceramic cores
- Investment casting technology, sand casting technologies
- 3D printing of patterns



Production

- Casting prototypes and small series production done by Cyclone device
- Sand casting technology based on geopolymer-based inorganic binder system Geopol®
- Vacuum furnaces for different type of alloys and superalloys



Education

- Bachelor and Master's degree
- R&D projects for industrial partners
- Special courses and trainings
- Foundry technology promotion



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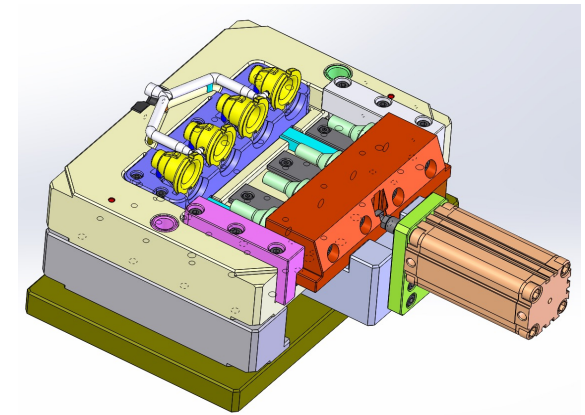
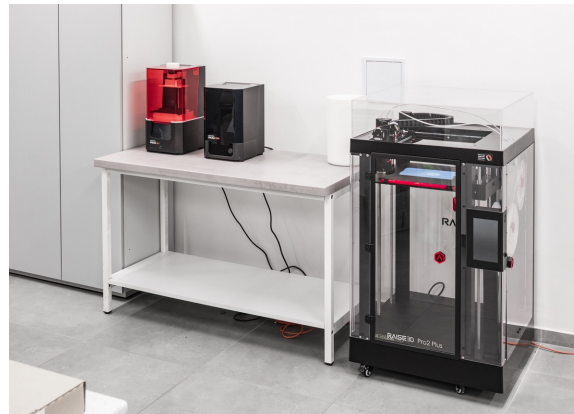
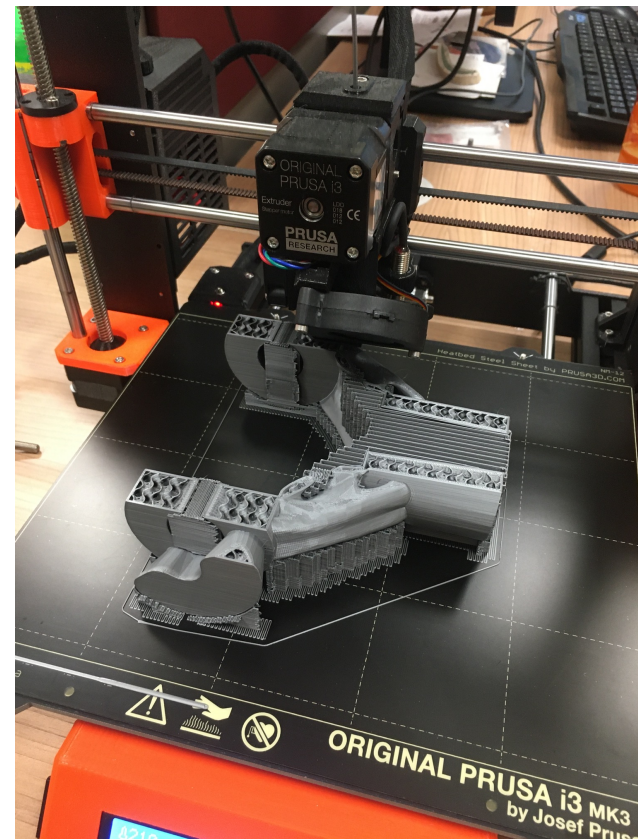
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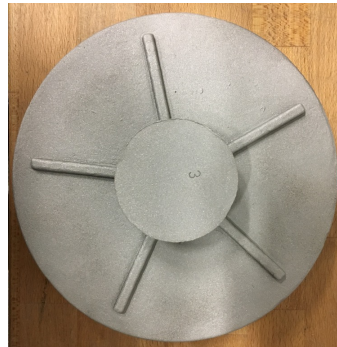
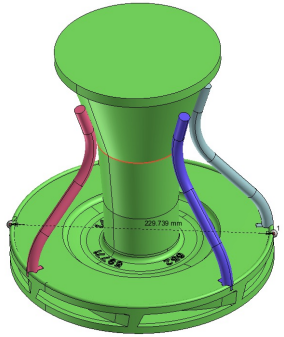
INVESTMENT CASTING LABORATORY

3D printing, mould and pattern making

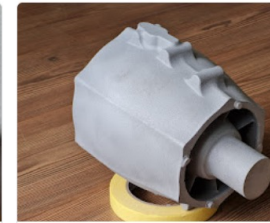
Wax injection machine



Castings on demand



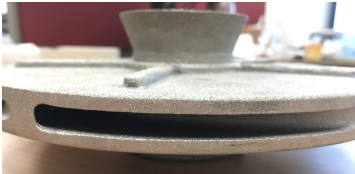
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