



FACULTY OF MECHANICAL ENGINEERING CTU IN PRAGUE

DEPARTMENT OF PRODUCTION MACHINES AND EQUIPMENT

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“We are active in making the Czech Republic one of global leaders in the development and production of high-tech production machines.”



Ing. Matěj Sulitka, Ph.D.
Head of Department

1 FIELD AND TEAM 135⁺ Department of Production Machines and Equipment

The field of manufacturing technology and the team of people in the Czech Republic and abroad who are devoted to this field.



3 FIELDS OF INTEREST

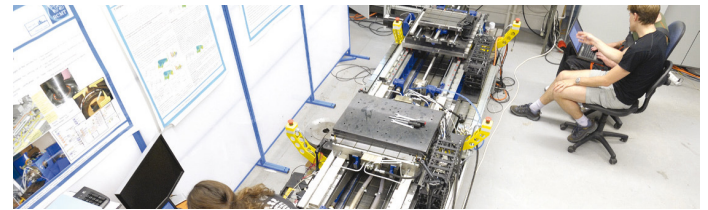
Education – Research – Cooperation with the industry.

5 GOALS OF THE ESTABLISHMENT

- To be the main research base for manufacturing technology in the Czech Republic and top research establishment on a global level.
- To be the best educational authority in the field and to support its popularization.
- To provide support, top level service and know-how to industry in the field and to support its competitiveness.
- To educate and train a new generation of young researchers in the field, to provide continuity and perform research in the field in the Czech Republic.
- To be stable in the spheres of personnel and economics.

STUDY PROGRAMME FOCUS

Modern production machines and equipment are comprehensive mechatronic machines meeting requirements of manufacturing technologies. The study programme focuses on machine design, proposal of drives, design of hydraulic and pneumatic mechanisms, feedback control, and machine automation. As a follow-up, students are further educated in the area of technology, including NC programming, machine condition diagnostics, measurement of component parameters as well as entire machine parameters, and systemic production control.



RCMT PROFILE



The Department of Production Machines and Equipment U12135 educates, researches and collaborates with the industry in the field of manufacturing technology. The study programme focuses on the development of machines for implementation of manufacturing technology. In addition to core machine tools and forming machines, this field also includes robots, industrial automation and high-tech machines for laser technologies and additive manufacturing (3D printing).



FIND A JOB IN MODERN MANUFACTURING

Study with us and find a job as a designer, developer, head of production, experienced technician, project manager and executive in a variety of technically oriented departments. After successful experience as heads of technical departments, our graduates today also hold positions in technical-sales departments and in strategic management of industrial companies.

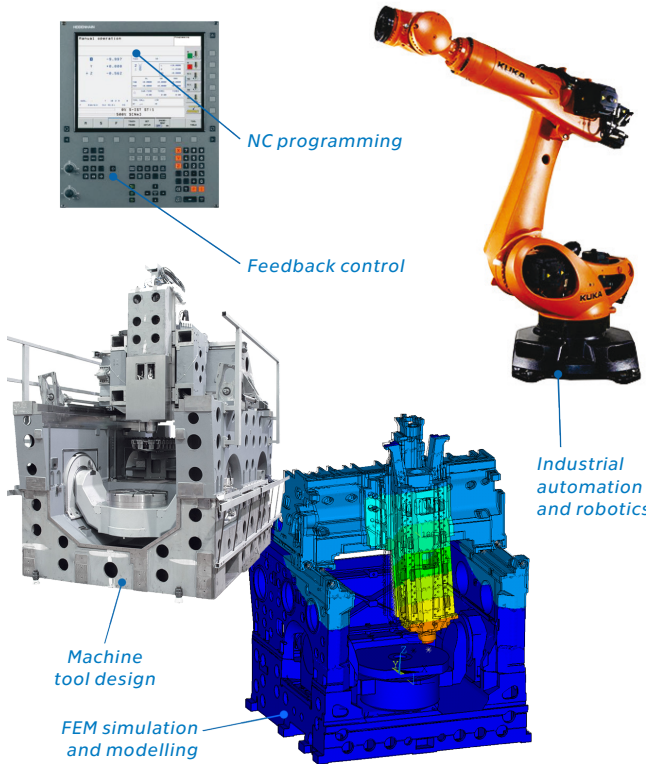


VERSATILE LABOUR MARKET OPPORTUNITIES FOR GRADUATES

Education acquired in the study programme Production machines and equipment is universal and enables its graduates to find a job in a variety of technical and managerial positions, from machine design and manufacturing technology proposals to industrial automation and production control.



- Control and automation of production
- Production management



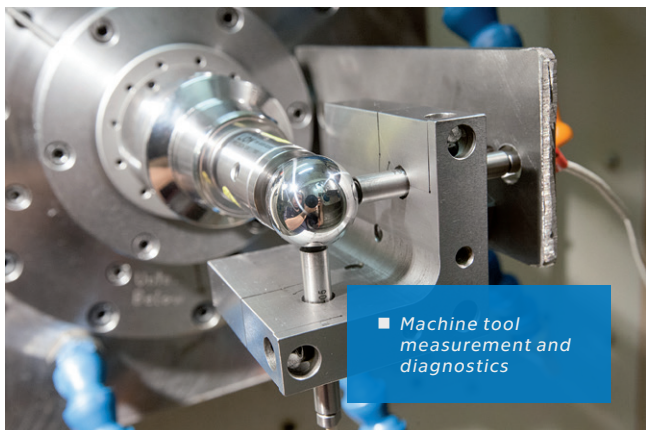
NC programming

Feedback control

Industrial automation and robotics

Machine tool design

FEM simulation and modelling



- Machine tool measurement and diagnostics

PRODUCTION MACHINES AND EQUIPMENT – A KEY FIELD

Traditional branch of mechanical engineering:

- a 200-year-long tradition of specialized manufacture of production machines in the Czech Republic,
- dating back to the 19th century.

Modern branch of mechanical engineering:

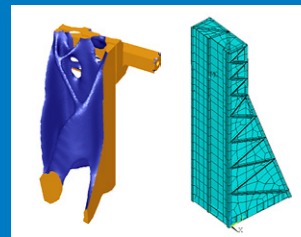
- production machines ensure implementation of all manufacturing technologies,
- advances in machine design are connected with advances in technologies,
- machine productivity and accuracy affects the quality and price of final products.

Promising field:

- Czech Republic is the most industrial EU country (1/3 GDP is generated by industry),
- production machines make up a basis of modern technologies,
- eight Czech companies rank among the first hundred European manufacturers.

Universal field:

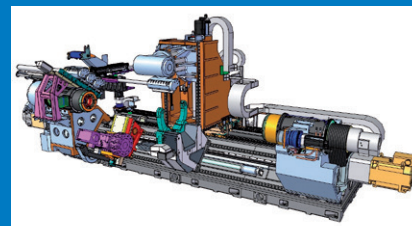
- synergy of machine design, control, electronics, automation, and engineering technology,
- direct link to production control and company management.



Structural optimization of machine structure allows up to 50% mass reduction



Bearing structure and an extension of the CNC control system of the TOS Varnsdorf WHT 110 machine tool has been developed in the cooperation with U12135



Approximately one half of new assemblies of the MultiCut machine tool produced by KOVOSVIT MAS were created at the U12135 unit



One of the main topics of the investigated international projects is machining of difficult-to-machine materials



Research of machine tool thermo-mechanical behavior, minimization and compensation of thermal errors

DEPARTMENT FOCUS

The Department of Production Machines and Equipment cooperates long-term on research and development projects with important Czech machine tool builders (TOS VARNSDORF, TOS KURIM, ŠKODA MACHINE TOOL, TOSHULIN, KOVOSVIT MAS, TAJMAC-ZPS, ERWIN JUNKER, etc.), cutting tool producers (PRAMET, ROTANA, UNICUT, etc.), suppliers of automation solutions (FANUC, KUKA, SIEMENS, etc.), and high-tech manufacturing technology users (PBS TURBO, ATEKO, etc.). Our main goal is to educate young specialists in the field and to investigate grant and commercial projects together with industrial partners. The department cooperates with machine tool and forming machine manufacturers, as well as users of these machines, especially in the field of proposal and implementation of manufacturing technology, machine diagnostics, development of production facilities, and in the area of training and consultancy. It collaborates on its research projects with many leading European and world universities and research institutions.