

VŠB
TECHNICKÁ
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OSTRAVA



Department of Electronics

Education, Research & Development Activities

Contact

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Mission of Department

The department is responsible for an education in subjects related with applied electronics, industrial electronics, power electronics, automotive electronics and electrical drives in bachelor, master and doctor study programs.

The main goal of the education is to prepare the college students for their career in the practice, research or in the education.

Department's Team

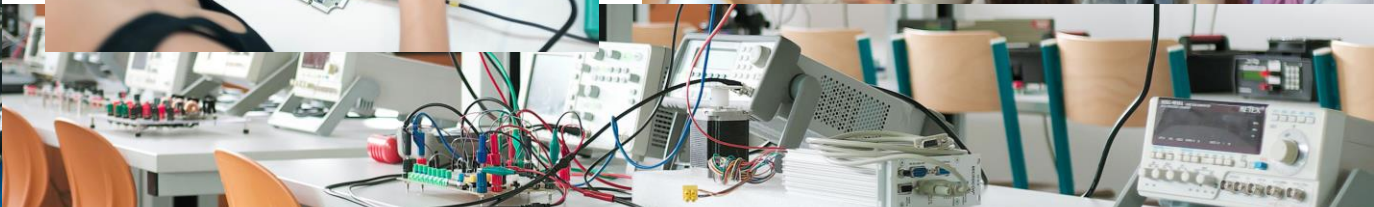
The department has 2 professors, 2 associate professors, 8 lecturers with PhD degree and 1 economical assistant.

At present, 11 full-time PhD students are studying at the department.

Education

The college study has theoretical and practical parts. The practical part is used on the realization of very interesting student projects. At the present time, the Department of Electronics provides the education in the following fields of study:

- | | |
|---------------------------------|----------|
| ✚ Electrical Engineering | PhD |
| ✚ Applied Electronics | BSc |
| ✚ Applied Electronics | MSc |
| ✚ Electronics | PhD |
| ✚ Automotive electronic systems | BSc, MSc |



Structure of subjects which are ensured by the Department of Electronics

- Electronics
- Analog electronic circuits
- Digital and microprocessor technique I, II
- Microcomputer control systems I, II
- Signal processors
- Construction of electronic equipment
- Modelling and simulation of electronic systems

- Electrical drives
- Electrical controlled drives I, II, III
- Servo drives with small power
- Technical means for control of electrical drives
- Design of electrical drives
- Modelling and simulation of electrical drives

- Power switching devices
- Power electronics I
- Power semiconductor systems
- Control electronics of power converters

- Automotive Electronic Systems
- Simulation and Testing of Electronic Systems
- Sensorics Systems for Cars
- Measuring and Testing of an Automotive Systems

R&D

Research group

Applied Electronics and Electric Drives

Head of Group: Petr Palacky

Research Activities

- Research new control methods for sensorless AC drives using non-linear observers and soft computing methods, sensor fault tolerant control
- Development of microcomputer control systems with modern DSP.
- Design, modernization and realization of electrical drives for the industry.
- Research of conception of automobile drive systems.
- Development of electronic systems for industry. Electrical Drives, Analog and Microcomputer Control Technique Department of Electronics

R&D

Research group

Automotive Electronic Systems and Power Electronics

Head of Group: Petr Simonik

Research Activities

- Research of power semiconductor systems with soft switching.
- Research of accumulation systems.
- Research and application of active power filters.
- Research of conception of automobile drive systems.
- Hardware-In-the-Loop simulation and testing
- Development of the automotive models in MATLAB/Simulink
- Measuring and Testing of an Automotive Systems
- Electronic systems for autonomous mobility

List of important projects

- TN02000028 – Centre for Advanced Machines and Manufacturing Technologies (CAMAT) (2023-2028)
- 101100707 – AI-MATTERS (AI MAnufacturing Testing and experimenTation network For EuRopean industries) (2023 – 2027)
- CovEring the trAining Gap in digital skills for European SMEs manpowEr (2023 – 2025)
- TE02000103 – Technology Agency of the Czech Republic – Centre for Intelligent Drives and Advanced Machines Control (CIDAM), Centre of Competence, 2014-2019
- CZ.1.05/1.1.00/02.0070 – IT4Innovations Centre of Excellence, Research Programme VP5, (R&D for Innovations Operational Programme), 2011-2014
- CZ.1.07/2.3.00/20.0075 - ENET – Energy Units for Utilization of Non-Traditional Energy Sources, (R&D for Innovations Operational Programme), 2010-2014
- GA CR 102/05/2080 - Research of Applications of Artificial Intelligence in the Control of Electrical Drives, 2005-2007.
- GA CR 102/08/0775 - New Structures and Algorithms of Mobile Hybrid Systems, 2008-2010.
- GA CR 102/04/P090 - Research of Sensorless A.C. Electrical Drives with Permanent Magnet Synchronous Motor, 2004-2006.

The project list can be found: <https://www.fei.vsb.cz/430/en/research/projects/>

Cooperation with practice

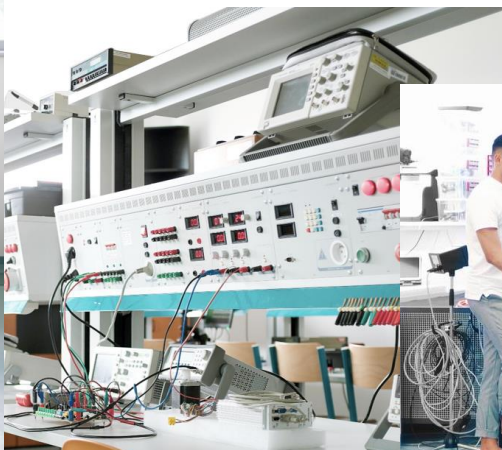
Department of Electronics cooperates with many important companies and technical universities in the areas of the applied electronics, industrial electronics, automotive electronics, microcomputer control systems, power semiconductor systems and electrical drives.

- Poll, s.r.o.
- Hella CZ s.r.o.
- Škoda Auto a.s.
- ABB s.r.o
- Siemens s.r.o.
- ELCOM, a.s.
- Škoda Electric, a.s.
- LEM SA (Switzerland)
- TU Košice (Slovakia)
- TU Žilina (Slovakia)
- SUT Gliwice (Poland)



Laboratories

Laboratories are equipped with modern measuring, computing and audio-visual technique



Thank you for your attention