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Technical University of Košice
Slovak republic

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Departments of Faculty and their Heads

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  prof. Ing. Liberios Vokorokos, PhD. – E-mail: Liberios.Vokorokos@tuke.sk
- Electronics and Multimedia Telecommunications (abbr. KEMT)
  prof. Ing. Dušan Levický, PhD. – E-mail: Dusan.Levicky@tuke.sk
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- Theoretical Electrotechnics and Electrical Measurement (abbr. KTEEM)
  prof. Ing. Dobroslav Kováč, PhD. – E-mail: Dobroslav.Kovac@tuke.sk

Foreword / Welcome from the Dean of the Faculty

Our goals:

We intend, we want ..

".. to be an attractive but simultaneously a pretentious faculty for students for whom the diploma awarded will open the doors on the job market,
.. to be an important research centre in field of electrical engineering and informatics both at home and abroad,
.. to be a faculty with friendly relations and excellent collegial atmosphere which enables creative activity of the teaching and research staff in hand with our students."

Ladies and Gentlemen,

It is my great pleasure to send you greetings from Slovakia as a Dean of Faculty of Electrical Engineering and Informatics, Technical University in Košice. Slovakia is a country in central Europe. Our University is located in the Eastern Slovakia and we are very proud to live in the city of Košice, which is an old historical city with many historical buildings and places. Košice is also cultural and social centre of the Eastern part of the country and the second biggest city In Slovak Republic. Technical University in Košice has overall more than 13 000 students in 9 faculties.

Allow me to introduce Faculty of Electrical Engineering and Informatics, Technical University in Košice in Slovakia. Faculty is a school with approx. 2500 students and 200 teachers and research associates. We have 170 PhD students in our courses. We offer more than 250 courses for university education including Bc. (BSc.), Ing. (MSc.) and PhD in 3 main branches: *Informatics*, *Telecommunications*, *Electric Power Engineering and Electrical Engineering*. More details about particular specialization can be found in this publication.

Our teachers and research associates are highly qualified persons and also very active in educational and research projects mainly in international co-operation. Faculty takes active role in 10 educational and 14 research international projects granted by agencies from EEC countries and USA and also participates on more than 60 research projects granted by Slovak agencies. All this activity brings very interesting and highly valuable results.

There is a small community of 15 foreign students studying at our faculty. We hope that this community will grow and will appreciate our skills and good conditions for study here in Košice.

The main role of this publication is to inform you about results of the Faculty for last year and also warmly invite readers for mutual co-operation and international contacts. We are open to any discussions about educational and research problems and we would highly appreciate any opportunity to meet with colleagues from other countries. I would like to express a warm invitation for our potential future students and underline that we provide a high profile teaching courses by experienced teachers and research associates.

Yours Sincerely

prof. Ing. Liberios Vokorokos, PhD.

CONTENTS

Košice and the Technical University

Košice – the metropolis of Eastern Slovakia – has more than 750 years rich history. It is an important administrative, business and industrial center, important crossing of road, railway and air traffic. The downtown has been reconstructed in last years and at present it belongs to the most beautiful and lovely cities in Slovakia. Towering over the center there is the gothic cathedral of St. Elisabeth, completed in 1508, the biggest and most important gothic monument and the only one of this kind in Eastern Europe. The town center is completed by the gothic St. Michael's Chapel and the East Slovak Theatre – imposing construction build in Neo-Baroque style. At present there are approx. 240 thousands inhabitants in Košice and it is the second largest city In Slovakia.

The Technical University of Košice was established in 1952, but in the fact, the origin and roots of two from their faculties go back to the 18th century and they are derived from the Mining Academy in Banská Štiavnica. The University is a state-supported institution. At present, the University consists of nine faculties. It has more than 12 500 Master's and Bachelor's degree students, about 500 PhD. students and 900 academic staff members.

Faculty of Electrical Engineering and Informatics

The Faculty of Electrical Engineering and Informatics, has been one of the leaders In Slovak technical higher education since its establishment in 1969. Faculty consists of 9 departments, one Centre of IT and a computing centre. The departments of the Faculty are located in the campus of the Technical University, which is located in 10-min. walk distance from the city center.

The Faculty is committed to providing its students with the best possible experience of education for their future career and leadership in their profession, for admission to advanced degree programs, and for lifelong learning. The faculty offers a wide variety of full-time and part-time courses, which are relevant to industry's needs. Graduates leave our departments well equipped to meet the needs of industry and development/research institutions and get their jobs with ease.

Statistics

- Present number of faculty staff members is 169 university teachers, among them: 35 professors, 42 associate professors, 92 assistant professors, 23 research workers, 45 administrative staff and technicians, 10 workers.
- The number of MSc. students is approximately 1 000 and number of BSc. students is approximately 2300 every year.

Number of the Bc. students in academic year 2010-2011

Bc. level			
1. year	**2. year**	**3. year**	**Sum**
773	886	686	2345

Number of the Ing. students in academic year 2010-2011

MSc. (Ing.) level		
1. year	**2. year**	**Sum**
468	510	978

Overall number of the students in academic year 2010-2011

Bc. level	MSc. (Ing.) level	PhD. level	Total number
2345	978	179	3502

The student numbers in the academic year 2010/11 by study programs area (number of students vs. study program).

Branch of study	Bc.	Ing.	PhD.	Total
Production processes in electronics		4		4
Electric Power Engineering	183	109		292
Informatics	795	303	48	1146
Automotive Electronics	110			110
Electronics	63			63
Infoelectronics		49	11	60
Telecommunications	200		17	217
Multimedia telecommunications		125		125
Cybernetics	76			76
Cybernetics and info control systems		58		58
Intelligent Systems	65		28	93
Automation of mechatronic systems	69	39	2	120
Industrial Control Engineering	79			79
Electrical Engineering	61	113	17	191
Computer modeling	52	11		63
Industrial Engineering	41		8	49
Applied Informatics	116	6		122
Business Informatics	431	126	15	572
Production technology in electronics			8	8
Artificial Intelligence		35	29	64
Total	**2345**	**978**	**179**	**3502**

Faculty Organization and Resources

DEAN'S OFFICE

The dean's office manages the Faculty life and offers services both for the students and staff members.

Management of the Faculty

Dean: prof. Ing. Liberios Vokorokos, PhD.

Vice-deans: prof. Ing. Roman Cimbala, PhD. responsible for development

		and public relations
	prof. Ing. Iveta Zolotová, PhD.	responsible for education in the bachelor and master study
	prof. Ing. Alena Pietriková, CSc.	responsible for research and doctoral study
	doc. Ing. Ľubomír Doboš, CSc.	responsible for foreign relations, mobility and projects
Faculty Secretary:	JUDr. Mária Homzová	responsible for financial matters and dean's office management

FACULTY ACADEMIC BODIES

The Faculty Scientific Council Faculty and the faculty Academic Senate creates academic bodies of the Faculty having many control and checking functions and responsibilities that are stated in the Faculty Ruling Guide.

Faculty Scientific Board

The Scientific Board is an advisory board to the dean. The members of the Faculty Scientific Board are grouped from the vice-deans, heads of departments, professors and representatives from co-operating industrial companies. The Scientific Council plays decisive role at the Faculty development, orientation and research.

Faculty Academic Senate

The Faculty Academic Senate is the highest-level self-governmental body of the Faculty and is authorized to control and approve activities and issues of the Faculty Presidium. Every department elects one staff member as a representative into the Faculty Staff Chamber of the Faculty Academic Senate. Students also have their representatives in the Students' Chamber.

Professors Board

Professors Board is an advisory board to the dean. The members of the Professors Board are grouped form professors and extraordinary professors of faculty. Board was created from 1st of February 2007 and prepared references for dean of faculty.

DEPARTMENTS

The faculty consists from the following departments:

	abbr. (In Slovak language)
Department of Cybernetics and Artificial Intelligence	KKUI
Department of Computers and Informatics	KPI
Department of Mathematics	KM
Department of Electronics and Multimedia Telecommunications	KEMT
Department of Technologies in Electronics	KTE
Department of Physics	KF
Department of Theoretical Electrotechnics and Electrical Measurement	KTEEM
Department of Electrical Engineering and, Mechatronics	KEM
Department of Electric Power Engineering	KEE

LABORATORIES

Each department has its own teaching and research laboratories that are described in the part concerning the department. Among the most important and largest specialized laboratories can be included the following ones:

- Laboratory of Speech Technologies in Telecommunications
- Computer Networks Laboratory
- Cyber Lab
- High Voltage Hall
- Center for Intelligent Technologies
- Laboratory of Automotive Electronics
- Centre of Advanced Digital Signal Processing
- Laboratory of Technologies in Electronics

FACULTY COMPUTER CENTRE

Address:	Park Komenského 2, 042 00 Košice, Slovak Republic
Tel:	++421-55-602 4007
Fax:	++421-55-602 2249
Web:	http://www.tuke.sk/fei-PC
E-mail:	Liberios.Vokorokos@tuke.sk
Head of the Centre:	prof. Ing. Liberios Vokorokos, PhD.

The Centre offers services in field of computer technology: it maintains and supports majority of the faculty computing facilities both in HW and SW. It also is responsible for maintenance and operation of the faculty computer network and networks information services, four PC laboratories with 50 personal computers that are working 24 hours/day and is also responsible for the faculty information system. Each student of the Faculty has a free access to the Internet.

Staff members

Total number of staff members is 14: Liberios Vokorokos, Katarína Kubišová, Peter Popovec, Eva Boszörmenyová, Marek Andričík, Ľubomír Hodulík, Tomáš Baláž, Martin Kiss, Alena Focková, Jana Trelová, Henrieta Marchevská, Mário Harčarik, Martin Tomášek, Slavomír Šimoňák.

CENTRE FOR INFORMATION TECHNOLOGIES

Address:	Boženy Němcovej 3, 042 00 Košice, Slovak Republic
Tel:	++421-55-6024128
Fax:	++421-55-6024128
Web:	http:/www.tuke.sk/fei-cit
E-mail:	Jan.Paralic@tuke.sk
Head of the Centre:	doc. Ing. Ján Paralič, PhD.

Centre for Information Technolgies (CIT) is a common research center of the Institute of Informatics, Slovak Academy of Sciences in Bratislava and Technical University in Košice, which has officially started its activity of February 1, 2005. CIT is organizationally incorporated into Faculty of electrical Engineering and Informatics, Technical University in Košice, The main task of CIT is to perform

common research in the areas of applied computer science, information technology, cybernetics and artificial intelligence. This is the way that CIT tries to achieve the vision of Technical University of Košice to become a research university. CIT provides appropriate conditions for common research in computer science and applied informatics for academic workers and PhD-students from different faculties and departments of the Technical University in Košice as well as Institute of Informatics, Slovak Academy of Sciences.

Staff members

Within CIT, the following researchers are working full or part time. From the Technical University in Košice: Ján Paralič, Jozef Wagner, Marek Paralič, František Babič.

EDUCATION AND COURSES

Courses offered

The Faculty offers three types of full-time and part-time courses:

- Bachelor's Degree courses (3years) leading to degree Bc.
- Master's Degree courses (5 years) leading to degree Ing.
- Doctoral Study courses (3years) leading to degree PhD.

in various branches of study in electrical, electronic, automation and communication engineering and informatics.

Bachelor courses

Bachelor's Degree course lasts in normal way 3 years. The graduates get more-or-less practical skills in mastering

- Informatics
- Cybernetics
- Electrical Engineering
- Electric Power Engineering
- Electronics
- Industrial Engineering
- Automation of Mechatronic Systems
- Telecommunication
- Automotive Electronics
- Automotive Mechatronics
- Applied Informatics
- Intelligent systems
- Computer modeling
- Physical Engineering of Modern Materials
- Business Informatics

Master's Degree courses

Master's degree course lasts in normal way 2 years. The graduates are oriented towards the selected branch of specialization:

- Informatics
- Automation
- Multimedia Telecommunication
- Electrical Engineering
- Electric Power Engineering
- Technologies in Electronics
- Physical Engineering of Modern Materials
- Industrial Engineering
- Artificial Intelligence
- Cybernetics
- Infoeletronics
- Business Informatics

PhD. courses

Ph.D. course last in normal way 3 years:

- Automation
- Electric Power Engineering
- Electrical Engineering Systems
- Electrotechnologies and Materials
- Infoelectronics
- Informatics
- Cybernetics
- Measurement Technique
- Telecommunications
- Artificial Intelligence

Courses are available on full-time basis. One semester normally lasts 13 weeks and includes between 22 and 26 contact hours per week. The last semester is devoted to the independent work on final project done either at the faculty either in a real workplace situation. The learning activities cover traditional lectures, laboratory work, and seminars. Assessment methods vary from course to course and they consist of assignments, case studies, and examinations.

CREDIT-BASED SYSTEM

In all classes at the Faculty there is introduced a credit system enabling the student to choose the subjects according to their interests and to take the best race of learning. In the first two years there are compulsory subjects for all students giving no freedom for choice. Since the third year, except several compulsory subjects, the student can choose from the list of optional subjects. Each subject is evaluated by a number of credits (usually 4-7). After passing the exam from the subject the student received the credits that are accumulated and the student should collect their minimum number (60) to pass the current year. Registration of the subjects is done before the beginning of the current academic year. The details about the subjects and allocated numbers of credits are given in the Program of Study.

RESEARCH AND DEVELOPMENT

Research at the Faculty departments is oriented towards the following main fields:

- broadband information and communication systems,
- digital signal processing and information transmission in telecommunications,
- specialized computer architectures,
- artificial intelligence applications, mainly knowledge management and computational intelligence,
- modelling and control of complex discrete systems,
- motion control using electrical drives,
- power electronics converters,
- SW and HW development for distributed control of complex drive systems,
- development of non-destructive methods for diagnostics and prophylactics of HV and UHV equipment in electric power systems,
- research and development of three-dimensional sensorial systems for plasma technologies based on special ceramic structures,
- modelling of electric power systems and equipment for their effective utilization and taking into consideration environment protection.

There are national and international projects at the Faculty. The national projects are supported by:

- The Scientific Grant Agency (VEGA) at Ministry of Education of Slovak Republic (grant research),
- The Cultural and Educational Grant Agency (KEGA) at Ministry of Education of Slovak Republic
- Slovak Research and Development Agency (APVV)
- Agency of the Ministry of Education of the Slovak Republic for the Structural Funds of the EU (Agency)

Research projects, which were co-ordinate by the Faculty staff members:

Category of projects	Number of projects
COST projects (international)	5
6th EU program	1
7th EU program	2
Slovak – Bulgarian program	1
Slovak – Slovenian program	1
CEEPUS	2
Leonardo da Vinci	4
Erasmus program	2
Other International Projects	2
Subtotal	20
National projects supported by VEGA	27
National projects supported by KEGA	19
National projects supported by APVV	15
National projects supported by Agency	9
Total	**90**

The projects are described in detail in the chapters giving the description of the departments.

The Faculty has intensive co-operation with industry: the most of results of applied research is realized in industrial enterprises. In 2010 there were accomplished 12 projects of such category at the Faculty.

The departments of the Faculty organize scientific conferences held usually in two-year intervals.

The following meetings, exchanges, international conferences and conferences with international participation were prepared:

- *8th Slovak – Hungarian Joint Symposium on applied Machine Intelligence (SAMI 2010 - http://www.sami.tuke.sk/) has been organized in Herľany, Slovakia, January 28-30, 2010*
- *11-th Conference of Košice Mathematicians, April 2010, Herľany, co-organizers*
- *High-Tech Workshop, Herľany 2010. High-Tech (as the abbreviation of High-Technology) presents an engineering workshop aimed to the informal exchange of ideas of teachers, students, graduates and colleagues from practise in the Educational and Training Centre of Technical University of Košice in Herľany (www.gejzir.sk). Organizer: Perduková D. More information about this activity is to be found in www.tuke.sk/hth; May 21 -23, 2010*
- *Workshop Cycles and Colourings, Tatranská Štrba, September 2010, co-organizers*
- *CSE'2010 – International Scientific Conference on Computer Science and Engineering, September 20-22, 2010, Košice - Stará Ľubovňa, Slovakia*
- *ICETA 2010 – 8th International Conference on Emerging e-Learning Technologies and Applications, October 27 – 29, 2010, Stará Lesná, The High Tatras, Slovakia (DCI co-operation)*
- *"Reliability and Test" – FSRM course, October 07-08, 2010, Tutor: Dr Nicholas Randall from CSM Instruments, Boston, USA.*
- *Specialized Seminar: The Prospects of Slovak Electrical Engineeering, November 18-19, 2010, Šarpanec - High Tatras, Slovak Republic.*

INTERNATIONAL CO-OPERATION

International co-operation presents one of the most important activities of the Faculty. The Faculty policy is oriented:

- towards creating conditions for co-operation in science and technology with the centers in Europe and USA,
- to increase the number and quality of the international research and educational projects,
- to support the mobility of the staff members to foreign institutions,
- towards acceptance the university teachers at the faculty for a certain teaching period,
- to increase the number of international students studying at the Faculty.

Except of co-operation with the partners' faculties in framework of Technical University's contracts there are several signed contracts with the company and faculties of the following universities: University of Oradea (Romania), Politechnika Czestochowska (Poland), Technical University of Ilmenau (Germany), The University of West Bohemia in Pilsen (Czech Republic), Faculty of Electrical

Engineering, Czech Technical University, Prague (Czech Republic), Budapest University of Technology and Economics (Hungary), Université Jean Monnet de Saint-Etienne (France).

In framework of international co-operation, the Faculty is currently involved in the following projects:

6-th EU Framework

- Developing Knowledge Practices - Laboratory (abbr. KP-Lab, co-ordinator: Ján Paralič, department: CIT)

7-th EU Framework

- Intelligent Information System Supporting Observation, Searching and Detection for Security of Citizens in Urban Environment (abbr. INDECT, co-ordinator: Ľubomír Doboš, department: KEMT)
- Perceptual, Contextual and Crossmodal Learning in Hearing and Vision (abbr. Learn2Hear&See, co-ordinator: Norbert Kopčo, department: KKUI)

CEEPUS program

- Active Methods in Teaching and Learning Mathematics, CII-HU-0028 (co-ordinator: Štefan Berežný, department: KM)
- International Cooperation in Computer Science, CII-HU-0019 (co-ordinator: Ladislav Samuelis, department: KPI)

Leonardo da Vinci program

- E-Learning Education and Continuing Training to Electronics Assembling Technology (abbr. ELECT2EAT, co-ordinator: Alena Pietriková, department: KTE)
- Development of competences of educational staff by integrating operational tasks into measures of vocational training and further education (abbr. ComEd, co-ordinator: Alena Pietriková, department: KTE)
- E-Learning in Distributed Data Network Laboratory (abbr. EDINET, co-ordinator: František Jakab, department: KPI)
- Innovation Transfer Network (abbr. IN.TRA.NET, co-ordinator: Ján Šaliga, department: KEMT)

COST projects

- Propagation Tools for Integrated Telecommunication and Earth Observation Systems – COST IC0802 (co-ordinator: Ján Turán, department: KEMT)
- Connection Admission Control Algorithms for mobile communication systems with inherent intelligence for QoS support – COST 2100 (co-ordinator: Ľubomír Doboš, department: KEMT)
- Cross-Modal Analysis of Verbal and Non-verbal Communication – COST

2102 (co-ordinator: Anton Čižmár, department: KEMT)

- Advanced Solder Materials for High Temperature Application – COST MP0602 (abbr. HISOLD, co-ordinator: Alena Pietriková, department: KTE)
- RF/Microwave Communication Subsystems for Emerging Wireless Technologies (RFCSET) – COST IC0803 (co-ordinator: Dušan Kocur, department: KEMT)

Slovak – Bulgarian program

- Využitie FACTS zariadení v elektrizačných sústavách (co-ordinator: Michal Kolcun, department: KEE)

Slovak – Slovenian program

- Evolúcia softvéru na základe adaptácie jazyka (co-ordinator: Ján Kollár, department: KPI)

Erasmus projects

- Enhancing Lifelong Learning for the Electrical and Information Engineering Community (contact: Ján Liguš, department: KKUI)
- Developing Open Source Systems Expertise in Europe (contact: Marek Paralič, department: KPI)

DEPARTMENT OF ELECTRIC POWER ENGINEERING

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Tel.: ++421 55 602 3551, Fax: ++421 55 602 3552

Head of Department
prof. Ing. Michal Kolcun, PhD.
E-mail: Michal.Kolcun@tuke.sk

1 DEPARTMENT'S PROFILE

The Department of Electric Power Engineering at Technical University of Košice is one of the profiling departments of Faculty of Electrical Engineering and Informatics. It was founded on the 1st October 1973 as the independent science and research unit of the faculty. The most important structural changes of the department are:

- integration of the original department with the Department of Electrical Heating and Electrochemistry on the 1st September 1981,
- incorporation of the Department of High Voltage into the Department of Electric Power Engineering on the 1st October 2003.

These changes were reflected to department activities and staff development. The Department of Electric Power Engineering currently has 3 professors, 1 guest professor, 4 associate professors, 10 assistant professors, 1 scientific worker and 11 internal PhD. students.

According to the last accreditation, the Department of Electric Power Engineering guarantees these study programmes:

- Electric Power Engineering in bachelor, master and doctoral degree courses,
- Electrical Engineering in bachelor degree course.

The department is responsible for education of fundamental subjects of the study programmes: Transmission and Distribution of Electricity, Electric Power Plants, Electric Power System Operation, Electric Installation and Substation, Diagnostics of Electrical Power Engineering Equipments, Unconventional Power Sources, Electro Heat and Lighting Engineering.

The department provides the education of electrical engineers, self-employed electrical engineers and electrical engineers for activities supervision or operation supervision in the range for electrical devices without voltage constraint including lightning conductors for objects without detonation risk.

The department develops educational process also in cooperation with foreign universities using ERASMUS programmes.

The department staff has worked on several national and international grant projects, focused on:

- Control of Electric power system of Slovak Republic and electricity market in conditions of European Union,
- Utilisation of artificial intelligence elements for electric power engineering control processes,
- Electrical relays and electric power system stability,
- Solving of overhead power lines mechanics in three dimensional space,
- Illumination of spaces and lighting sources,
- Solar devices with optimal efficiency, solar system properties,
- Diagnostics of electric power equipments.
- High-quality results of science and research activities of the department staff are confirmed by the wide cooperation with the electric power companies (SEPS, VSE, Siemens, ABB, etc.).

The Department of Electric Power Engineering at FEI TU of Košice is the only department in Slovakia with accredited study programmes in all three degree levels of university studies.

2 STAFF

Professors:	prof. Ing. Roman Cimbala, Ph.D. prof. Ing. Michal Kolcun, Ph.D. prof. Ing. Iraida Kolcunová, Ph.D. Dr. Ing. Peter Birkner (guest professor)
Associate Professors:	doc. Ing. Ľubomír Beňa, Ph.D. (since May 2010) doc. Ing. Alexander Mészáros, Ph.D. (since May 2010) doc. Ing. Pavel Novák, CSc. doc. Ing. Ladislav Varga, Ph.D.
Assistant Professors:	Ing. Jozef Balogh, Ph.D. Ing. Ľubomír Beňa, Ph.D. (until April 2010) Dr. Ing. Bystrík Dolník

Ing. Jaroslav Džmura, Ph.D.
Ing. Daniel Hlubeň, Ph.D.
Ing. Marek Hvizdoš, Ph.D.
Ing. Stanislav Ilenin, Ph.D.
Ing. František Kovaľ, PhD. (September-December 2010)
Ing. Juraj Kurimský, Ph.D.
Ing. Dušan Medveď, Ph.D.
Ing. Alexander Mészáros, Ph.D. (until April 2010)
Ing. Jaroslav Petráš, Ph.D.
Ing. Jozef Rusnák, Ph.D. (until May 2010)
Ing. Ján Tkáč, CSc.

Senior Scientists: prof. Ing. Karol Marton, DrSc. (part time)

Technical Staff: Ladislav Danč
Dagmar Kramolišová
Ing. Jana Varnavčinová

Ph.D. Students: Ing. Maher A. A. Nasr
Ing. Vieroslava Sklenárová
Ing. Lídia Dedinská
Ing. Milan Kvakovský
Ing. Ľudovít Csányi
Ing. Matúš Katin
Ing. Vladimír Krištof
Ing. Stanislav Kušnír
Ing. Martin Marci
Ing. Pavol Hocko
Ing. Marián Hrinko

3 LABORATORIES

- Three PC Laboratories
- Laboratory of Computer Relays
- Laboratory of Electro-thermal Technologies
- Laboratory of Environmental Protection
- Laboratory of Electrical Power Network
- Laboratory of Electric Power Engineering Measurements
- Laboratory of Unconventional Power Source
- Laboratory of Lighting Engineering
- Laboratory of High Voltage Engineering
- Laboratory of Insulating System Diagnostics
- Laboratory of Electrostatics
- Laboratory of Partial Discharges
- Laboratory of High Fields
- Laboratory of Transient Overvoltage Protection of Computer Networks and Electronic Equipment
- Laboratory of Intelligent Systems
- Ultra High Voltage Testing Laboratory

- Electric Power Systems Control Laboratory, Joint Laboratory of Department of Electric Power Engineering TU FEI Košice and ABB ELEKTRO, Ltd., Bratislava

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (Hours per week)	Name of Lecturer
Fundamentals of Electrical Engineering	1st	2/2	Balogh
Introduction to programming and networks	1st	3/2	Kušnír
Technical documentation in informatics	1st	1/2	Balogh
Programming	2nd	0/2	Petráš
Fundamentals of environmental engineering	2nd	2/2	Mészáros
Computers in Electric Power Engineering	2nd	2/1	Cimbala
Database systems - SQL Oracle	3rd	2/2	Petráš
Power transmission	3rd	2/2	Varga
Designing in electric power engineering	3rd	2/2	Ilenin
Light technology	3rd	2/2	Beňa
Fundamentals of environmental engineering	3rd	1/2	Mészáros
Faults in Electric Power System	4th	2/2	Rusnák
Electric Power Plants	4th	2/2	Kolcun
Conversion of Electrical Energy	4th	2/2	Novák
Unconventional energy sources	4th	2/2	Tkáč
Bachelor Thesis I	5th	0/5	(Supervisors)
Electrical installation and substation	5th	2/3	Varga
High Voltage Engineering	5th	2/3	Kolcunová
Economy in the electric power engineering	5th	2/2	Mészáros
Operation of electric power plants	5th	2/2	Džmura
Bachelor Thesis II	6th	0/9	(Supervisors)
Electric Power System Operation	6th	2/3	Kolcun
Electrical relaying in electric power system	6th	2/3	Hvizdoš
Management and Marketing in Electric Power Engineering	6th	2/2	Cimbala
Prophylactics of power engineering equipment	6th	2/2	Kolcunová
Mesurement in electric power engineering	6th	2/2	Hlubeň

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (Hours per week)	Name of lecturer
Electrical Power Network	7th	2/2	Varga
Quality and reliability of electric power delivery	7th	2/2	Beňa, Hlubeň
Simulation in Electric Power System	7th	2/3	Varga, Medveď
Optimisation of Electric Power System Operation	7th	2/3	Kolcun
Electromagnetic compatibility	7th	3/1	Dolník
Design of the illuminating systems	7th	1/3	Beňa
Term project	8th	0/4	(Supervisors)
Electrical Power Network II	8th	2/2	Varga
Automatization of Electric Power Plant Service	8th	2/2	Cimbala
Transient stability of power system	8th	2/2	Džmura
Electric power systems and the environment	8th	2/2	Mészáros
Overvoltages in electrical network	8th	3/1	Dolník
Master Thesis I	9th	0/4	(Supervisors)
Diagnostic in electric power engineering	9th	2/2	Kolcunová
Software engineering environment	9th	2/2	Cimbala
Protection Systems of Electric Power System	9th	2/2	Hvizdoš
Fault Analysis of Electric Power System	9th	1/3	Hvizdoš
New trends of the power system economy	9th	2/2	Mészáros
Master Thesis II	10th	0/18	(Supervisors)
Liberalization of electricity market	10th	2/0	Kolcun

4.3 Postgraduate Study (PhD.)

Subject	Semester	Lectures/exercises (Hours per week)	Name of Lecturer
Theoretical Electrical Engineering	1st	0/2	Cimbala Kolcun Kolcunová Novák Varga Birkner
Analysis of Electric Power System	2nd	0/2	Cimbala Kolcun Kolcunová Novák Varga Birkner
Thesis Project II	2nd	0/2	(Supervisors)

Subject	Semester	Lectures/exercises (Hours per week)	Name of Lecturer
Subject of Specialisation	3rd	0/2	Cimbala Kolcun Kolcunová Novák Varga
Scientific Activity II	4th	0/8	(Supervisors)
Thesis Project IV	4th	0/2	(Supervisors)
Scientific Activity III	5th	0/2	(Supervisors)
Thesis	6th	0/9	(Supervisors)

5 RESEARCH PROJECTS

- ***Complex analysis and optimisation of electricity losses in Electric Power System***, Slovak Research and Development Agency (APVV) No. APVV-0385-07, duration: 2008 - 2010, co-ordinator: Kolcun, M.
- ***Research of Influence of Degradation Factors on Electro-physical Structure of High Voltage Insulation Materials***, Scientific grant agency project (S.G.A.) No. 1/0368/09, duration: 2009 – 2011, co-ordinator: Cimbala, R.
- ***Use FACTS Devices in the Electric Power Systems***, Slovak Research and Development Agency (APVV) No. SK-BG-0010-08, duration: 2009 - 2010, co-ordinator: Kolcun, M.
- ***Innovation of Education of Subjects Oriented on Lighting Technique***, Cultural and Educational Grant Agency project (KEGA) No. 3/7122/09, duration: 2009 - 2011, co-ordinator: Kolcun, M.
- ***Research of the possibilities of critical states elimination in the Electrical Power System of the Slovak republic***, Scientific grant agency project (S.G.A.) No. 1/0166/10, duration: 2010 – 2011, co-ordinator: Kolcun, M.

6 CO-OPERATION

6.1 Co-operation in Slovakia

- Institute of Experimental Physics, Slovak Academy of Sciences, Košice
- Slovak Power Plants, Inc. (SE, a.s.), Bratislava
- Power Plant EVO, Vojany
- Power Plant ENO, Nováky
- Hydro Power Plants VET, Trenčín
- Nuclear Power Plant EBO, Jaslovské Bohunice
- Heat and Power Plant TEKO, Košice
- Slovak Electric Transmission System, Inc. (SEPS, a.s.), Bratislava
- VSE - East Slovakia Power Engineering, Inc., Košice
- SSE - Centre Slovakia Power Engineering, Inc., Žilina
- ABB s.r.o., Bratislava
- Research Institute of Nuclear Power Plants, Inc. (VUJE, a.s.), Trnava
- ELEKTROVOD, Inc. Bratislava
- Slovak Gas Industry, Division Slovtransgaz, Nitra

- U.S. Steel, Košice
- Siemens Ltd., Bratislava

6.1.1. Visitors to the Department

- doc. Ing. Petr Toman, PhD. – Brno University of Technology, Czech Republic
- Ing. Ilona Lázničková, PhD. – Brno University of Technology, Czech Republic
- prof. Ing. Stanislav Rusek, CSc. – VŠB Technical University of Ostrava, Czech Republic
- doc. Ing. Radomír Goňo, PhD. – VŠB Technical University of Ostrava, Czech Republic
- Dr. Georgi Georgiev – TPP Varna, Bulgaria
- Dr. Rumen Kirov – Technical University Varna, Bulgaria

6.2 International Co-operation

- Moscow Power Engineering Institute, Russia
- Sankt - Petersburg Power Education Institute of Power Engineering, State Department of Russian Federation, Russia
- Graz University of Technology, Austria
- Polytechnika Częstochowska, Poland
- Akademia Górniczo - Hutnicza, Krakow, Poland
- Technical University of Riga, Latvia
- Technical University of Tallinn, Estonia
- Hungarian Copper Promotion Centre Budapest, Hungary
- Haefely Test A.G. TETTEX Instruments Division, Dietikon Zűrich, Switzerland
- University of Oradea, Romania
- West Bohemian University, Pilsen, Czech Republic
- VŠB Technical University, Ostrava, Czech Republic
- Czech Technical University, Prague, Czech Republic
- Brno University of Technology, Czech Republic
- Óbuda University, Budapest, Hungary
- EUSS Universitat Autònoma de Barcelona, Spain
- Technical University, Varna, Bulgaria
- ABB Switzerland Ltd, Switzerland

6.2.1. Visits of Staff Members to Foreign Institutions

- Kolcun, M.: VŠB TU Ostrava, Czech Republic, 20.-22.1.2010
- Kolcunová, I.: VŠB TU Ostrava, Czech Republic, 20.-22.1.2010
- Cimbala, R.: VŠB TU Ostrava, Czech Republic, 20.-22.1.2010
- Beňa, Ľ.: VŠB TU Ostrava, Czech Republic, 20.-22.1.2010
- Kvakovský, M.: AGH Krakow, Poland, 28.2.-30.4.2010
- Dedinská, L.: ÓBUDA University Budapest, Hungary, 5.4.-30.6.2010
- Varga, L.: VŠB TU Ostrava, Czech Republic, 12.-16.4.2010
- Ilenin, S.: VŠB TU Ostrava, Czech Republic, 12.-16.4.2010
- Kolcunová, I.: ÓBUDA University Budapest, Hungary, 27.4.-29.4.2010
- Beňa, Ľ.: Brno University of Technology, Czech Republic, 4.-6.5.2010

- Balogh, J.: Brno University of Technology, Czech Republic, 4.-6.5.2010
- Marci, M.: Brno University of Technology, Czech Republic, 4.-6.5.2010
- Kušnír, S.: Brno University of Technology, Czech Republic, 4.-6.5.2010
- Krištof, V.: Brno University of Technology, Czech Republic, 4.-6.5.2010
- Marton, K.: WBU, Pilsen, Czech Republic, 11.-13.5.2010
- Medveď, D.: WBU, Pilsen, Czech Republic, 23.-29.5.2010
- Csányi, Ľ.: WBU, Pilsen, Czech Republic, 23.-29.5.2010
- Katin, M.: WBU, Pilsen, Czech Republic, 23.-29.5.2010
- Krištof, V.: WBU, Pilsen, Czech Republic, 23.-29.5.2010
- Kušnír, V.: WBU, Pilsen, Czech Republic, 23.-29.5.2010
- Marci, M.: WBU, Pilsen, Czech Republic, 23.-29.5.2010
- Cimbala, R.: Budapest University of Technology and Economics, Budapest, Hungary, 28.5.2010
- Mészáros, A.: ÓBUDA University Budapest, Hungary, 31.5.-4.6.2010
- Kolcun, M.: Czestochowa University of Technology, Czestochowa, Poland, 22.-23.5.2010
- Kolcunová, I.: Czestochowa University of Technology, Czestochowa, Poland, 22.-23.5.2010
- Kolcun, M.: University of Rzeszów, Poland, 1.-2.6.2010
- Cimbala, R.: University of Rzeszów, Poland, 1.-2.6.2010
- Kolcun, M.: Technical University of Varna, Bulgaria, 19.-26.6.2010
- Beňa, Ľ.: Technical University of Varna, Bulgaria, 19.-26.6.2010
- Hlubeň, D.: Technical University of Varna, Bulgaria, 19.-26.6.2010
- Medveď, D.: Tallinn University, Tallinn, Estonia, 7.-11.6.2010
- Hvizdoš, M.: Tallinn University, Tallinn, Estonia, 7.-11.6.2010
- Tkáč, J.: Tallinn University, Tallinn, Estonia, 7.-11.6.2010
- Petráš, J.: Czech Technical University in Prague, Czech Republic, 8.-12.6.2010
- Hlubeň, D.: Czestochowa University of Technology, Czestochowa, Poland, 5.-8.9.2010
- Hlubeň, D.: Czestochowa University of Technology, Czestochowa, Poland, 8.-10.9.2010
- Cimbala, R.: Universitá Ca´Foscari Venezia, Italy, 5.-13.9.2010
- Beňa, Ľ.: Universitá Ca´Foscari Venezia, Italy, 5.-13.9.2010
- Kolcun, M.: 21th Congress WEC, Montreal, Canada, 10.-18.9.2010
- Kolcunová, I.: 21th Congress WEC, Montreal, Canada, 10.-18.9.2010
- Tkáč, J.: Brno University of Technology, Czech Republic, 6.-11.9.2010
- Beňa, Ľ.: Czech Technical University in Prague, Czech Republic, 19.-22.9.2010
- Medveď, D.: Czech Technical University in Prague, Czech Republic, 19.-22.9.2010
- Kušnír, S.: Technical University of Varna, Bulgaria, 13.-16.10.2010
- Krištof, V.: Technical University of Varna, Bulgaria, 13.-16.10.2010
- Petráš, J.: Swis Foundation for Research in Microtechnology, Lausanne, Switzerland, 15.-17.12.2010
- Dolník, B.: Swis Foundation for Research in Microtechnology, Lausanne, Switzerland, 15.-17.12.2010

6.3 Membership in International Organizations and Societies

- Cimbala, R.: Working Group: Insulation Diagnostics, Manchester, United Kingdom
- Cimbala, R.: Working Group „Static Electricity in Process Industry", Basel, Switzerland
- Cimbala, R.: Institute of Electrical and Electronic Engineers (IEEE), Dielectric and Electrical Insulation Society, USA
- Cimbala, R.: Member of CIGRE Committee, France
- Kolcun, M.: Member of Czech and Slovak National CIGRE Committee
- Kolcun, M.: Member of Czech Committee CIRED
- Kolcun, M.: Member of Slovak WEC Committee
- Kolcun, M.: Member of Editorial Board Journal of Elektrotechnika v praxi, Czech Republic
- Kolcun, M.: Member of Editorial Board Power and Electrical Engineering, Riga, Latvia
- Kolcun, M.: Honorary Professor of Budapest Tech, Hungary
- Marton, K.: Member of Electrotechnical Society, WG Electrostatics, Prague, Czech Republic
- Marton, K.: Invited professor, Fakultatea Electrotehnica si Informatica - University din Oradea, Romania
- Tkáč, J.: Member of International Solar Energy Society, Germany
- Balogh, J.: Member of Scientific Board EEA - Electrotehnica Electronica Automatica, Romania
- Cimbala, R.: Member of Scientific Board EEA - Electrotehnica Electronica Automatica, Romania
- Džmura, J.: Member of Scientific Board EEA - Electrotehnica Electronica Automatica, Romania
- Petráš, J.: Member of Scientific Board EEA - Electrotehnica Electronica Automatica, Romania

6.4 Membership in Slovak Organizations and Societies

- Cimbala, R.: Member of Technical Standardization Commission of Slovak Republic - Cables and Electroinsulation Materials, TK No. 53
- Cimbala, R.: Member of WG Electrical Machine Diagnostics, US Steel Košice
- Cimbala, R.: Member of Scientific Council, TU FEI Košice
- Cimbala, R.: Member of Editorial Board JSES – Starnutie elektroizolačných systémov, Košice
- Cimbala, R.: Member of Editorial Board EEN – Elektroenergetika, TU Košice, FEI
- Dolník, B.: Member of Editorial Board JSES – Starnutie elektroizolačných systémov, Košice
- Hlubeň, D.: Member of Examination Commission of Slovak Council of Civil Engineers According to Law: No. 555/2005 Statute of Slovakia
- Hlubeň, D.: Member of SEZ-KES
- Kolcun, M.: Member of Editorial Board Journal of EE
- Kolcun, M.: Member of Editorial board journal Acta Electrotechnica et Informatica
- Kolcun, M.: Member of Examinational Commission According to Law: No. 70/1998 Statute of Slovakia

- Kolcun, M.: Member of Scientific Council, TU FEI Košice
- Kolcun, K.: Chairman of Editorial Board JSES – Starnutie elektroizolačných systémov, Košice
- Kolcun, K.: Chairman of Editorial Board EEN – Elektroenergetika, TU Košice, FEI
- Kolcunová, I.: Association of Technical Diagnostics
- Kolcunová, I.: Slovak Centre of IEE
- Kolcunová, I.: Member of Technical Standardization Commission of Slovak Republic - Cables and Electro-insulation Materials, TK No. 53
- Kolcunová, I.: Member of WG for Electrical Machine Diagnostics, US Steel Košice
- Kolcunová, I.: Member of Editorial Board JSES – Starnutie elektroizolačných systémov, Košice
- Kolcunová, I.: Member of Editorial Board EEN – Elektroenergetika, TU Košice, FEI
- Kurimský, J.: Member of WG for Electrical Machine Diagnostics, US Steel Košice
- Kurimský, J.: Executive Editor of EEN – Elektroenergetika, TU Košice, FEI
- Marton, K.: Editorial Board of Journal of Electrical Engineering, Bratislava
- Marton, K.: Member of Scientific Council, Faculty of Electrical Engineering, University of Žilina
- Marton, K.: Chairman of Society for Sciences and Arts, TU FEI Košice
- Marton, K.: Chairman of Commission of SKVH by MŠK SR for DrSc. (Electric Power Engineering), Bratislava
- Marton, K.: Member of Commission of SKVH by MŠK SR for PhD. (Electric Power Engineering), Bratislava
- Marton, K.: Honorary Chairman Member of Slovak Electrotechnical Society, TU FEI Košice
- Marton, K.: Member of Editorial Board JSES – Starnutie elektroizolačných systémov, Košice
- Marton, K.: Member of Editorial Board EEN – Elektroenergetika, TU Košice, FEI
- Novák, P.: Chairman of Examinational Commission According to Law: No. 70/1998 Statute of Slovakia
- Varga, L.: Chairman of Examinational Commission According to Law: No. 70/1998 Statute of Slovakia
- Varga, L.: Member of Technical Standardization Commission of Slovak Republic – Electrical Power Engineering, TK No.43
- Varga, L.: Member of Technical Standardization Commission of Slovak Republic – Electrical Installations and Protection against Electric Shock, TK No.84
- Varga, L.: Chairman of Senate for Granting Professional Qualification for Business Activity in Power Engineering, URSO
- Varga, L.: Member of Examination Commission of Slovak Council of Civil Engineers According to Law: No. 555/2005 Statute of Slovakia
- Balogh, J.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Beňa, Ľ.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Cimbala, R.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Džmura, J.: Chairman of Slovak Electrotechnical Society, TU FEI Košice
- Hlubeň, D.: Member of Slovak Electrotechnical Society, TU FEI Košice

- Hvizdoš, M.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Kolcun, M.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Kolcunová, I.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Medveď, D.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Mészáros, A.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Petráš, J.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Rusnák, J.: Member of Slovak Electrotechnical Society, TU FEI Košice

6.5 Contracts, International Scientific Projects

Intensive Program SOCRATES-ERASMUS: *Environmental Impacts of Power Industry* 2010 (Coordinator: prof. Ing. Jan Mühlbacher, CSc. Technical University, ZČU Pilsen, guarantee for department: prof. Ing. Michal Kolcun, Ph.D.)

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	61	50	3

8 OTHER ACTIVITIES

8.1 Conferences, Seminars

- Specialized Seminar: The Prospects of Slovak Electrical Engineeering, 18.-19.11.2010, Šarpanec - High Tatras, Slovak Republic.

8.2 Expert References

- Kolcun, M.: Opinion of PhD Thesis by Ing. Alena Breznická, TU Košice, Faculty of Mechanical Engineering, Slovak republic.
- Kolcun, M.: Opinion of PhD Thesis by Ing. Michal Cabala, FEI STU Bratislava, Slovak Republic.
- Kolcun, M.: Opinion of PhD Thesis by Ing. Peter Hečko, EF ŽU Žilina, Slovak Republic.
- Kolcun, M.: Opinion of PhD Thesis by Ing. Vladimír Kocák, University of Economics in Bratislava PHF Košice, Slovak Republic.
- Kolcun, M.: Opinion of PhD Thesis by Ing. Karol Kósa, FEI STU Bratislava, Slovak Republic.

8.3 Projects for Industry Companies

- Cimbala, R.: Measurement of Long Term of Epoxy Sampers, ABB Switzerland Ltd., Baden-Dättwil, 2010, Switzerland
- Cimbala, R.: Partial Discharges Measurement, Eustream, s.r.o., 2010, Slovak Republic
- Cimbala, R.: Checking and service of power streem measurements, Eustream, s.r.o, 2010, Slovak Republic
- Cimbala, R.: Insulating Condition Diagnostic and Calibration, U.S. Steel s.r.o., Košice, 2010, Slovak Republic
- Cimbala, R.: AC/DC flash tester calibration, StropTel, 2010, Slovak Republic

- Cimbala, R.: Service and measurements of reactors, Eustream, s.r.o., 2010, Slovak Republic
- Cimbala, R.: State reactor analysis, Eustream, s.r.o., 2010, Slovak Republic

8.4 Compositions for Dissertation Examinations

- CSÁNYI, Ľ.: Thermal degradation in insulation materials. (Cimbala, R.)
- ČAČKOVÁ, V.: Thermal degradation of insulation (Cimbala, R.)
- DEDINSKÁ, L.: The effect of electro-thermal degradation on electroinsulated characteristic of the vegetable oil. (Kolcunová, I.)
- KATIN, M.: Dynamic phenomena on the external power line conductors. (Varga, L.)
- KRIŠTOF, V.: Control of Power System under crisis conditions. (Kolcun, M.)
- KUBINEC, J.: Optimization of support services and the possibility of introducing of balance sheet market in Slovakia in conditions of a liberalized electricity market. (Kolcun, M.)
- KUŠNÍR, M.: Synergy of progressive systems of environment technique and renewable energy sources. (Kolcun, M.)
- KUŠNÍR, S.: Research of equipments to power flow control in power system. (Kolcun, M.)
- KVAKOVSKÝ, M.: Measurements of discharge activity in stator insulation of rotating electrical machines. (Kolcunová, I.)
- LOVASOVÁ, R.: Planning of price for heat in the field of power engineering. (Kolcunová, I.)
- MARCI, M.: Research of discharge activity in liquid dielectrics. (Kolcunová, I)
- MLYNÁRČIK, T.: Effect of harmonics on losses in distribution networks and transformers. (Kolcun, M.)
- NASR, M.: Electric power system of Libya and its future. (Kolcun, M.)

9 PUBLICATIONS

9.1 Books

[1] NOVÁK, P.: Electroheat: Foundations of Electric Heating and Applications. 1. vyd - Košice: Equilibria - 2010. - 514 s. - ISBN 978-80-89284-48-1.

[2] MACKAY, D. JC - AČ, A. - RUSNÁK, J.: Sustainable Energy - without the hot air. - 1. vyd - Košice: TU - 2010. - 383 s. [CD-ROM]. - ISBN 978-80-553-0417-5.

[3] KOLCUN, M.,BEŇA, Ľ., MÉSZÁROS, A.: Optimisation of electric power system operation. Košice: TU - 2009. 265 s. ISBN 978-80-553-0323-9.

9.2 Journals

[1] TKÁČ, J. - DOLNÍK, B. - KURIMSKÝ, J. - HVIZDOŠ, M.: Wind power plants lightning protection: Protection of electrical devices of distributed energy sources. In: TZB-info. (2010), p. 1-5. - ISSN 1801-4399. Internet: http://www.tzb-info.cz/vetrna-energie/6634-ochrana-veternych-elektrarni-proti-blesku.

[2] TKÁČ, J. - DOLNÍK, B. - KURIMSKÝ, J.: Wind power plant lightning strike protection. In: Energie 21. No. 5 (2010), p. 34-36. Internet: http://www.energie21.cz/.

[3] MARTON, K. - BALOGH, J. - PETRÁŠ, J. - DŽMURA, J.: Situation analysis of electric field on boundary-line of solid state electrode and gas. In: Przegląd elektrotechniczny. Vol. 86, no. 8 (2010), p. 307-311. - ISSN 0033-2097.

[4] KURIMSKÝ, J. - DOLNÍK, B.: On stability of polarisation current pattern during forced thermal aging in sintered ceramics. In: Przegląd elektrotechniczny. Vol. 86, no. 9 (2010), p. 257-261. - ISSN 0033-2097.

[5] DOLNÍK, B. - MATIS, M.: Discharge processes in air in strong non-homogeneous electric field. In: Elektroenergetika. Roč. 3, č. 5 (2010), s. 15-17. - ISSN 1337-6756. Internet: http://jeen.fei.tuke.sk/index.php/jeen/article/view/152/146.

[6] KOLCUNOVÁ, I. - HRINKO, M. - KVAKOVSKÝ, M. - KURIMSKÝ, J.: Modeling of winding coils placement in a stator slot - an analysis of the slot part of the hv insulation. In: Starnutie elektroizolačných systémov. Roč. 5, č. 8 (2010), s. 14-19. - ISSN 1337-0103.

[7] JÁSZAY, R. - CIMBALA, R. - KOLCUNOVÁ, I.: Anti-pumping Regulation of Turbocompressor. In: Elektroenergetika. Roč. 3, č. 5 (2010), s. 5-9. - ISSN 1337-6756. Internet: http://jeen.fei.tuke.sk/index.php/jeen/article/view/155.

[8] KUŠNÍR, S. - KRIŠTOF, V. - BEŇA, Ľ. - KOLCUN, M.: Possibilities of power flow controls by using special equipment. In: Elektroenergetika. Roč. 3, č. 5 (2010), s. 1-4. - ISSN 1337-6756. Internet: http://jeen.fei.tuke.sk/index.php/jeen/article/view/163/143.

[9] CIMBALA, R.: Dielectric spectroscopy of insulation oils. In: Starnutie elektroizolačných systémov. Č. 9 (2010), s. 26-28. - ISSN 1337-0103.

[10] KRIŠTOF, V. - KUŠNÍR, S. - HLUBEŇ, D. - KOLCUN, M.: Modeling of transient phenomena in PSLF. In: Elektroenergetika. Roč. 3, č. 6 (2010), s. 13-16. - ISSN 1337-6756. Internet: http://jeen.fei.tuke.sk/index.php/jeen/article/viewFile/157/151.

[11] DOLNÍK, B. - KURIMSKÝ, J.: EMC and earth faults. In: Elektroenergetika. Roč. 3, č. 6 (2010), s. 9-12. - ISSN 1337-6756. Internet: http://jeen.fei.tuke.sk/index.php/jeen/article/view/177/150.

[12] DOLNÍK, B. - GUĽAS, R.: Contrinution to the aging mechanism of ZnO varistors. In: Starnutie elektroizolačných systémov. Č. 9 (2010), s. 21-25. - ISSN 1337-0103. Internet: http://jeen.fei.tuke.sk/index.php/JSES/article/view/176/157.

[13] KVAKOVSKÝ, M. - HRINKO, M. - KOLCUNOVÁ, I. - KURIMSKÝ, J.: Examination of the discharge activity in a variety of grounding concepts of high voltage coil insulation. In: Starnutie elektroizolačných systémov. č. 9 (2010), s. 17-20. - ISSN 1337-0103. Internet: http://jeen.fei.tuke.sk/index.php/JSES/article/viewFile/173/156.

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[15] PETRÁŠ, J. - BALOGH, J. - DŽMURA, J.: Partial discharge calibrator design aspects. In: Starnutie elektroizolačných systémov. č. 9 (2010), s. 6-8. - ISSN 1337-0103. Internet: http://jeen.fei.tuke.sk/index.php/JSES/article/view/168.

[16] DŽMURA, J. - BALOGH, J. - PETRÁŠ, J.: Measurement of electrical properties of macroscopic particles in flying gas. In: Starnutie elektroizolačných systémov. Roč. 5, č. 9 (2010), s. 29-32. - ISSN 1337-0103. Internet: http://jeen.fei.tuke.sk/index.php/JSES/article/view/179.

[17] CSÁNYI, Ľ. - CIMBALA, R. - MARCI, M. - KVAKOVSKÝ, M.: IRC Analysis of Semiconducting Protection Influence in 6 kV asynchronous driver and its Polarization Spectrum. In: Starnutie elektroizolačných systémov. č. 9 (2010), s. 1-5. - ISSN 1337-0103. Internet: http://jeen.fei.tuke.sk/index.php/JSES /article/viewFile/166/152.

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9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	25	19	2

EXPERT'S ACTIVITY FOR PRACTICE

of Department of Electric Power Engineering

Diagnostic of High Voltage Power Devices

- diagnostic measurements of insulating systems of high voltage rotating machines by DC methods
- diagnostic measurements of insulating systems of high voltage rotating machines by partial discharge measurements and phase-resolved partial discharge analysis
- DC diagnostics of high voltage cables, bushes and cable terminators
- diagnostics of high voltage transformers
- localisation of PD sources on high voltage devices by means of high-frequency detection
- advising activities

Special Measurement in Electric Power Engineering

- measurement of electric power lines parameters (positive sequence impedance, zero sequence impedance, inductance and capacitance)
- measurement of power device grounding (appraisal of grounding system quality from the aspect of impedance, system integrity and magnitude of contact voltage and step voltage)
- measurement of basic power quality indices
- design and review of relays operation

Expertise and judge activity in electric power engineering focused on:

- Appraisal of extensive earthing systems quality on the basis of:
  - measurement of the impedance,
  - measurement of the touch voltage and step voltage,
  - measurement of the wholeness.
- Determination of overhead transmission line parameters and cable parameters, namely
  - measurement of the line impedance Z (positive sequence, negative sequence and zero sequence components),
  - measurement of the line capacitance,
  - measurement of the mutual reactance (X_{0m}).
- Measurement of the earth impedance of overhead line towers (without disconnecting earthing conductor),
- Inspection of the electrical equipments and appliances.
- Designing in electrical engineering.

DEPARTMENT OF ELECTRONICS AND MULTIMEDIA COMMUNICATIONS

http://www.kemt.fei.tuke.sk/
Tel.: ++421 55 633 5692, Fax: ++421 55 632 3989

Head of Department:
prof. Ing. Dušan Levický, CSc.
E-mail: Dusan.Levicky@tuke.sk

1 DEPARTMENT'S PROFILE

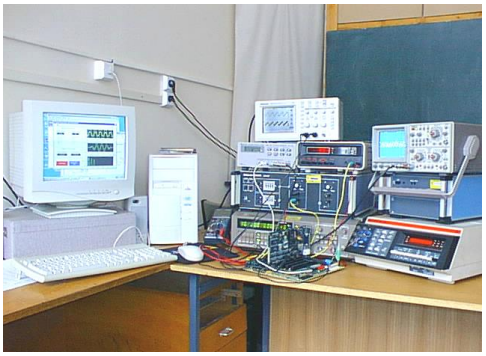
The Department of Electronics and Multimedia Communications was founded in 1969. The original name of department was Department of Electronics. The Department offers three types of full-time courses:

Bachelor's Degree course lasts in normal way 3 years and is leading to degree Bc. The graduates get more-or-less practical skills in mastering

- Automotive electronics,
- Electronics,
- Telecommunications.

Master's Degree course lasts in normal way 2 years and is leading to degree Ing. The graduates get theoretical and practical skills in specialization:

- Infoelectronics,
- Multimedia telecommunications.



Doctoral Study course lasts in normal way 3 years and is leading to degree PhD. The graduates get erudition in scientific areas

- Infoelectronics,
- Telecommunications,
- Measurement Techniques.

The subjects in the degree courses are orientated to the linear and non-linear analogue circuits, automotive electronics and diagnostic of cars, digital electronics, microwave technology, optoelectronics, signal and systems, acoustics, digital signal processing, digital filtering, signal processors and microcontrollers, electronic measurement systems, television systems, signal recording, digital communication and digital transmission systems, optoelectronic communication systems, photonics, sensor systems, multimedia communication systems, mobile and satellite communication systems, digital image communication systems and medical electronics.

The basic research activities of Department are concentrated on digital image and speech processing, mobile multimedia communications, digital filtering, optoelectronics and optical communication, A/D convertors modelling and testing.

2 STAFF

Professors:
Dr.h.c. prof. Ing. Anton Čižmár, CSc.
prof. Ing. Dušan Kocur, CSc.
prof. Ing. Dušan Levický, CSc.
prof. Ing. Stanislav Marchevský, CSc.
prof. Ing. Linus Michaeli, DrSc.
prof. Ing. Ján Mihalík, CSc.
Dr.h.c. prof. RNDr. Ing. JánTurán, DrSc.

Professors emeritus: prof. Ing. Viktor Špány, DrSc.

Associate Professors:
doc. Ing. Ľubomír Doboš, CSc.
doc. Ing. Miloš Drutarovský, CSc.
doc. Ing. Pavol Galajda, CSc.
doc. Ing. Ján Gamec, CSc.
doc. Ing. Jozef Juhár, CSc.
doc. Ing. Ľuboš Ovseník, PhD.
doc. Ing. Ján Šaliga, CSc.

Assistant Professors:
Ing. Mária Gamcová, PhD.
Ing. Iveta Gladišová, CSc.
Ing. Ľudmila Maceková, PhD.
Ing. Stanislav Ondáš, PhD.
Ing. Radovan Ridzoň, PhD.
Mgr. Mária Švecová, PhD.
Ing. Zita Klenovičová, CSc.
Ing. Jozef Zavacký, CSc.

Research Assistant:	Ing. Daniel Hládek, PhD.	Ing. Ján Papaj, PhD.
	Ing. Miroslav Katrák, PhD.	Ing. Marek Papco, PhD.
	Ing. Martin Lojka, PhD.	Ing. Matúš Pleva, PhD.
	Ing. Michal Mirilovič, PhD.	Mgr. Jana Rovňáková, PhD.
Support staff:	Mgr. Lenka Talpašová	Milan Peška
	Božena Marchevská	Viera Šumáková

Ph.D. students:
Internal form:

I Ing. Vladimír Bánoci	Ing. Martin Liptaj
Ing. Radovan Blicha	Ing. Pavol Mišenčík
Ing. Vladimír Cipov	Ing. Martin Sekerák
Ing. Milan Čík	Ing. Ján Staš
Ing. Denis Dupák	Ing. Daniel Urdzík
Ing. Patrik Gallo	Ing. Jozef Vavrek
Ing. Peter Goč-Matis	Ing. Peter Viszlay
Ing. Marek Godla	Ing. Eva Vozáriková
Ing. Tomáš Harasthy	

External form:

Ing. Branislav Hrušovský	Ing. Daniel Fábry
Ing. Tomáš Kanócz	Ing. Rastislav Kokoška
Ing. Anna Kažimírová Kolesárová	Ing. Péter Szoboszlai
	Ing. Kamil Šindlery
Ing. Ján Krekáň	

3 LABORATORIES

3.1 Teaching and Research Laboratories

- Laboratory of Multimedia Communications
- Laboratory of Digital Signal Processing and Satellite Communications
- Laboratory of Digital Image Processing and Videocommunication
- Laboratory of Optoelectronic Communications
- Laboratory of Electronic Circuits & Measurement

3.2 Special Laboratories

- Laboratory of measurement
- Laboratory of communication technologies and advanced digital signal processing
- Laboratory of optoelectronics
- Laboratory of multimedia and network security
- Laboratory of speech technologies in telecommunications

4 TEACHING

4.1 Undergraduate Study (Bc.) – Automotive Electronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Basics of electronics	2nd	3/2	Micheali
Circuit theory	3rd	3/2	Kocur
Signals and systems	3rd	3/2	Mihalík, Zavacký
Digital electronics	3rd	3/3	Levický
Programming environments for electronics and communications	3rd	1/2	Rovňáková, Šaliga
Electronic measurement systems	4th	2/2	Šaliga
Electroacoustics	4th	2/2	Juhár
CAD in electronics	4th	2/2	Galajda
Microelectronic circuits	4th	3/2	Michaeli
Electromagnetic waves and antennas	4th	2/2	Ovseník
Sensor networks	5th	2/2	Kocur
Semestral projects	5th	0/6	Galajda
Automotive electronics	5th	2/2	Gamec
Microprocessor technology	5th	2/2	Drutarovský
High frequency and microwave technology	5th	2/2	Gamec
Videocommunications	5th	2/2	Mihalík
Bachelor work	6th	0/9	Galajda
Automotive embedded systems	6th	3/2	Drutarovský
Active and passive safety systems	6th	3/2	Gamec
Optoelectronic systems	6th	2/2	Turán
Smart measurement systems	6th	2/2	Šaliga
Satellite technology and services	6th	3/2	Marchevský
Mobile networks and services	6th	3/2	Doboš

4.2 Undergraduate Study (Bc.) – Electronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Basics of electronics	2nd	3/2	Micheali
Circuit theory	3rd	3/2	Kocur
Signals and systems	3rd	3/2	Mihalík, Zavacký
Digital electronics	3rd	3/3	Levický
Programming environments for electronics and communications	3rd	1/2	Rovňáková, Šaliga
Electronic measurement systems	4th	2/2	Šaliga
Microelectronic circuits	4th	3/2	Michaeli
Electroacoustics	4th	2/2	Juhár

Electromagnetic waves and antennas	4th	2/2	Ovseník
CAD in electronics	4th	2/2	Galajda
High frequency and microwave technology	5th	2/2	Gamec
Semestral projects	5th	0/6	Galajda
Microprocessors technology	5th	2/2	Drutarovský
Videocommunications	5th	2/2	Mihalík
Automotive electronics	5th	2/2	Gamec
FPGA circuits	5th	2/2	Drutarovský, Galajda
Bachelor work	6th	0/9	Galajda
Optoelectronic systems	6th	2/2	Turán
Smart measurement systems	6th	2/2	Šaliga
Mobile networks and services	6th	3/2	Doboš
Satellite technology and services	6th	3/2	Marchevský
Active and passive safety systems	6th	3/2	Gamec

4.3 Undergraduate Study (Bc.) – Telecommunications

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Basics of electronics	2nd	3/2	Micheali
Circuit theory	3rd	3/2	Kocur
Signals and systems	3rd	3/2	Mihalík, Zavacký
Digital electronics	3rd	3/3	Levický
Programming environments for electronics and communications	3rd	1/2	Rovňáková, Šaliga
Electronic measurement systems	4th	2/2	Šaliga
Electromagnetic waves and antennas	4th	2/2	Ovseník
Introduction to telecommunication	4th	3/2	Levický
Electroacoustics	4th	2/2	Juhár
Semestral projects	5th	0/6	Galajda
Switching technology	5th	3/2	Marchevský
Networks architecture	5th	3/2	Čižmár
Access networks	5th	3/2	Marchevský, Maceková
High frequency and microwave technology	5th	2/2	Gamec
Microprocessor technology	5th	2/2	Drutarovský
Videocommunications	5th	2/2	Mihalík
FPGA circuits	5th	2/2	Drutarovský, Galajda
Mobile networks and services	6th	3/2	Doboš
Bachelor work	6th	0/9	Galajda
Satellite technology and services	6th	3/2	Marchevský
Network security	6th	2/2	Levický
Optoelectronic systems	6th	2/2	Turán
Smart measurement systems	6th	2/2	Šaliga

4.4 Graduate Study (Ing.) – Infoelectronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Digital signal processing	1th	3/2	Mihalík
Programmable logic Devices	1th	2/2	Drutarovský, Galajda
Optoelectronics	1th	2/2	Turán
Signal processors	1th	3/2	Drutarovský
Semestral projects	2nd	0/4	Galajda
Microwave circuits and systems	2nd	3/2	Gamec
Digital image processing and coding	2nd	3/2	Mihalík
Processing and transmission of speech and audio	2nd	3/2	Juhár
Optical communication systems	2nd	3/2	Turán
Digital filters	2nd	2/2	Kocur
Applied cryptography	2nd	3/2	Levický
Digital television	3rd	3/2	Marchevský
Photonics	3rd	3/2	Turán
Multimedia technologies	3rd	3/2	Levický
Master thesis	3rd	0/6	Galajda
Vehicle diagnostics systems	3rd	3/2	Galajda
Medical electronics	3rd	3/2	Michaeli
Mobile communications	3rd	3/2	Doboš
Satellite communications	3rd	3/2	Marchevský
Multimedia database	3rd	3/2	Juhár
Project management	4th	0/2	Marchevský
Master thesis	4th	0/18	Galajda

4.5 Graduate Study (Ing.) – Multimedia Telecommunications

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Digital signal processing	1th	3/2	Mihalík
Optoelectronics	1th	2/2	Turán
Communication channel modelling	1th	2/2	Kocur
Spread-spectrum communication systems	2nd	3/2	Kocur
Semestral projects	2nd	0/4	Galajda
Communications systems theory	2nd	3/2	Čižmár
NGN networks	2nd	3/2	Doboš
Optical communication systems	2nd	3/2	Turán
Processing and transmission of speech and audio	2nd	3/2	Juhár
Digital filters	2nd	2/2	Kocur
Applied cryptography	2nd	3/2	Levický
Multimedia technologies	3rd	3/2	Levický
Mobile communications	3rd	3/2	Doboš
Satellite communications	3rd	3/2	Marchevský

Master thesis	3rd	0/6	Galajda
Photonics	3rd	3/2	Turán
Digital television	3rd	3/2	Marchevský
Interactive telecommunication systems and services	3rd	3/2	Juhár
Multimedia database	3rd	2/2	Juhár
Project management	4th	0/2	Marchevský
Master thesis	4th	0/18	Galajda

4.6 Postgraduate Study (PhD.) –Telecommunications

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Communication system theory	1th	0/2	
Foreign language	1th	0/2	
Research project I.	1th	0/2	
Foreign language	2nd	0/2	
Advanced communication technology	2nd	0/2	
Research project II.	2nd	0/2	
Specialization subject	3rd	0/2	
Research work	3rd	0/8	
Research project III.	3rd	0/4	
Research work	4th	0/8	
Research project IV.	4th	0/2	
Research work	5th	0/12	
Research project V.	5th	0/2	
Thesis - Research work	6th	0/9	

4.7 Postgraduate Study (PhD.) – Infoelectronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Theory of infoelectronics	1th	0/2	
Foreign language	1th	0/2	
Research project I.	1th	0/2	
Foreign language	2nd	0/2	
Infoelectronics systems	2nd	0/2	
Research project II.	2nd	0/2	
Specialization subject	3rd	0/2	
Research work	3rd	0/8	
Research project III.	3rd	0/4	
Research work	4th	0/8	
Research project IV.	4th	0/2	
Research work	5th	0/12	
Research project V.	5th	0/2	
Thesis - Research work	6th	0/9	

4.8 Postgraduate Study (PhD.) – Measurement Technique

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Topics from mathematics and physics	1th	0/2	
Foreign language	1th	0/2	
Research project I.	1th	0/2	
Foreign language	2nd	0/2	
Measure theory	2nd	0/2	
Research project II.	2nd	0/2	
Specialization subject	3rd	0/2	
Research work	3rd	0/8	
Research project III.	3rd	0/4	
Research work	4th	0/8	
Research project IV.	4th	0/2	
Research work	5th	0/12	
Research project V.	5th	0/2	
Thesis - Research work	6th	0/9	

5 RESEARCH PROJECTS

- Cross-Modal Analysis of Audio and Video Signals (COST Action 2102)
- Pervasive Mobile & Ambient Wireless Communications (COST Action 2100)
- RF/Microwave Communication Subsystems for Emerging Wireless Technologies (COST Action IC0803)
- Propagation Tools and Data for Integrated Telecommunication, Navigation and Earth Observation Systems (COST Action IC0802)
- Innovation Transfer Network (Leonardo da Vinci LLP-LDV/TOI/08/IT/493)
- INDECT – Intelligent Information System Supporting Observation, Searching and Detection for Security of Citizens in Urban Environment (7.FP, Contract No 218086)
- Complex Modular Robotic System of Middle Category with Increased Intelligence (Ministry of Education of Slovak Republic Project, No. Req-00169-0001)
- Development of Measurement Apparatus and Multimedia e-Learning Book Supporting Education in the Field of UWB Sensor Networks (Ministry of Education of Slovak Republic KEGA Project, No. 3/7523/09)
- WEBLAB - Exploitation of WEB Technologies for Electronic Courses Requiring Laboratory Exercises (Ministry of Education of Slovak Republic KEGA Project, No. 3/7115/09)
- Through Wall Tracking of Moving Targets by Using UWB Radar Systems (Project of Agency for Science and Research, No. APVV LPP-0080-09)
- Speech Technologies for Advanced Telecommunication and Information Systems and Services in Slovak Language (Project of Agency for Science and Research, No. APVV-0369-07)
- Intelligent Control of Service Robot (Project of Agency for Science and Research, No. APVV VMSP-P-0004-09)
- Centre of Information and Communication Technologies for Knowledge Systems (Operational Program Research and Development, Call OPVaV-

2008/2.1/01-SORO, No. IMTS-26220120020)
- Centre of Excellence of the Integrated Research & Exploitation the Advanced Materials and Technologies in the Automotive Electronics (Operational Program Research and Development, No. IMTS-26220120055)
- Security of Next Generation Telecommunication Networks and Systems (Scientific Grant Agency Project VEGA, No. 1/0065/10)
- Advanced Signal Processing Techniques for Reconfigurable Wireless Sensor Networks (Scientific Grant Agency Project VEGA, No. 1/0045/10)
- Metrological Characterisation of the Analog to Digital Interfaces and Improvement of its Properties (Scientific Grant Agency Project VEGA, No. 1/0103/08)

6 CO-OPERATION

6.1 Co-operation in Slovakia

- Contineo s.r.o., Košice
- Elcom s.r.o., Prešov
- Ingmetal s.r.o., Prešov
- Slovak Academy of Science
- Slovak Telecom
- Volkswagen Slovakia a.s.
- VSE, Košice
- ZŤS výskumno-vývojový ústav Košice a.s.

6.1.1. Visitors to the Department

- Prof. Viktor Fischer, Universite Jean Monnet- Saint-Etienne, France, Oct. 25 – Nov. 5, 2010

6.2 International Co-operation

- Austrian Research Institute for Artificial Intelligence (OFAI) of the Austrian Society for Cybernetic Studies
- Crabbe Consulting Ltd, Germany
- FTW Telecommunications Research Center Vienna, Austria
- Geozondas Ltd., Lithuania
- Ingenieur Büro Ralf Klukas, Germany
- INESC Lisabon, Portugal
- IMEC, Netherlands
- MEDAV GmbH, Germany
- Meodat Meßtechnik, Germany
- Statens Räddningsverk, Sweden
- ŠkodaAuto Mladá Boleslav, Czech Republic
- Second University of Naples, Italy
- Vrije Universiteit Brussel, Belgium
- Technische Universität Ilmenau, Germany
- Hamburg University of Technology, Germany
- Techische Universiteit Delft, Netherlands
- Universitat Ramon Llull, Barcelona, Spain

- Technical University Budapest, Hungary
- Technical University of Ljubljana, Slovenia
- Technical University of Clju-Napoca, Romania
- University of Firenza, Italy
- University of Gent
- University of Maribor, Slovenia
- University of Sannio, Italy
- University of Reggio Di Calabria, Italy
- University of Mediteranea, Italy
- University of Bologna, Italy
- Universite Jean Monnet-Saint-Etienne, France
- University of Gävle, Sweeden

6.2.1. Visit of Staff Members to Foreign Institutions

- Blicha,R., VUT Brno, Czech Republic January 13-14, 2010
- Blicha,R., Ramon Llull University, Barcelona, Spain Jan. 20 – Feb. 21, 2010
- Bugár,G., TU Ostrava, Czech Republic October 20-22, 2010
- Bánoci,V., VUT Brno, Czech Republic April 19–21, 2010
- Bánoci,V., TU Ostrava, Czech Republic October 20-22, 2010
- Cipov,V., AGH University of Science and Technology Krakow, Poland May 5-7, 2010
- Doboš, Ľ., EC, Brussels, Belgium March 3-5, 2010
- Doboš, Ľ., AGH University of Science and Technology Krakow, Poland May 5-7, 2010
- Doboš, Ľ., Alborg, Denmark June 2-4, 2010
- Doboš, Ľ., University of Bologna, Italy September 5-13, 2010
- Doboš, Ľ., University of Bologna, Italy November 22-25, 2010
- Doboš, Ľ., Bonn University, Germany Nov. 30 – Dec. 2, 2010
- Drotár,P., Ramon Llull University, Barcelona, Spain Jan. 20 – Feb. 21, 2010
- Drotár,P., VUT Brno, Czech Republic April 19–21, 2010
- Drutarovský,M., University of Bologna, Italy January 10–16, 2010
- Drutarovský,M., TU Ilmenau, Germany April 24 – May 1, 2010
- Drutarovský,M., IMEC Eindhoven, Netherlands May 10-14, 2010
- Drutarovský,M., ČVUT Praha, Czech Republic June 23-25, 2010
- Drutarovský,M., Trialog Paris, France June 28 – July 3, 2010
- Galajda,P., VUT Brno, Czech Republic January 11-12, 2010
- Galajda,P., PIT Aveiro, Portugal February 21-26, 2010
- Galajda,P., IMEC Eindhoven, Netherlands May 10-14, 2010
- Galajda,P., VUT Brno, Czech Republic April 19–21, 2010
- Galajda,P., Trialog Paris, France June 28 – July 3, 2010
- Galajda,P., Hamburg University of Technology, Germany Aug. 31 – Sept. 3, 2010
- Galajda,P., Univ. of Naples Frederico, Genoa, Italy September 5-13, 2010
- Galajda,P., Pawel Wlodkowic University College, Plock, Poland September 20-23, 2010
- Galajda,P., Ecole Polytechnique Fédérale de Lausanne, Switzerland

November 6–10, 2010
- Gamcová, M., Univ. of Naples Frederico, Genoa, Italy
September 5-13, 2010
- Gazda,J., Ramon Llull University, Barcelona, Spain
Jan. 20 – Feb. 21, 2010
- Gazda,J., VUT Brno, Czech Republic April 19–21, 2010
- Goč-Matis,P., VUT Brno, Czech Republic May 18–21, 2010
- Hládek,D., University of Oradea, Romania May 27-28, 2010
- Hrušovský,B., VUT Brno, Czech Republic April 19–21, 2010
- Juhár,J., EC, Brussels, Belgium March 3-5, 2010
- Juhár,J., Univ. of Naples Frederico, Genoa, Italy September 5-13, 2010
- Kanócz,T., VUT Brno, Czech Republic April 19–21, 2010
- Kanócz,T., TU Ostrava, Velké Losiny, Czech Republic
September 8-10, 2010
- Kanócz,T., University of Zagreb, Zadar, Croatia September 13-19, 2010
- Kocur,D., Delft University of Technology, Netherland
February 2-5, 2010
- Kocur,D., Hochschle fur Telekomunikationen Leipzig, Germany
March 2-4, 2010
- Kocur,D., VUT Brno, Czech Republic April 19–21, 2010
- Kocur, D., Technical University of Ilmenau, Germany
April 24 – May 1, 2010
- Kocur,D., Geozondas Ltd. Vilnius, Lithuania June 15–19, 2010
- Kocur,D., Hamburg University of Technology, Germany
Aug. 31 – Sept. 3, 2010
- Kocur,D., CNIT Paris, France Sep. 26 – Oct. 2, 2010
- Kocur,D., Ecole Polytechnique Fédérale de Lausanne, Switzerland
November 6–10, 2010
- Kocur,D., Deutsche Telekom AG Bonn, Germany
Nov. 30 – Dec. 2, 2010
- Levický,D., Krynica, Poland June 1-2, 2010
- Levický,D., UPC Barcelona, Spain July 11-19, 2010
- Levický,D., TU Ostrava, Velké Losiny, Czech Republic
September 8-10, 2010
- Levický,D., University of Zagreb, Zadar, Croatia September 13-19, 2010
- Levický,D., Sárospatak, Hungary October 5-6, 2010
- Levický,D., VUT Brno, Czech Republic November 4-5, 2010
- Lojka,M., University of Oradea, Romania May 27-28, 2010
- Marchevský,S., TU Ostrava, Czech Republic January 27-28, 2010
- Marchevský,S., Krynica, Poland June 1-2, 2010
- Marchevský,S., Sárospatak, Hungary October 5-6, 2010
- Michaeli,L., ČVUT Praha, Czech Republic June 13-15, 2010
- Michaeli,L., University Sannio, Benevento, Italy July 12-17, 2010
- Michaeli,L., HIQ, University of Gävle, Sweden July 3-9, 2010
- Michaeli,L., University Sannio, Benevento, Italy September 28-30, 2010
- Michaeli,L., ČVUT Praha, Czech Republic December 8-12, 2010
- Michaeli,L., Budapest Tech, Budapest, Hungary November 24-25, 2010
- Mochnáč,J., VUT Brno, Czech Republic April 19–21, 2010
- Ondáš,S., Budapest Tech, Budapest, Hungary September 6-10, 2010
- Papaj, J., AGH University of Science and Technology Krakow, Poland

May 5-7, 2010
- Papaj, J., TU Ostrava, Velké Losiny, Czech Republic
  September 8-10, 2010
- Papaj, J., University of Bologna, Italy November 22-25, 2010
- Papco,M., University of Oradea, Romania May 27-28, 2010
- Pleva,M., AGH University of Science and Technology Krakow, Poland
  May 5-7, 2010
- Pleva,M., Grenoble, France June 23-25, 2010
- Pleva,M., University of Gdansk, Poland September 12-15, 2010
- Ridzoň,R., VUT Brno, Czech Republic April 19–21, 2010
- Ridzoň,R., AGH University of Science and Technology Krakow, Poland
  May 5-7, 2010
- Ridzoň,R., TU Ostrava, Velké Losiny, Czech Republic
  September 8-10, 2010
- Ridzoň,R., University of Zagreb, Zadar, Croatia September 13-19, 2010
- Rovňáková,J., VUT Brno, Czech Republic April 19–21, 2010
- Rovňáková,J., TU Ilmenau, Germany April 24 – May 1, 2010
- Rovňáková,J., Geozondas Ltd. Vilnius, Lithuania June 15–19, 2010
- Rovňáková,J., CNIT Paris, France Sep. 26 – Oct. 2, 2010
- Rovňáková,J., Ecole Polytechnique Fédérale de Lausanne, Switzerland
  November 6–10, 2010
- Staš,J., University of Oradea, Romania May 27-28, 2010
- Šaliga,J., University Sannio, Benevento, Italy July 12-15, 2010
- Šaliga,J., University Sannio, Benevento, Italy September 28-30, 2010
- Šaliga,J., Budapest Tech, Budapest, Hungary November 24-25, 2010
- Šterba,J., VUT Brno, Czech Republic April 19–21, 2010
- Turán,J., TU Miskolc, Eger, Hungary May 26-29, 2010
- Urdzík,D., Technical University of Ilmenau, Germany
  April 24 – May 1, 2010
- Urdzík,D., VUT Brno, Czech Republic May 18–21, 2010
- Varchola,M., George Mason University, Fairfax, USA
  August 6-24, 2010
- Viszlay,P., Králiky, Czech Republic Aug. 30 – Sept. 1, 2010
- Viszlay,P., TU Ostrava, Velké Losiny, Czech Republic
  September 8-10, 2010
- Vozáriková,E., University of Oradea, Romania May 27-28, 2010
- Vozáriková,E., Králiky, Czech Republic Aug. 30 – Sept. 1, 2010
- Vozáriková,E., TU Ostrava, Velké Losiny, Czech Republic
  September 8-10, 2010

6.3 Membership in International Organizations and Societies

- Čižmár, A.: Member IEEE Affiliate Computer Society, No. 41237162.
- Čižmár, A.: Member of Audio Engineering Society, New York, I.D. 44154.
- Galajda, P.: Member of Czech and Slovak Radioelectronics Engineering Society.
- Juhár, J.: Member of the ISCA (International Speech Communication Association).
- Juhár, J.: Member of EU Domain Committee COST for ICT (Information and Communication Technologies) – National Delegate.

- Juhár, J.: Member of AES (Audio Engineering Society), Memb. No. 76122.
- Juhár J.: Member of IEEE, Memb. No. 90402602.
- Juhár, J.: Member of the editorial board "International Journal of Signal and Imaging Systems Engineering", Issued by Inderscience Publishers, Geneva, Switzerland.
- Kocur, D.: Member of the editorial board of the journal "Acta Polytechnica Hungarica".
- Levický, D.: Member of the editorial board of the journal "Slaboproudý obzor".
- Levický, D.: Member of the IEEE.
- Levický, D.: Member of Czech and Slovak Radioelectronics Society.
- Michaeli, L.: Head of Slovak IMEKO National Committee and head of the IMEKO Technical Committee TC-4 "Measurement of Electrical Quantities".
- Michaeli, L.: Member of the editorial board „Computer Standard & Interfaces", Issued by Elsevier, Amsterdam, New York.
- Michaeli, L.: Member of the reviewer board "Measurement". Journal IMEKO, Issued by Elsevier, Amsterdam, New York.
- Michaeli, L.: Co-ordinator of IMEKO Working Group "AD and DA metrology".
- Michaeli, L.: Member of the IEEE, Instrumentation & Measurement Society.
- Šaliga, J.: Member of Slovak IMEKO Technical Committee TC-4 "Measurement of Electrical Quantities".
- Turán, J.: Senior Member of the IEEE.
- Turán, J.: Member of Czech and Slovak Radioelectronics Society.

6.4 Membership in Slovak Organizations and Societies

- Čižmár, A.: Member of Technical Standardization Commission No.41 for Telecommunications In Slovakia.
- Doboš, Ľ.: Member of Technical Standardization Commission No.80 for Radiocommunications In Slovakia.
- Drutarovský, M.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Juhár, J.: Member of Technical Standardization Commission No.55 for Electroacustics and ultrasound In Slovakia.
- Kocur, D.: Executive editor of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Levický, D.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Michaeli, L.: Member of the scientific board of Electrotechnical Faculty, University Transport and Communication, Žilina, Slovakia.
- Michaeli, L.: Member of the editorial board „Measurement Science Review", Issued by SAV, Bratislava.
- Michaeli, L.: Editor in Chief of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Michaeli, L.: Scientific Grant Agency of Slovak Republic.
- Šaliga, J.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Turán, J.: Member of the Slovak Technical Standardization Committee No.53 for Cables, Conductors and Isolating Materials.
- Turán, J.: Member of the Slovak Technical Standardization Committee No.43 for Terminology.

- Turán, J.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".

6.5 Contracts, International Scientific Projects

- Cross-Modal Analysis of Audio and Video Signals (COST Action 2102)
- Pervasive Mobile & Ambient Wireless Communications (COST Action 2100)
- RF/Microwave Communication Subsystems for Emerging Wireless Technologies (COST Action IC0803)
- Propagation Tools and Data for Integrated Telecommunication, Navigation and Earth Observation Systems (COST Action IC0802)
- Innovation Transfer Network (Leonardo da Vinci LLP-LDV/TOI/08/IT/493)
- INDECT – Intelligent Information System Supporting Observation, Searching and Detection for Security of Citizens in Urban Environment (7.FP, Contract No 218086)

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	90	73	16

8 OTHER ACTIVITIES

9 PUBLICATIONS

9.1 Books

[1] LEVICKÝ,D.: Kryptografia v informačnej a sieťovej bezpečnosti. In: Košice: Elfa, 2010, 286 pp.

[2] ROVŇÁKOVÁ,J.: Complete Signal Processing for Through Wall Tracking of Moving Targets. In: Saarbrücken: LAP LAMBERT Academic Publishing, 2010, 125 pp.

9.2 Journals

[1] CORRADO,M.-RAPUANO,S.-ŠALIGA,J.: An Overview of Different Signal Sources for Histogram Based Testing of ADCs. In: Measurement, Vol. 43, no. 7 (2010), 878-886.

[2] DAPONTE,P.-ŠALIGA,J.: Advances in Measurement of Electrical Quantities. In: Measurement, Vol. 43, no. 8 (2010), 983-984.

[3] DOBOŠ,Ľ.-CIPOV,V.: The Proposed Beacon-Based Algorithm for Outdoor MANET Environment Using RSS. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 55-60.

[4] DROTÁR,P.-GAZDA,J.-GALAJDA,P.-KOCUR,D.-PAVELKA,.: Receiver Technique for Iterative Estimation and Cancellation of Nonlinear Distortion in MIMO SFBC-OFDM Systems. In: IEEE Transactions on Consumer Electronics, Vol. 56, no. 2 (2010), 471-475.

[5] GAZDA,J.-DROTÁR,P.-KOCUR,D.-GALAJDA,P.: Uplink Modulation Strategies in 4G Wireless Cellular Systems. In: Acta Electrotechnica et Informatica, Vol. 10, no. 1 (2010), 37-41.

[6] GLADIŠOVÁ,I.-MIHALÍK,J.-ZAVACKÝ,J.: Obrysová reprezentácia a kódovanie binárnehotvaru vizuálneho objektu. In: Slaboproudý obzor, Vol. 66, no. 3 (2010), 14-18.

[7] HLÁDEK,D.-STAŠ,J.: Text Mining and Processing for Corpora Creation in Slovak Language. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 65-68.

[8] KOCUR,D.-GAMEC,J.-ŠVECOVÁ,M.-GAMCOVÁ,M.-ROVŇÁKOVÁ,J.: Imaging Method: An Efficient Algorithm for Moving Target Tracking by UWB Radar. In: Acta Polytechnica Hungarica, Vol. 7, no. 3 (2010), 5-24.

[9] LEVICKÝ,D.: 40 rokov Katedry elektroniky a multimediálnych telekomunikácií na FEI TU v Košiciach. In: Slaboproudý obzor, Vol. 66, no. 3 (2010), 1.

[10] LEVICKÝ,D.-KLENOVIČOVÁ,Z.-RIDZOŇ,R.: Ochrana obsahu multimédií. In: Slaboproudý obzor, Vol. 66, no. 3 (2010), 2-6.

[11] LOJKA,M.-JUHÁR,J.: Fast Consctruction Of Speech Recognition Network for Slovak Language. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 111-114.

[12] MICHAELI,L.-RAPUANO,S.: Preface to the Special Issue on XV IMEKO TC-4 Symposium and XII International Workshop on ADC Modelling and Testing. In: Computer Standards & Interfaces, Vol. 32, no. 3 (2010), 71-72.

[13] MIHALÍK,J.: Modeling of Human Head Surface by Using Triangular B-splines. In: Radioengineering, Vol. 19, no. 1 (2010), 39-45.

[14] ONDÁŠ,S.-BEVACQUA,E.-JUHÁR,J.-DEMETER,P.: Towards Influencing of the Conversational Agent Mental State in the Task of Active Listening. In: Lecture Notes in Computer Science, Vol. 5967 (2010), 113-121.

[15] OVSENÍK,Ľ.-KAŽIMÍROVÁ KOLESÁROVÁ,A.-TURÁN,J.: Object Detection in Video Surveillance Systems. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 3, no. 1 (2010), 137-143.

[16] PAPAJ,J.-ČIŽMÁR,A.-DOBOŠ,Ľ.: New Integration Model of QoS and Security as a One Parameter in MANET via Crosslayer Interface CLI. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 163-168.

[17] PAPAJ,J.-ČIŽMÁR,A.-DOBOŠ,L.: Model integrovania bezpečnosti a QOS pre mobilné AD-HOC siete. In: Slaboproudý obzor, Vol. 66, no. 3 (2010), 7-13.

[18] PAPCO,M.-JUHÁR,J.: Comparison of Acoustic Model Adaptation Methods and Adaptation Database Selection Approaches. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 147-150.

[19] PATLEVIČ,P.-DOBOŠ,Ľ.: Markov Model Based CAC Algorithms for Cellular Networks. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 169-172.

[20] ROVŇÁKOVÁ,J.-KOCUR,D.: TOA Estimation and Data Association for Through-wall Tracking of Moving Targets. In: Eurasip Journal on Wireless Communications and Networking, Vol. 2010 (2010), 1-11.

[21] STAŠ,J.-HLÁDEK,D.-JUHÁR,J.: Language Model Size Reduction by Quantization and Pruning. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 205-208.

[22] ŠALIGA,J.-MICHAELI,L.-SAKMÁR,M.-BUŠA,J.: Processing of Bidirectional Exponential Stimulus in ADC Testing. In: Measurement, Vol. 43, no. 8 (2010), 1061-1068.

[23] ŠALIGA,J.-SEKERÁK,M.-CHOVANEC,M.: Pásmový sigma delta AČP implementovaný na obvode PSOC a obvodmi MSI. In: Slaboproudý obzor, Vol. 66, no. 3 (2010), 19-23.

[24] ŠTERBA,J.-GAZDA,J.-DEUMAL,M.-KOCUR,D.: Iterative Algorithm for Channel Re-estimation and Data Recovery in Nonlinearly Distorted OFDM Systems. In: Acta Polytechnica Hungarica, Vol. 7, no. 1 (2010), 103-118.

[25] ŠVECOVÁ,M.-KOCUR,D.: Taylor Series-Based Tracking Algorithm for Through-Wall Tracking of a Moving Person. In: Acta Polytechnica Hungarica, Vol. 7, no. 1 (2010), 5-21.

[26] TURÁN,J.-OVSENÍK,Ľ.-VÁSÁRHELYI,J.: Optically Powered Industrial Barometric System Design. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 3, no. 1 (2010), 131-136.

[27] VARCHOLA,M.-DRUTAROVSKÝ,M.: New High Entropy Element for FPGA Based True Random Number Generators. In: Lecture Notes in Computer Science, Vol. 6225 (2010), 351-365.

[28] VARCHOLA,M.-DRUTAROVSKÝ,M.: High Performance Measuring Equipment. In: International Research Cooperation, International Scientific Herald, Vol. 1 (2010), 21-24.

[29] VARCHOLA,M.: CAD for Modern Electronic Digital Circuits. In: International Research Cooperation, International Scientific Herald, Vol. 1 (2010), 25-27.

[30] VOZÁRIKOVÁ,E.-PLEVA,M.-VAVREK,J.-ONDÁŠ,S.-JUHÁR,J.-ČIŽMÁR,A.: Detection and Classification of Audio Events in Noisy Environment. In: Journal of Electrical and Electronics Engineering, Vol. 3, no. 1 (2010), 253-258.

9.3 Textbooks

[1] KOCUR,D.-ROVŇÁKOVÁ,J.-ŠVECOVÁ,M.: Through Wall Tracking of Moving Targets by M-Sequence UWB Radar. In: I.J.Rudas, J.Fodor, J,Kacprzyk (Eds.): Computational Intelligence in Engineering. Springer's book series 'Studies in Computational Intelligence', Springer Berlin / Heidelberg, 2009, 364-394.

9.4 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	43	69	1

DEPARTMENT OF ELECTRICAL ENGINEERING AND MECHATRONIC

http://www.kempi.fei.tuke.sk
Tel.: ++421 55 602 2279, Fax: ++421 55 633 0115

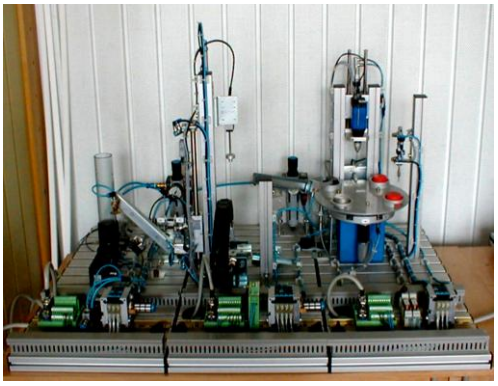
Head of Department
doc. Ing. Michal Girman, PhD.
E-mail: Michal.Girman@tuke.sk

1 DEPARTMENT'S PROFILE

The Department was established in 2005 from the previous units at the faculty: from Department of Electrical Drives and Mechatronics (establ.in1969) and from Laboratory of Industrial Engineering. The both units fused into the Department of Electrical, Mechatronic and Industrial Engineering. In 2010 the name was changed to Department of Electrical Engineering and Mechatronics.

The Department is responsible for education and research in electrical engineering in fields of power and industrial electronics, electrical machines and apparatuses, electromechanical systems, esp. in controlled drives, industrial and automotive mechatronic systems and in the area of effective production planning and control, quality management, and continuous improvement of products and services. The Department offers all types of university courses (bachelor in 2 branches, two master courses and two Ph.D. courses).



2 STAFF

Professors:
prof. Ing. Jaroslav Dudrik, PhD.
prof. Ing. Pavol Fedor, PhD.
prof. Ing. Irena Kováčová, PhD.
prof. Ing. Jaroslav Timko, CSc.
prof. Ing. Pavel Záskalický, PhD.

Associate Professors:
doc. Ing. František Ďurovský, PhD.
doc. Ing. Viliam Fedák, PhD.
doc. Ing. Želmíra Ferková, PhD.
doc. Ing. Michal Girman, PhD.
doc. Ing. Michal Kostelný, CSc.
doc. Ing. Daniela Perduková, PhD.
doc. Ing. Jaroslava Žilková, PhD.

Assistant Professors:
Ing. Peter Bober, PhD.
Ing. Peter Girovský, PhD.
Ing.Mgr. Peter Kmec, PhD.
Ing. Peter Košč, PhD.
Ing. Ján Kaňuch, PhD.
Ing. Milan Lacko, PhD. (since October 2010)

Assistants:
Ing. Jana Harvanová

Senior Scientists:
Ing. Peter Keusch
Ing. Peter Višnyi, PhD.
Bc. Peter Hajsák
Ing. Erik Eötvös (since September till December 2010)
prof. Ing. Ladislav Zboray, CSc.

Technical Staff:
Ing. Gabriela Brečková
Zuzana Olexová
František Hajsák

Ph.D. Students:
Ing. František Baník
Ing. Mišel Batmed (since September 2010)
Ing. Tomáš Béreš
Ing. Marcel Bodor
Ing. Matúš Hric
Ing. Godem Ali M. Ismeal (since September 2010)
Ing. Michal Kaľavský
Ing. Karol Kyslan
Ing. Ľubomír Matis (till August 2010)
Ing. Peter Nguyen
Ing. Marek Pástor (since September 2010)

3 LABORATORIES

- Laboratories of Electrical Engineering
- Power Electronics Laboratory

- Laboratory for CAD (COSMOS, ProEngineer, MATLAB, PSpice, and applied SW)
- Laboratory of Industrial Automation
- Laboratory of Electrical Machines
- Laboratory of Electrical Drives
- Laboratory of Controlled Electrical Drives and Mechatronics
- Laboratory of Process Modelling and Simulation
- Laboratory of Control Systems and Robotics
- Virtual Laboratory of Technological Processes Control by Programmable Logic. www.virtual.laboratory.kempi.fei.tuke.sk
- Virtual Laboratory of Mechatronic Systems Control: http://andromeda.fei.tuke.sk
- Laboratory for Integrated Mechatronic Modules for Adaptive Drives. Joint Laboratory of Department of Electrical Engineering and Mechatronics TU Košice, ZTS VVÚ Košice a.s. and SPINEA, s.r.o. Prešov

4 TEACHING

4.1 Undergraduate Study (Bc.) - Electrical Engineering

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Electrical Engineering Fundamentals	1st	2/2	Kaňuch
Industrial Electronics	2nd	2/2	Kováčová
Electrical Machines	3rd	2/2	Záskalický
Microprocessor Techniques	3rd	2/2	Perduková
Electrical Drives and Power Electronics	4th	2/2	Záskalický
Man-Machine Interfaces	4th	2/2	Perduková
Semiconductor Supply Sources and Converters	5th	3/2	Dudrik
Automation in Industrial Systems	5th	2/2	Fedor
Bachelor Thesis I.	5th	0/5	Supervisor
Controlled Drives	6th	2/2	Ďurovský
Electrical Systems Projecting	6th	2/2	Ferková
Bachelor Thesis II.	6th	0/9	Supervisor

4.2 Undergraduate Study (Bc.) - Automation of Mechatronics Systems

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Business and Management	1th	2/0	Kmec
Industrial Electronics	2nd	2/2	Kováčová
Microcontroller Techniques	3th	2/2	Perduková
Computer Applications	3th	2/2	Perduková
Electrical Machines	3rd	2/2	Záskalický
Electrotechnics in Vehicles	3th	2/2	Ďurovský
Electrical Actuators and Drives	4th	2/2	Žilková
ManMachine Interface	4th	2/2	Peduková
CAE Programs	4th	2/2	Fedák
Bachelor Thesis I.	5th	0/8	Supervisor
Industrial Control Systems	5th	2/2	Fedor
Sensors and Measurement of Nonelectrical Variables	5th	2/2	Fedor

Pneumatic nad Hydraulic Drives	5th	2/2	Bober
Automotive Mechatronics	5th	2/2	Ďurovský
Bachelor Thesis II.	6th	0/8	Perduková
Motion Control	6th	2/2	Ďurovský
Projecting of Electrical Systems	6th	2/2	Ferková
Technical Practice	6th	0/6	Perduková

4.3 Undergraduate Study (Bc.) - Industrial Engineering

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Business and Management	1th	2/0	Kmec
Information Systems in Industry	2nd	2/2	Košč
Industrial Electronics	2nd	2/2	Kováčová
Electrical Machines	3rd	2/2	Záskalický
Human Resource Management	3th	2/2	Košč
Pneumatic and Hydraulics Drives	3th	2/2	Bober
Microcomputer Techniques	3th	2/2	Perduková
Electrical Actuators and Drives	4th	2/2	Žilková
Simulation of Production Systems	4th	2/2	Bober
Man-Machine Interface	4th	2/2	Perduková
Automation of Industrial Systems	5th	2/2	Fedor
Microprocessor Technique	5th	2/2	Perduková
CAD Suported Management	5th	2/2	Fedák
Sensors and Measurement of Non-electrical Variables	5th	2/2	Fedor
Design of Electrical Systems	5th	2/2	Ferková
Controlled Drives	6th	2/2	Ďurovský
Technical Practice in Enterprise	6th	0/6	Perduková
Bachelor Thesis	6th	0/4	Supervisor

4.4 Graduate Study (Ing.) - Electrical Engineering

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Power Semiconductor Systems	7th	2/2	Dudrik
Applied Electronics	7th	2/2	Kováčová
Dynamic Phenomena of Electrical Machines	7th	2/2	Záskalický
Technology of Production in Electronics	7th	2/2	Slosarčík
Enterprise Control Management	7th	2/2	Girman
Control Management	7th	2/2	Kmec
Electromagnetic Compatibility	8th	2/2	Kováčová
Electrical Machines for Automatisation	8th	2/2	Ferková
Semiconductor Converters Construction	8th	2/2	Dudrik
Control of Assembly Lines with Programming Controllers	8th	2/2	Fedor
Statistical Process Control	8th	2/2	Girman
Semester Project	8th	0/4	Supervisor
Databases Systems	8th	2/2	
Control Intelligent Control in El. Systems	9th	2/2	Žilková
Three-Dimensional Modelling and Simulation	9th	2/2	Ferková
Signal Processors	9th	2/2	Višnyi
Electro Energetic			Kolcun
Servosystems	9th	2/2	Ďurovský
Technology of Production in Electrotechnics	9th	2/2	Girman
Diploma Thesis	9th	0/12	Supervisor

4.5 Graduate Study (Ing.) - Automation of Mechatronic Systems

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Models of Mechatronic Systems	7th	2/2	Fedák
Non-linear Mechatronic Systems	7th	2/2	Fedor
Semiconductor Power Systems	7th	2/2	Dudrik
Semester Project	8th	0/4	Fedor
Control of Production Systems by PLC	8th	2/2	Fedor
Electrical Machines for Automation	8th	2/2	Ferková
Robotics	8th	2/2	Žilková
Database Systems	8th	2/2	Perduková
Diploma Thesis I.	9th	0/6	Fedor
Production Technologies in Mechatronics	9th	2/2	Girman
Servosystems	9th	2/2	Ďurovský
Project Control	9th	2/2	Girman
Intelligent Control of El. Systems	9th	2/2	Žilková
Mechatronic Production Systems	9th	2/2	Ďurovský
Diploma Thesis II.	10th	0/18	Supervisor

4.6 Postgraduate Study (PhD) - Electrical Engineering

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Power Converter Systems	1st	2/0	Dudrik
Ph.D Project I	1st	0/2	Supervisor
Foreign Language I	1st	2/0	Dept. of Foreign Languages
Servosystems	2nd	2/0	Fedor
Ph.D Project II	2nd	0/2	Supervisor
Foreign Language II	2nd	2/0	Dept. of Foreign Languages
Ph.D Project III	3rd	0/4	Supervisor
Subject of Specialization	3rd	2/0	According to the subject
Scientific Activity	3rd	0/8	Supervisor
Ph.D Project IV	4th	0/2	Supervisor
Scientific Activity	4th	0/8	Supervisor
Ph.D Project IV	5th	0/2	Supervisor
Scientific Activity	5th	0/8	Supervisor
Ph.D Thesis	5th	0/9	Supervisor

4.7 Postgraduate Study (PhD) - Mechatronic Systems

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Theory of Mechatronic Systems	1st	2/0	Fedor
Ph.D Project I	1st	0/2	Supervisor
Foreign Language I	1st	2/0	Dept. of Foreign Languages
Servosystems	2nd	2/0	Fedor
Ph.D Project II	2nd	0/2	Supervisor

Foreign Language II	2nd	2/0	Dept. of Foreign Languages
Ph.D Project III	3rd	0/4	Supervisor
Subject of Specialization	3rd	2/0	According to the subject
Scientific Activity	3rd	0/8	Supervisor
Ph.D Project IV	4th	0/2	Supervisor
Scientific Activity	4th	0/8	Supervisor
Ph.D Project IV	5th	0/2	Supervisor
Scientific Activity	5th	0/8	Supervisor
Ph.D Thesis	5th	0/9	Supervisor

5 RESEARCH PROJECTS

- *Research of New Generation High Frequency Soft Switching Converters.* APVV project No. APVV -0095-07 (2008-2010). Project contractor: FEI TU Košice. Co-ordinator: DUDRIK, J.
- *New Circuit Breaker up to 63 A and Equipments for Breaker Hourly Tests*. APVV project No. APVV -0287-07 (2008-2010). Project contractor: SEZ Krompachy, co-operation FEI TU Košice. Co-ordinator: DUDRIK, J.
- *Research of behaviour of the small electrical motor by a non harmonic supply.* APVV project No: APVV 0510-06 (2007-2010), Co-ordinator, ZÁSKALICKÝ, P.
- *Research of power semiconductor converters for industrial and electric utility applications.* VEGA (Scientific Grant Agency) Project No 1/0099/09 (2009-2011. Co-ordinator: DUDRIK, J.
- *Centre of excellence of power electronics systems and materials for their components.* Code ITMS: 26220120003, (05/2009 - 04/2011) The project is funded by European Community, ERDF – European regional development fund. Project contractor: University of Žilina, co-operation FEI TU Košice. Co-ordinator: DUDRIK, J.
- *Low power static supply development for electrical systems.* Structural Funds Projects of the EU. SF EU (2010-2011), ITMS 26220220029, Project co-ordinator: FEDOR, P.
- *Centre of excellence on integrated research and application of progressive materials and technologies in automotiver electronics (Centrum excelentnosti integrovaného výskumu a využitia progresívnych materiálov a technológií v oblasti automobilovej elektroniky), ITMS 26220120055.* The project is funded by European Community.
- *Applying artificial intellingence methods to industrial systems controlling..* VEGA (Scientific Grant Agency) Project No 1/0006/10 (2010-2011. Co-ordinator: TIMKO, J.

6 CO-OPERATION

6.1 Co-operation in Slovakia

The Department co-operates with many industrial enterprises in Slovakia having joint project at modernising of the electrical drive systems, control and mechatronic applications: U.S.STEEL Košice, SIEMENS, ABB, BSH Drives and Pumps Michalovce, BWG Prešov, Křižík Prešov, Schneider Electric Slovakia, Spell Procont

Prešov, Spinea Prešov, Vonsch Brezno, Kybernetika Košice, TEKO Košice, ENERGO CONTROL Košice, ZŤS VVU Košice, ŽP Podbrezová, Bukóza Hencovce, Genesis Prešov, Embraco Slovakia Spišská Nová Ves, Kopex Košice, Slovak Union for Quality, Innovation and Design Q-IMPULZ

6.2 International Co-operation

- University of Zagreb, Croatia
- Brno University of Technology, Czech Republic
- Technical University of Liberec, Czech Republic
- VŠB -Technical University of Ostrava, Czech Republic
- West Bohemian University, Pilsen, Czech Republic
- University of Technology and Economy, Budapest, Hungary
- University of Miskolc, Hungary
- Delft University of Technology, The Netherlands
- Warsaw University of Technology, Poland
- Czech Academy of Science, Prague.
- Silesian Polytechnic Institute of Gliwice
- Transilvania University of Brasov, Romania
- University of Oradea, Romania
- University of Maribor, Slovenia

6.2.1. Visits of Staff Members to Foreign Institutions

- DUDRIK, J.: Ohrid, Macedonia, Conf. EPE-PEMC 2010, 4-11 Sept.2010
- ĎUROVSKÝ, F. – FEDÁK, V.: University of Miskolc, microCAD Conference, 18 March, 2011
- ĎUROVSKÝ, F.: ČVUT Praha (CZ), Faculty of Transportation Sciencies, 8 Apr. 2010.
- ĎUROVSKÝ, F.: TU Liberec (CZ), 7-9 Apr. 2010.
- ĎUROVSKÝ, F.- HRIC, M. - KYSLAN, K.: Automatica 2010, Munich (D), 9-11 June, 2010
- ĎUROVSKÝ, F.- HRIC, M.- KYSLAN, K.: TU Munich (D), 11 June 2010
- ĎUROVSKÝ, F.: Hella, Mohelnice (CZ), 15 Sept. 2010
- ĎUROVSKÝ, F.: SensoDrive, Munich (D), 11-13 October 2010
- FERKOVÁ, Ž.: Tech Soft Praha, 30 Sept. 2010.
- HRIC, M.: SPS/IPC/DRIVES 2011 (Electric Automation - Systems & Components) Nurnberg, 22-23 Nov. 2010
- ZÁSKALICKÝ, P. - KAŇUCH, J.: Polytechnika Slaska Gliwice (PL), 21-24 June 2010
- ZÁSKALICKÝ, P. - KAŇUCH, J. - FERKOVÁ, Ž.: VUT Brno (CZ), 8 -9 Nov. 2010

6.3 Membership in International Organizations, Societies and Committees

- DUDRIK, J. – IEEE member
- DUDRIK, J., FEDÁK, V., TIMKO, J.: Power Electronics and Motion Control Council EPE-PEMC – Budapest. Council members.
- FEDÁK, V.: EPE – European Power Electronics and Drives Association, Brussels. Executive Council member, General Assembly member
- TIMKO, J. – International Conference POWER ELECTRONICS and MOTION CONTROL, Ohrid, Macedonia, 2010. Member of the International

Steering Committee.

6.4 Membership in Slovak Professional Bodies

- FERKOVÁ, Ž.: member of Technical Standards Commission on Electrical Machines in SR
- FEDÁK, V.; KAŇUCH, J.; TIMKO, J.; ZÁSKALICKÝ, P.; ZBORAY, L.: members of The SES (Slovak Electrotechnical Society), Branch at FEI TU Košice
- FEDÁK, V.: Council of the Secondary Technical School for EE, Košice (delegate of the FEI TU Košice)
- FEDOR, P.: member of board for the PhD. Study in Mechatronic systems at FEI TU Košice
- PERDUKOVÁ, D.: member of board for the PhD. Study in Electrical Engineering at FEI TU Košice
- PERDUKOVÁ, D.: member of board for the PhD. Study in Mechatronic systems at FEI TU Košice
- TIMKO, J. (Vice-chairman); FEDÁK, V.; ZBORAY, L.; FEDOR, P. DUDRIK J. - members of Joint Slovak Board for the Ph.D. Study in Electrical Engineering
- TIMKO, J. (chairman), GIRMAN, M., KOVÁČOVÁ, I., FEDOR, P., FEDÁK, V., DUDRIK, J.: members of board for the PhD. Study in Electrical Engineering at FEI TU Košice
- TIMKO, J.: member of board for the PhD. Study in Electrical Engineering at EF ZU Žilina
- TIMKO, J.: member of board for the PhD. Study in Mechatronics at SjF TU Košice

6.5 Contracts, International Projects

- ERASMUS Program: Higher education, partner: University of Oradea (Romania), duration: 2006 – 2010 contact: DUDRIK, J., activity: Co-operation within the ERASMUS Program - students and teachers exchange program.

6.6 National Educational Projects

- Students' Skills Development for Mechatronic Systems Control" - KEGA 103-039 TUKE-4/2010. Project co-ordinator: ĎUROVSKÝ, F.
- E-lerning multimedial education of the subject – Electromagnetic compatibility, 2008-10, KEGA, No 3/6388/08. Project co-ordinator: KOVÁČOVÁ, I.
- New technologies in education of subjects in the field of electrotechnical and mechatronic systems control. KEGA 006-005TUKE-4/2010. Project co-ordinator: PERDUKOVÁ, D.

6.7 Editorial Boards

- BOBER, P. Editorial board for journal „Kvalita, Inovácia, Prosperita" (Quality, Innovation, Prosperity), ISSN 1335-1745.
- DUDRIK, J. – Member of the Series Editorial Board of Annals of the Academy of Romanian Scientists
- ZÁSKALICKÝ, P.: Editorial board of Acta Technica CSAV. Journal of

Academy of Sience of the Czech republic, Praha. ISSN 0001-7043.

- ZÁSKALICKÝ, P.: Editorial board of KOMEL, Branzowy osrodek badavczo-rozwojovy Maszym elektrtrycznych, Katowice, Poland. ISSN 0239-3646

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	70	59	4

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences

- High-Tech Workshop, Herľany 2010 (May 21 -23, 2010). High-Tech (as the abbreviation of High-Technology) presents an engineering workshop aimed to the informal exchange of ideas of teachers, students, graduates and colleagues from practise in the Educational and Training Centre of Technical University of Košice in Herľany (www.gejzir.sk). Organiser: Perduková D. More information about this activity is to be found in www.tuke.sk/hth.

8.2 Projects for Industry

- Reasons of asymmetric arcing at separately excitated DC machine 5MS9 at 4th stand 5STT in Cold Roll Mill. U.S.Steel Košice (technical analysis), P-104-0001/10, Co-ordinator: Ferková,Ž.
- Current state analysis of Central Technology Controller and logical control (DIALOG) and design of measures for technical conditions and reliability improvement at winders in Hot Roll Mill U.S.Steel Košice (technical analysis), P/104/0002/10, Co-ordinator: ĎUROVSKÝ, F.

8.3 Student Competitions and Rewards

- Schneider-Electric award: The best Bachelor/Master Theses, first price for Ján Bačik
- Schneider-Electric award: The best Bachelor/Master Theses, third price for František Ďurovský, jr.
- Robot Challenge 2010, Vienna, Jan Bačik, 10th place.
- Bosch Electromobil Race 2010. Miskolc, participation of 3 teams.

8.4 Compositions for Dissertation Examinations

- BANÍK, František: Inteligent navigation of autonomous vehicle.
- BÉREŠ, Tomáš: Bidirectional DC/DC converters.
- BODOR, Marcel: High frequency soft-switching DC/DC converters.

9 PUBLICATIONS

9.1 Textbooks

[1] DUDRIK, Jaroslav.: Návrh, dimenzovanie a ochrana výkonových polovodičových súčiastok - riešené príklady. (Design and protection of

power semiconductor converters – solved examples).1. vyd. - Košice: Elfa, 2010. - 118 s. - ISBN 978-80-80861-41-4.

9.2 Scientific Journals

Forreign Journals

[1] DUDRIK, Jaroslav - TRIP, Nistor-Daniel: Soft-switching PS-PWM DC-DC converter for full-load range applications. In: IEEE Transactions on Industrial Electronics. - ISSN 0278-0046. - Vol. 57, no. 8 (2010), p. 2807-2814.

[2] BÉREŠ, Tomáš - OLEJÁR, Martin - DUDRIK, Jaroslav: Hybrid battery with bi-directional DC/DC converter. In: Journal of Electrical and Electronics Engineering. - ISSN 1844 - 6035. - Vol. 3, no. 1 (2010), p. 35-38. http://electroinf.uoradea.ro/reviste EEE/volumes/volumes.htm.

[3] DUDRIK, Jaroslav - BODOR, Marcel - TRIP, Daniel Nistor: Soft switching DC/DC converter using controlled output rectifier with auxiliary circuit. In: Journal of Electrical and Electronics Engineering. - ISSN 1844 - 6035. - Vol. 3, no. 1 (2010), p. 65-70. http://electroinf.uoradea.ro/reviste EEE/volumes/ volumes.htm.

[4] BAUER, Pavol - FEDÁK, Viliam: Teaching electrical drives and power electronics: elearning and beyond. In: Automatika. - ISSN 0005-1144. - Vol. 51, no. 2 (2010), p. 166-173.

[5] FERKOVÁ, Želmíra - ZBORAY, Ladislav: Observers for an elastic two-mass system. In: Acta Technica. - ISSN 0001-7043. - Vol. 55, no. 2 (2010), p. 139-148.

[6] GIRMAN, Michal - KEUSCH, Peter - KMEC, Peter: Faults, failures and availability in self-service technology. In: Management Services. - ISSN 0 307 6768. - Vol. 53, no. 4 (2009), p. 44-47.

[7] GIROVSKÝ, Peter - TIMKO, Jaroslav - ŽILKOVÁ, Jaroslava: Modelling of neural network speed estimator for field oriented control of induction motor. In: Metalurgija. - ISSN 0543-5846. - Vol. 49, no. 2 (2010), p. 231-235. (CD-ROM)

[8] KAŇUCH, Ján - VIŠNYI, Peter: EMC of universal DC motor. In: Zeszyty Problemove: Maszyny Elektryczne. - ISSN 0239-3646. - No. 88 (2010), p. 209-215.

[9] PERDUKOVÁ, Daniela - FEDOR, Pavol: Simple method of fuzzy linearization of non-linear dynamic system. In: Acta Technica. - ISSN 0001-7043. - Vol. 55, no. 1 (2010), p. 97-111. http://journal.it.cas.cz/55(10)1-Contents/55(10)1c.pdf

[10] TIMKO, Jaroslav - Žilková, Jaroslava - Girovský, Peter - Kušiak, Ivan: Controlling the tinning line input stage (Metalurgija) / J. Timko ... [et al.], 2010. - 1 elektronický optický disk (CD-ROM). In: Metalurgija. - ISSN 0543-5846. - Vol. 49, no. 2 (2010), p. 561-565.

[11] TRIP Nistor, Daniel - POPESCU, Viorel - DUDRIK, Jaroslav: Modeling and state control of switched mode DC-DC buck converter. In: Journal of Electrical and Electronics Engineering. - ISSN 1844-6035. - Vol. 3, no. 1 (2010), p. 233-236. http://electroinf.uoradea.ro/reviste%20EEE/default.htm.

[12] ZÁSKALICKÝ, Pavel: Torque ripple calculation of a permanent magnet synchronous motor supplied by a three phase inverter with PWM. In: Zeszyty Problemove : Maszyny Elektryczne. - ISSN 0239-3646. - No. 88 (2010), p. 81-86.

[13] ŽILKOVÁ, Jaroslava - TIMKO, Jaroslav- KOVÁČ Michal: Fuzzy vector control of asynchronous motor. In: Acta Technica. - ISSN 0001-7043. - Vol. 55, no. 3 (2010), p. 259-274. http://journal.it.cas.cz/55(10)3-Contents/55(10)3c.pdf

[14] ZÁSKALICKÝ, Pavel - ZÁSKALICKÁ, Mária: Analytical method of calculation of torque ripples of a universal motorsupplied by an IGBT chopper. In: Acta Technica. - ISSN 0001-7043. - Vol. 55, no. 4 (2010), p. 275-286.

National Journals

[1] DUDRIK, Jaroslav - RUŠČIN, Vladimír: ZVZCS PWM DC-DC converter with controlled output rectifier. In: Acta Electrotechnika et Informatica. - ISSN 1335-8243. - Roč. 10, č. 1 (2010), s. 12-17.

[2] FEDOR, Pavol - PERDUKOVÁ, Daniela: Univerzálny inteligentný výkonový zdroj pre testovanie tepelnej spúšte ističov. In: Strojárstvo extra. - ISSN 1335-2938. - Č. 5 (2010), s. 58/1-58/3.

[3] FERKOVÁ, Želmíra - ZBORAY, Ladislav: Optimálne riadenie pri minimalizovaní energie strát. In: Strojárstvo extra. - ISSN 1335-2938. - Č. 5 (2010), s. 33/1-33/3. (CD-ROM)

[4] HRIC, Matúš - ĎUROVSKÝ, František - FEDÁK, Viliam. Model kontinuálnej linky pre praktickú výučbu riadenia mechatronických systémov. In: Strojárstvo extra. - ISSN 1335-2938. - Č. 5 (2010), s. 18/1-18/4. (CD-ROM)

[5] OLEJÁR, Martin - GUZAN, Milan - ŠPÁNY, Viktor - GALAJDA, Pavol: Realizácia Chuaovho obvodu generujúceho chaos. In: Acta technologica agriculturae. - ISSN 1335-2555. - Roč. 12, č. 3 (2009), s. 67-70.

[6] TOMČÍKOVÁ, Iveta - KOVÁČ, Dobroslav - KOVÁČOVÁ, Irena: Stress field distribution in magnetoelastic pressure force sensor. In: Communications. - ISSN 1335-4205. - Roč. 12, č. 1 (2010), s. 16-19.

[7] ZÁSKALICKÁ, Mária - ZÁSKALICKÝ, Pavel - BEŇOVÁ, Mariana - ABDALMULA, Mahmud A.R - DOBRUCKÝ, Branislav: Analysis of complex time function of converter output quantities using complex Fourier transform/series. In: Communications. - ISSN 1335-4205. - Roč. 12, č. 1 (2010), s. 23-30.

Patents

[1] DUDRIK, Jaroslav - LACKO, Milan: Bezstratový obvod na zníženie vypínacích strát meniča. (Lossless circuit for reduction the turn-off losses of the converter). Patent No.287292. Banská Bystrica : ÚPV SR, 2010. - 4 s.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	21	19	3

DEPARTMENT OF PHYSICS

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1 DEPARTMENT'S PROFILE

Since the foundation of the Department of Physics (1952), the scientific activities of the department have been predominantly oriented to the study of magnetic properties of materials using radiospectroscopic and conventional magnetic methods. At present, the research is focused on the study of magnetic properties of amorphous ferromagnetic alloys using conventional magnetic methods and to the study of polymers using nuclear magnetic resonance (NMR) and some other complementary methods, such as dielectric and dynamic-mechanical spectroscopy.

The department is divided into three sections:

- Section of Physics of Magnetic Materials
- Section of Physics of Macromolecular Systems
- Section of Organization and Development of Tuition

In 2006 the Department of Physics began to participate in the project "Completion of building up of a modern nuclear magnetic resonance laboratory" in the framework of the state programme of research and development. The co-ordinator of this project is the Slovak University of Technology in Bratislava. Other institutions participating in the project are the institutes of Comenius University in Bratislava, P.J. Šafárik University in Košice, and Slovak Academy of Sciences in Bratislava. In 2007, the Slovak National NMR Centre was established, the Solid State NMR Centre of which is located at the Department of Physics. The role of this centre is to meet the research and education requirements in Slovakia in the field of solid state NMR study of materials.

The Department of Physics provides compulsory courses of basic physics as well as a number of optional courses in various fields of physics.

Since the academic year 2008/2009, the department offers new bachelor's and engineer's study programmes Physical Engineering of Modern Materials. The graduates of this programme:

- will acquire knowledge on the structure and physical properties of materials with emphasis on progressive materials,
- will acquaint with physical phenomena which are the basis of the methods for investigation and diagnostics of materials, possibilities and procedures of controlled modification of mechanical, thermal, electrical, magnetic and optical properties of various materials,
- will acquire basic knowledge on information technologies, and will be skilled in using computer in modelling and simulation of processes in microstructure of materials.

The graduates can find positions in industry (product testing, controlling production processes), in research and development institutes, and in testing, diagnostics and environmental centres. The extent of acquired knowledge creates conditions for a good adaptability of graduates in various fields of electrotechnics, electronics and related fields.

2 STAFF

Professors: prof. RNDr. Vladimír Lisý, DrSc.

Associate Professors: doc. RNDr. Júlia Hlaváčová, CSc.
doc. RNDr. Ladislav Novák, CSc.
doc. RNDr. Dušan Olčák, CSc.
doc. RNDr. Barnabáš Zagyi, CSc.
doc. RNDr. Ján Ziman, CSc.

Assistant Professors:

RNDr. Oľga Fričová, PhD.
RNDr. Zuzana Gibová, PhD.
RNDr. Cyril Hospodár
RNDr. Viktor Hronský, CSc.
RNDr. Mária Hutníková, PhD.
RNDr. Kamila Jelšovská, CSc.
Mgr. Jana Kaššovicová, CSc.
RNDr. Ján Kecer, PhD.
RNDr. Mária Kladivová, PhD.
RNDr. Mária Kovaľaková, PhD.
RNDr. Jozef Kravčák, PhD.
RNDr. Mária Kravčíková
RNDr. Ľubomír Mucha
Ing. Stanislava Nagyová (till 31.8.2010)
Ing. RNDr. Jozef Onufer
Mgr. Mária Rybárová, PhD.
RNDr. Anna Stančáková (till 31.1.2010)
RNDr. Ladislav Ševčovič
RNDr. Jana Tóthová, PhD.

PhD. Students:

Mgr. Magdaléna Uhrínová
Mgr. Peter Duranka
Mgr. Gabriela Vasziová

Technical Staff:

Ema Havlíková
Alena Jakabová
Bc. František Mižák

3 LABORATORIES

3.1 Teaching and Research Laboratories

- Students laboratories for basic course in physics
- Solid state NMR laboratories
- Laboratory of magnetic phenomena

3.2 Special Measuring Instruments

- Multinuclear solid state NMR spectrometer Varian 400 MHz
- Spectrometer for TSDC (thermally stimulated depolarization currents) study
- Experimental apparatus for the study of magnetization characteristics (magnetization curve, susceptibility, magnetoresistance) of ferromagnetic materials

4 TEACHING

The Department of Physics gives physical courses for students of the following faculties of the Technical University:

- Faculty of Civil Engineering (SvF)
- Faculty of Electrical Engineering and Informatics (FEI)
- Faculty of Mechanical Engineering (SjF)
- Faculty of Metallurgy (HF)
- Faculty of Mining, Ecology, Process Control and Geotechnologies (FBERG)

4.1 Undergraduate Study (Bc.)

Subject	**Semester**	**Lectures/exercises** (hours per week)	**Lecturer**
Applied Physics (SjF)	2nd	0/2	Novák
Applied Physics (SjF)	2nd	0/2	Kravčák
Electromagnetism and Optics(FEI)	3rd	3/2	Ziman, Lisý
Physics (FBERG)	2nd	2/2	Lisý, Jelšovská
Physics (FBERG)	2nd	2/0	Jelšovská
Physics 1 (FBERG)	2nd	2/2	Lisý, Jelšovská
Physics 1 (SjF)	1st	2/1	Novák
Physics (SjF)	1st	2/1	Novák
Physics (SjF)	1st	2/0	Novák
Physics (SjF)	1st	2/2	Novák
Physics (SjF)	1st	2/0	Novák
Physics (SvF)	1st	2/2	Zagyi
Physics (SvF)	2nd	2/2	Zagyi
Physics I (SvF)	1st	2/2	Zagyi
Physics (FEI)	2nd	3/2	Hlaváčová Kaššovicová Olčák, Gibová Hronský
Physics (FEI, in English)	2nd	3/2	Hlaváčová
Physics fundamentals (HF)	2nd	4/3	Ziman
Physics fundamentals (HF)	2nd	3/0	Kladivová
Physics II (SvF)	2nd	2/1	Zagyi
Physics II (SjF)	2nd	2/2	Novák

Physics II (SjF)	2nd	2/0	Kecer
Physics II (FBERG)	3rd	2/2	Jelšovská
Physics II (FBERG)	3rd	3/0	Jelšovská
Physics Seminar (HF)	2nd	0/2	Kladivová
Physics Seminar (FEI)	2nd	0/2	Kovaľaková

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Physics 2 (FBERG)	1st	2/2	Lisý, Jelšovská
Physics 3 (FBERG)	1st	2/2	Jelšovská
Physics 2 (FBERG)	1st	2/0	Jelšovská
Physics (HF)	1st	3/2 and 4/3	Ziman
Physics (HF)	1st	2/0 and 3/0	Kladivová
Theory of electromagnetic field (FEI)	1st	2/2	Kaššovicová

5 RESEARCH PROJECTS

- ***Anomalous effects in the rheology of polymer liquids***, S.G.A. project No. 1/0300/09, Principal investigator: prof. RNDr. V. Lisý, DrSc.
- ***Structure of amorphous ferromagnetic materials and their selected magnetic properties***, S.G.A. project, No. 1/10136/10, Principal investigator: doc. RNDr. J. Ziman, CSc.
- ***Completion of building up of a modern nuclear magnetic resonance laboratory*** - Research and development project No 2003SP200280203 of a state thematic program of research and development " Complex Solution of Support and Effective Use of Science and Research Infrastructure" Co-ordinator of the project: doc. Ing. Tibor Liptaj, CSc., STU in Bratislava, Co-ordinator for TU in Košice: doc. RNDr. D. Olčák, CSc.
- ***Energetic particles in the selected formations of space plasma***. S.G.A. project No. 2/7063/27, Institute of Exp. Physics, SAS, Košice, Principal investigator: prof. Ing. K. Kudela, DrSc., collaborators: J. Kaššovicová
- ***The logistics system for mining enterprise of 21st century,*** S.G.A. project No. 1/4186/07, Principal investigator: doc. Ing. J. Spišák, PhD. (F BERG, TU Košice), collaborators: K. Jelšovská
- ***The logistics system of crisis situations in mining***, S.G.A. project No. 1/0267/08 Principal investigator: prof. Ing. M. Petruf, PhD. (F BERG, TU Košice), collaborators: K. Jelšovská
- ***Through Microcosmos to Understanding of Macrocosmos,*** S.R.D.A. Project No. LPP-01810-07, Institute of Experimental Physics of the Slovak Academy of Sciences, Principal investigator: RNDr. E. Kladiva, CSc., co-operating organization: Technical University of Košice, collaborators: J. Hlaváčová, M. Kovaľaková, M. Kravčíková, J. Ziman
- ***Scouting and Education Talents in Physics by Physics Competitions on the Elementary and Secondary Schools***, S.R.D.A. Project No. LPP-0067-07 Principal investigator: prof. Ing. Ivo Čáp, CSc., University of Žilina, co-operating organization: Technical University of Košice, collaborators: L. Mucha, M. Kladivová

- ***Study of a novel generation of environmental nanoadsorbents and carriers of efficacious elements based on porous materials*****,** S.G.A. project No. 1/0107/08, Principal investigator: doc. RNDr. M. Reháková, CSc. (Faculty of Science, Pavol Jozef Šafárik University in Košice), collaborators: S. Nagyová
- ***Evaluation of home natural resources of alumosilicates (clinoptilolite) for water treatment***, S.G.A. project No. 1/0193/09, Principal investigator: Prof. RNDr. E. Chmielewská, CSc. (Faculty of Science, J.A. Komenský University in Bratislava), collaborators: S. Nagyová
- ***Revealing Microworld Mysteries through Experimental Data Analysis****,* S.R.D.A. project No. LPP-005-09 Principal investigator: RNDr. A. Dirner, CSc., Faculty of Science, Pavol Jozef Šafárik University in Košice, co-operating organisation: Technical University of Košice, collaborators: J. Hlaváčová, M. Kovaľaková, M. Kravčíková, Z.Gibová
- ***Cooperative phenomena and phase transitions in nanosystems with perspective applications in nano- and biotechnology***, Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, project No. 26220120021, Principal investigator: doc. RNDr. Peter Kopčanský, CSc. (Institute of Experimental Physics, SAS Košice), collaborators: J. Tóthová, V. Lisý
- ***Completion of building of the centre for cooperative phenomena and phase transitions in nanosystems with perspective applications in nano- and biotechnology***, Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, project No. 26220120033, Principal investigator: doc. RNDr. Peter Kopčanský, CSc. (Institute of Experimental Physics, SAS Košice), collaborators: J. Tóthová, V. Lisý
- ***Modernization of educational process in elementary schools,*** *ITMS* project No. 26110130083, 26140130013 Principal investigator: RNDr. J. Hanč, PhD., Faculty of Science, Pavol Jozef Šafárik University in Košice, co-operating organisation: Technical University of Košice, collaborators: J. Hlaváčová, M. Kovaľaková, Z. Gibová, J. Ziman, Ľ. Mucha
- ***Package of innovative features for education reform at TUKE,*** *ITMS* project No. 26110230018, Principal investigator: prof. Ing. Pavel Raschman, CSc., Technical University of Košice, collaborators: J. Ziman, J. Onufer, J. Kecer, Z. Gibová, O. Fričová, D. Olčák
- ***Centre of Excellence of the Integrated Research & Exploitation of the Advanced Materials and Technologies in the Automotive Electronics***, ITMS project No. 26220120055, Principal investigator: prof. Ing. Alena Pietriková, PhD., Technical University of Košice, department coordinator: D. Olčák
- ***Progressive constructions and technologies in transportation engineering***, Slovak Research and Development Agency, project No. SUSPP-0013-09, Principal investigator: doc. Ing. Jan Mandula, PhD., Technical University of Košice, collaborator: M. Kovaľaková
- ***Development of progressive technologies for utilization of selected waste materials in road construction engineering***, Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, ITMS project No. 26220220051, Principal investigator: doc. Ing. Jan Mandula, PhD., Technical University of Košice, collaborators: J. Hlaváčová, M. Kovaľaková

- ***New detection methods and technologies for acquiring non-conventional energy resources of the Earth***, ITMS project No. 26220220031, Principal investigator: prof. Ing. Juraj Janočko, CSc., Dr.Scient., FBERG, Technical University of Košice, collaborator: M. Rybárová
- ***Research Centre of the efficiency of combined force integration of renewable energy systems,*** ITMS project No. 26220220064, Principal investigator: prof. Ing. Juraj Sinay, DrSc., Technical University of Košice, collaborator: M. Rybárová

6 CO-OPERATION

6.1 Co-operation in Slovakia

- Institute of Physics, Faculty of Science, P. J. Šafárik University in Košice
- Institute of Experimental Physics of the Slovak Academy of Sciences, Košice
- Polymer Institute, Slovak Academy of Sciences, Bratislava
- Research Institute for Man-Made Fibers in Svit
- Faculty of Chemical and Food Technology, Slovak University of Technology, Bratislava

6.1.1. Visitors to the Department

- Dr. Lovas, A. from Budapest University of Technology and Economics, Hungary

6.2 International Co-operation

- Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic
- Institute of Atmospheric Physics, Prague, Czech Republic
- Central Physical Research Institute, RMKI KFKI, Budapest, Hungary
- Budapest University of Technology and Economics, Hungary
- Institute of Physics, A. Mickiewicz University, Poznan, Poland

6.3 Membership in International Organizations and Societies

- Mucha, Ľ.: member of the Board of the International Physics Olympiad
- Lisý, V.: member of the American Physical Society and the Institute of Physics (UK).

6.4 Membership in Slovak Organizations and Societies

- Gibová, Z.: member of the Slovak Physical Society (SFS)
- Hronský, V.: member of SFS and the Slovak Magnetic Society (SMAGS)
- Jelšovská, K.: member of SFS
- Kecer, J.: member of SMAGS
- Kladivová, M.: member of the Slovak Physics Olympiad, SFS, and SMAGS
- Kovaľaková, M.: member of SFS
- Kravčák, J.: member of SFS, treasurer of SMAGS
- Kravčíková, M.: member of SFS

- Lisý, V.: Scientific Grant Agency of the Slovak Republic, member of the joint commissions for the doctoral studies in Biophysics, and in General Physics and Mathematical Physics (both at the P.J. Šafárik University in Košice and the Comenius University in Bratislava), member of the Working Group for Physics of the Accreditation Commission Counselling Body of the Government of the Slovak Republic, member of the permanent commission for the awards of DrSc. degrees in Condensed Matter Physics and Acoustics, member of SFS
- Mucha, Ľ.: vice-president of the Slovak Physics Olympiad, member of SFS
- Novák, L.: member of SFS and SMAGS
- Olčák, D.: member of SFS and SMAGS
- Onufer, J.: member of SFS
- Tóthová, J.: member of SFS
- Zagyi, B.: member of SFS and SMAGS
- Ziman, J.: member of SFS and vice-chairman of SMAGS

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	0	0	0

8 OTHER ACTIVITIES

9 PUBLICATIONS

9.1 Books

[1] Salaiová, B. - Mandula, J. - Kovaľaková, M.: Hluk z dopravy . - 1. vyd. - Košice : TU, 2010. - 187 s. - ISBN 9788055304618

9.2 Journals

[1] Hutníková, M. - Hutník, O.: An alternative description of Gabor spaces and Gabor-Toeplitz operators In: Reports on mathematical physics. - ISSN 0034-4877. - Vol. 66, no. 2 (2010), p. 237-250. - http://www.worldcat.org

[2] Klein, P. - Varga, R. - Vojtanik, P. - Kovac, J. - Ziman, J. - Badini-Confalonieri, G.A - Vazquez, M.: Bistable FeCoMoB microwires with nanocrystalline microstructure and increased Curie temperature / P. Klein ... [et al.], 2010 In: Journal of Physics D: Applied Physics. - ISSN 0022-3727. - Vol. 43, no. 4 (2010), p. 1-6. - http://iopscience.iop.org/0022-3727/43/4/045002/pdf/0022-3727_43_4_045002.pdf.

[3] Budzanowski, A. - Kravčíková, M. et al.: Cross sections of pp -> K+sigma+n reaction close to threshold / HIRES Collaboration, 2010 In: Physics Letters B. - ISSN 0370-2693. - Vol. 692, no. 1 (2010), p. 10-14. - http://www.sciencedirect.com

[4] Budzanowski, A. - Kravčíková, M. et al.: High resolution study of the Lambda p final state interaction in the reaction p + p -> K+ + (Lambda p) / HIRES Collaboration, 2010 In: Physics Letters B. - ISSN 0370-2693. - Vol. 687, no. 1 (2010), p. 31-35. - http://www.elsevier.com/locate/physletb

[5] Budzanowski, A. - Kravčíková, M. et al.: Experimental study of the p + 6Li → η + 7Be reaction 11.3 MeV above threshold In: Physical Review C 82:041001 (2010) 5pp

[6] Kováč, J. - Vehovszky, B. - Novák, L. - Lovas, A.: Viscous phenomena in magnetic and thermal properties of Fe-Ni-based glasses induced by cryo-treatments In: IEEE Transactions on Magnetics. - ISSN 0018-9464. - Vol. 46, no. 2 (2010), p. 353-356.
http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=05393158

[7] Gibová, Z. - Fričová, O. – Hutníková, M.: Aplety vo vyučovaní fyziky In: Obzory matematiky, fyziky a informatiky. - ISSN 1335-4981. – Vol. 39, No. 2 (2010), p. 45-50.

[8] Glod, L. - Vasziová, G. - Tóthová, J. - Lisý, V.: Field-driven Brownian motion of magnetic domain walls, In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 61, No. 5 (2010), p. 282-286.
http://iris.elf.stuba.sk/JEEEC/index.html

[9] Kravčák, J.: Model of magnetic reversal in ferromagnetic lamination, In: Acta Electrotechnica et Informatica. - ISSN 1335-8243. - Vol. 10, No. 3 (2010), s. 75-77. - http://www.aei.tuke.sk/pdf/2010-03/16_Kravcak.pdf

[10] Lisý, V. – Olčák, D.: Preface, In: Acta Electrotechnica et Informatica. - ISSN 1335-8243. - Vol. 10, No. 3 (2010), p. 3-4. - http://www.aei.tuke.sk/

[11] Novák, L. - Kecer, J.: Structure of the amorphous ferromagnetic material Fe83,5Cr2,5B14,3 and its magnetic properties, In Acta Electrotechnica et Informatica. - I SSN 1335-8243. - Vol. 10, No. 3 (2010), p. 59-62. – http://www.aei.tuke.sk

[12] Vasziová, G. - Tóthová, J. - Glod, L. - Lisý, V.: Thermal Fluctuations in electric circuits and the Brownian motion, In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 61, No. 4 (2010), p. 252-256. – http://iris.elf.stuba.sk/JEEEC/index.html

[13] Mucha, Ľ. - Ševčovič, L.: Nuclear Magnetic Reonance Investigation of the Influence of Drawing and Drawing Temperature on Molecular Mobility in iPP Fibres. In: Acta Physica Polonica. ISSN 1898-794X. – Vol. 118, No. 5 (2010), p. 1057-1058
http://przyrbwn.icm.edu.pl/APP/SPIS/a118-5.html

[14] Lisý, V. – Tóthová, J.: Dynamical structure factors of quasi-one dimensional magnets of the type of $CsNiF_3$. In: Acta Physica Polonica. ISSN 1898-794X. – Vol. 118, No. 5 (2010), p. 953-954
http://przyrbwn.icm.edu.pl/APP/SPIS/a118-5.html

[15] Tóthová, J. - Lisý, V.: Hydrodynamic memory in the motion of charged Brownian particles across the magnetic field. In: Acta Physica Polonica. ISSN 1898-794X. – Vol. 118, No. 5 (2010), p. 1051-1053
http://przyrbwn.icm.edu.pl/APP/SPIS/a118-5.html

[16] Tóthová, J. - Lisý, V.: Relaxation times of flexible polymer chains in solution from non-conventional viscosity measurements. In: The Open Macromolecules Journal. ISSN 1874-3439. Vol. 4, Special Issue 1 (2010), p. 26-31. http://www.bentham.org/open/tomacroj/openaccess2.htm

[17] Onufer, J. - Fričová, O. – Mucha, Ľ. – Olčák, D.: Broad Line 1H NMR Studies of Glass Transition Relaxation Process in Drawn Samples of Polypropylene/EPDM Blend. In: The Open Macromolecules Journal. ISSN 1874-3439. Vol. 4, Special Issue 1 (2010), p. 44-47.
http://www.bentham.org/open/tomacroj/V004-SI0022TOMACROJ.htm

[18] Ziman, J. - Kladivová, M. - Onufer, J. - Zagyi, B.: Domain wall dynamics in amorphous ferromagnetic wire with small helical anisotropy, In: Acta Physica Polonica A, Vol. 118 (2010) p. 778.
[19] Kravčák, J. – Šuhajová, V.: Domain Wall Dynamics in Bistable Ferromagnetic Laminations. In: Acta Physica Polonica A. ISSN 1898-794X. – Vol. 118, No. 5 (2010), p. 734-735
http://przyrbwn.icm.edu.pl/APP/SPIS/a118-5.html
[20] Kravčák, J. – Varga, R.: Asymmetric Magneto-Impedance in CoFeSiB Amorphous Microwire. In: Acta Physica Polonica A. ISSN 1898-794X. – Vol. 118, No. 5 (2010), p. 762-763
http://przyrbwn.icm.edu.pl/APP/SPIS/a118-5.html

9.3 Other publications

Publication Type	Articles on Internet	Conferece Papers		Conference Abstracts		Textbooks
		Foreign	Home	Foreign	Home	
Number	1	4	20	0	13	1

DEPARTMENT OF CYBERNETICS AND ARTIFICIAL INTELLIGENCE

http://www.tuke.sk/kkui/
Tel./Fax: ++421 55 625 3574

Head of Department
prof. Ing. Ján Sarnovský, CSc.
E-mail: Jan.Sarnovsky@tuke.sk

1 DEPARTMENT'S PROFILE

The Department (DCAI) is responsible for education in the following bachelor study programs: Cybernetics, Intelligent Systems, and Business informatics; in the following master study programs: Cybernetics and Information-Control Systems, Artificial Intelligence, Business Informatics; and following PhD-study programs: Cybernetics, Artificial Intelligence, and Business Informatics.

The main research topics at the Department are intelligent methods and algorithms for control and modeling of large-scale systems; risk-sensitive diagnosis of uncertain systems; computational intelligence techniques for modeling of intelligent systems and miscellaneous applications; intelligent decision support systems; pattern recognition; knowledge discovery; knowledge technologies for information retrieval and knowledge management; and computational and cognitive neuroscience.

The predecessor of the Department was founded in 1964. Department of Cybernetics and Artificial Intelligence was adapted in 1989. Currently it has 24 staff members, 25 internal and 12 external Ph.D. students. There are 3 sections within the department: Cybernetics and Automation, Artificial Intelligence, and Business Informatics. Within the Department there are active two research Centers: Centre for Cybernetics (http://cybernetics.fei.tuke.sk/cybervirtlab/) and Centre for Intelligent Technologies (www.ai-cit.sk).

The Department is involved in a number of research and educational projects. The following types of projects were under way in 2010: 2 European IST projects, 1 Socrates thematic network, 1 US National Institutes of Health research project, 6 grants awarded by Science Grant Agency, 1 grant awarded by the Slovak Research and Development Agency Project, 3 grants awarded by Cultural and Educational Grant Agency, 3 other international grants and 1 project supported by the Research & Development Operational Programme funded by the ERDF.

2 STAFF

Professors:
prof. Ing. Dušan Krokavec, CSc.
Dr.h.c. prof. Ing. Ladislav Madarász, CSc.
prof. RNDr. Eva Ocelíková, CSc.
prof. Ing. Tomáš Sabol, CSc.
prof. Ing. Ján Sarnovský, CSc.
prof. Ing. Peter Sinčák, CSc.
prof. Ing. Iveta Zolotová, CSc.

Associate Professors:
doc. Ing. Anna Filasová, CSc.
doc. Ing. Anna Jadlovská, PhD.
doc. Ing. Ján Jadlovský, CSc.
doc. Ing. Norbert Kopčo, PhD.
doc. Ing. Marián Mach, CSc.
doc. Ing. Kristína Machová, CSc.
doc. Ing. Ján Paralič, PhD.
doc. Ing. Zoltán Tomori, PhD.

Assistant Professors:
Ing. Rudolf Andoga, PhD.
Ing. František Babič, PhD.
Ing. Karol Furdík, PhD.
Dr. Ing. Vratislav Hladký
Ing. Rudolf Jakša, PhD.
Ing. Ján Liguš, PhD.
Ing. Martin Sarnovský, PhD.
Dr. Ing. Ján Vaščák

Researchers:
Ing. Marián Bučko, CSc.
Ing. Marek Duľa
Ing. Ladislav Fözö, PhD.
Ing. Stanislav Laciňák, PhD.
Ing. Ladislav Takáč, PhD.
Ing. Beáta Tomoriová

Technical Staff:
Imrich Balogh
Mária Feješová
Tatiana Baňasová

Ph.D. Students:

1st.	**Internal**	**External**
	Ing. Matej Čopík	Ing. Peter Balogh
	Ing. Štefan Jajčišin	Ing. Miroslav Fuhrman
	Ing. Mgr. Peter Koncz	
	Ing. Roman Mihaľ	
	Ing. Adela Tušanová	
	Ing. Mária Virčíková	
2nd.	**Internal**	**External**
	Ing. Daniel Gontkovič	Ing. Stanislav Dvorščák
	Ing. Rastislav Hošák	Ing. Peter Kubičko
	Ing. Ján Ilkovič	
	Ing. Tomáš Karoľ	
	Ing. Gabriel Lukáč	
	Ing. Miloš Pavlík	
	Ing. Martin Repka	
	Ing. Peter Smolár	
	Ing. Peter Šuster	
	Ing. Attila Török	
	Ing. Jaroslav Tuhársky	
3rd.	**Internal**	**External**
	Ing. Zlatko Fedor	Ing. Tomáš Gášpár
	Ing. Michal Hladký	Ing. Ľuboš Lörinc
	Ing. Vladimír Jeleň	Ing. Marián Onder
	Ing. Peter Karch	Ing. Marián Stanislav
	Ing. Ján Kažimír	
	Ing. Gabriel Tutoky	
	Ing. Lucia Vaľová	
	Ing. Jozef Wagner	
4th.		**External**
		Ing. Juraj Koščák
		Ing. Jozef Kováč
		RNDr. Marcel Kudláč
		Ing. Kvetoslav Molitoris

3 LABORATORIES

- Centre for Intelligent Technologies: Laboratory of Autonomous Systems (LAS-CIT), Laboratory of Humanoid Robots (LHR-CIT) http://www.ai-cit.sk
- Centre of Cybernetics (L-513) http://cybervirtlab.fei.tuke.sk/CyberVirtLab/, http://web.tuke.sk/kybernetika/labaky/L513/
- Laboratory of Intelligent Information and Control Systems (L-535), http://web.tuke.sk/kybernetika/labaky/L535.html
- Laboratory of Distributed Control Systems - ROCKWELL AUTOMATION LABORATORY (L-536), http://web.tuke.sk/kybernetika/labaky/L536.html
- Laboratory of Intelligent Control Networks (L-509),

http://web.tuke.sk/kybernetika/labaky/L509.html
- Laboratory of Speech and Pattern Recognition (V-147)
- Perception and Cognition Laboratory (V-31) http://pcl.tuke.sk
- Laboratory of Knowledge Technologies (V-101a) http://web.tuke.sk/kybernetika/labaky/V101a.html
- Laboratory of One-Chip-Computers (V-101b)
- Laboratory of intelligent control systems of aircraft engines (in cooperation with Faculty of Aeronautics)

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Introduction to Business Informatics	1st	1/2	Paralič, J.
Computers and Algorithms	2nd	2/2	Jadlovská, Jadlovský
Office Information Systems	2nd	1/2	Zolotová
Elements of Control Systems	2nd	2/2	Hladký
Artificial Intelligence	2nd	2/2	Machová, Paralič
Simulation systems in Business Informatics	2nd	2/2	Jadlovská, Hladký
Foundations of Automatic Control	3rd	2/2	Madarász
Simulation Systems	3rd	2/2	Jadlovská
Artificial Intelligence	3rd	2/2	Sinčák, et al.
Knowledge-Based Systems	3rd	2/2	Machová
Applications of Operation Systems in Management	3rd	2/2	Liguš
Application Programming	3rd	2/2	Jakša
Control of Technological Processes	4th	2/2	Liguš
Control and Visualization Systems	4th	2/2	Zolotová
Identification and Modeling	4th	2/2	Filasová
Linux I.	4th	2/2	Jakša
Computer Tools for Technological Systems Control	4th	2,2	Jadlovský
Applications of Artificial Intelligence	4th	0/2	Sinčák
Scheduling and Logistics	4th	2/2	Paralič
Application programming	4th	0/2	Jakša
Computer (Based) Control	5th	2/2	Krokavec
Database Management System Applications	5th	2/2	Ocelíková
Protocols and Interfaces	5th	2/2	Jadlovský
Project Management	5th	2/2	Sabol
Introduction to Neurosciences	5th	2/2	Kopčo
Cybernetics and Management	6th	2/2	Sarnovský
System Analysis and Synthesis	6th	2/2	Madarász
Introduction to Non-linear Systems	6th	2/2	Jadlovská
Effective and financial management	6th	2/2	Bučko
Heuristic Optimization Processes	6th	2/2	Mach

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Optimal and Adaptive Control Theory	1st	2/2	Sarnovský
Computer Vision	1st	2/2	Tomori
Intelligent Control Systems	1st	2/2	Liguš
Knowledge Management	1st	2/2	Paralič, J.
Information Systems for Business Processes	1st	2/2	Zolotová
Discrete-time Systems	1st	3/2	Krokavec, D.
Theoretical Foundations of Artificial Intelligence	1st	2/2	Sinčák
Symbolic Artificial Intelligence	1st	2/2	Mach
IT Environment Control	1st	2/2	Sarnovský M., Furdík
Online Identification	1st	2/2	Krokavec
Logic Control	1st	2/2	Liguš
Distributed Control Systems	2nd	2/2	Jadlovský
Control and Artificial Intelligence	2nd	2/2	Jadlovská
Robust Control	2nd	2/2	Filasová
Evolutionary Algorithms	2nd	2/2	Mach
Multicriterial Decision Making	2nd	2/2	Ocelíková
Machine Learning	2nd	2/2	Machová
Logic Programming	2nd	1/1	Paralič
Stochastic Systems	2nd	2/2	Krokavec, D.
Fuzzy Decision	2nd	2/2	Vaščák
Complexity and Decision Making	2nd	2/2	Madarász
Engineering econometrics	2nd	2/2	Krokavec
Speech Recognition	2nd	2/2	Krokavec, D.
Intelligent Sensor Systems	2nd	2/2	Krokavec, D.
Interactive Systems	2nd	2/1	Jakša
Integrated manufacturing systems	3rd	3/2	Madarász
Humanoid Technologies	3rd	2/2	Jakša
Dynamic Systems Diagnostics	3rd	2/2	Krokavec, D.
Complex Systems Control	3rd	2/2	Hladký
LISP Applications	3rd	0/2	Mach
Management Information Systems	3rd	2/2	Jadlovský
Complexity and Decision Making	3rd	2/2	Madarász
Semantic Technologies	3rd	2/2	Machová
Neuro-fuzzy Systems	3rd	2/2	Vaščák
Cybernetics	3rd	2/2	Sarnovský
Knowledge Discovery	3rd	2/2	Paralič
Philosophic Problems of Cybernetics and AI	4th	2/2	Sarnovský
Repetition of AI Foundations	4th	0/2	Sinčák
AI Applications Seminar	4th	2/2	Sinčák

5 RESEARCH PROJECTS

- ***Knowledge Practices Laboratory (KP-Lab)*** is an integrated project funded by the European Commission within the IST Program (6th Framework Program) IST-2000-29207, coordinator: University of Helsinki. Duration: 2006-2011, Team members from DCAI: Ján Paralič (team leader), František

Babič, Peter Bednár, Karol Furdík, Jozef Wagner, Gabriel Tutoky. Activity: KP-Lab is an ambitious project that focuses on developing a learning system aimed at facilitating innovative practices of sharing, creating and working with knowledge in education and workplaces. KP-Lab presents a unifying view of human cognition. It is based on the assumption that learning is not just individual knowledge acquisition or social interaction, but shared efforts of transforming ideas and social practices. The objective of the KP-Lab project is to develop theories, tools, and practical models to elicit deliberate advancement and the creation of knowledge, as well as the corresponding transformation of knowledge practices in education and workplaces. The essential way of developing the collaborative technologies is through a co-evolutionary process involving researchers, technological developers and users. Web page: http://www.kp-lab.org

- ***HYDRA (IST-2005-034891)****, Networked embedded system middleware for heterogeneous physical devices in a distributed architecture*, is a research project funded by the European Commission within the IST Program (6th Framework Program, IP). Team members from DCAI (in cooperation with the Faculty of Economics): Tomáš Sabol, Marián Mach, Peter Butka, Martin Sarnovský. Duration: 2006-2010. Activity: The aim of the project is to research, develop and validate middleware for networked embedded systems that allows developing cost-effective, high-performance ambient intelligence applications for heterogeneous physical devices, and a software development kit enabling developers to develop innovative applications based on the middleware. Web page: http://www.hydramiddleware.eu/news.php
- ***Multiagent networked control with automatic reconfiguration*****,** Scientific Grant Agency project No. 1/0617/08, duration: 2008 – 2010, members: Ján Sarnovský (project leader). Activities: The scientific project Multiagent networked control with automatic reconfiguration has a goal to research, develop and implement the algorithms and control methods of the individual networked control elements, whose interconnections are realized by communication networks using the principles and methods of artificial intelligence. The project main focus is on the control algorithms as well as on the behavioral algorithms of the networked control elements with so called Plug and Play network functionality. By the modeling the networked control systems as the multiagent system and by the process formalization will be created the concrete algorithms for its automatic configuration and reconfiguration in the network environment with their consequences implementation inn the physical laboratory conditions in the area of mobile robotics and other models.
- ***Methods for reconfigurable control systems design***, Scientific Grant Agency project No. 1/0328/08, duration: 2008 – 2010, members: Dušan Krokavec (project leader), Filasová Anna, Hladký Vratislav, Liguš Ján, Kocsis Pavol. Activities: The project Design of reconfigurable control systems is focused on the fault-tolerant control systems. The basic research is a fundamental part of the project and is undertaken in the specific areas of model based fault detection and isolation, control system reconfiguration, as well as robust control of parametrically uncertain linear dynamic systems in reconfigurable structures. The focal scientific points of the project are in the development of new integrated methods and algorithms to design a stability guaranteed fault-tolerant control structure with active

reconfiguration; the terminal scientific objectives are the application-oriented computational methods for residual evaluation, the sophisticated reconfigurable schemes with explicit consideration of system performance degradation, as well as the appropriate procedures associated with interacting multiple control structures and the residual evaluation (decision making) strategy in reconfigurable control.

- ***Methods and Tools of Intelligent and Information Technologies for object Recognition and Classification***. Scientific Grant Agency project No. 1/0386/08, duration: 2008 – 2010, members: Eva Ocelíková (project leader), Iveta Zolotová, Jana Výrostková, Marián Bučko, Erna Demjénová, Marián Bakoš, Oľga Duľová, Peter Karch. Activity: Project focuses on design of new and modified methods and tools in decision support systems with emphasis on pattern recognition. It includes integrated chain of tasks starting with data acquisition, pre-processing and storing of input data, throughout knowledge discovery, to its presentation into decision making link in a suitable user interface. The attention will be focused on selection of informative features for decision on methods of object classification and composite classifiers. From latest information technologies, emphasis will be put on internet technology. Project implements theoretical-experimental analysis and integration of tools into the application areas for control of technological processes (situation control, SCADA/HMI systems, intelligent control and information systems), for ecology (remotely sensed data) and for medicine (cardiovascular illnesses, bio-medical images).
- ***Situational control algorithms and large scale systems modeling***, Scientific Grant Agency project No. 1/0394/08, duration: 2008 – 2010, members: Ladislav Madarász (project leader), members: Andoga Rudolf Ing. PhD, Főző Ladislav, Ing, PhD., Modrovičová Jana, Ing., Bučko Marian Ing. CSc., Adamčík František doc. Ing. CSc. (Faculty of Aeronautics), Považan Jozef prof. Ing. CSc. (Faculty of Aeronautics), Lazar Tobiáš prof. Ing. DrSc. (Faculty of Aeronautics), Hocko Marián Ing. PhD. (Faculty of Aeronautics), Kabát Ján Ing. (Faculty of Aeronautics), Piľa Ján Ing. PhD. (Faculty of Aeronautics), Kolesár Ján Ing. PhD. (Faculty of Aeronautics), Judičák Jozef, Ing. (Faculty of Aeronautics). Activities: Nowadays, the area of technical systems is mainly focused to satisfy the demands for safety, quality and efficiency. Among the growing complexity of present systems, it is necessary to project such systems that will take all the three mentioned contrary demands into account. These facts bring us to a task of precision modeling of such systems and following design of progressive methods of their control. One of the efficient approaches in this area is also the methodology of situational control based on situational classification of operational states of a system designed as a general set of approaches to large scale systems control. This approach nowadays expects use of modern knowledge from the areas of artificial intelligence, modeling and control. Special attention will be put also to particular application results and their technical realization. In the area of large scale systems modeling, the emphasis will be put on creation of high precision models in an integrated virtual environment.
- ***Methods for identification, annotation, search, access and composition of services using semantic metadata in support of selected process types***, Scientific Grant Agency project No. 1/0042/10, duration: 2010 – 2011, members: Marian Mach (project leader), Paralič Ján, Babič František,

Furdík Karol, Sarnovský Martin, Wagner Jozef, Machová Kristína, Lukáč Gabriel. Activities: The project is focused on using semantic metadata to describe services in a way suitable for semantic processing. Activities will target mainly the importance of semantics within different phases of service life-cycle – from identifying services in processes and describing them through searching and accessing services to composing services into workflows. Attention will be paid to different service types including web services, services provided by human actors or electronic devices, and grid services. In connection with services, the project focuses on specific process types. One of these process types is text mining remarkable by considerable time complexity and strong dependence on employed data sets. Another process type is represented by new knowledge creation processes characterised by an occurrence of implicit knowledge practices. The last type of processes, the realisation of workflows in a grid environment, strongly depends on a distribution of tasks among available processing nodes.

- ***Learning systems based on computational intelligence***, Scientific Grant Agency project No. 1/0885/08, duration: 2008 – 2010, members: Peter Sinčák (project leader)
- ***DNA-CT - Fluorescent image analysis of irregularly shaped cells for purposes of non-destructive DNA quantification***, Slovak Research and Development Agency Project, No. APVV-0682-07, members: Iveta Zolotová (project leader for DCAI group), Peter Karch, Vladimír Jeleň, Oľga, Duľová, Zoltán Tomori (project leader of whole project from group of Institute of Experimental Physics SAS Košice), Marek Dudáš (project leader of group of Safarik University of Kosice), duration: 2008-2010. Activity: Adaptation of microscope for capturing of immobilized sperm cell images under different angles of view. Design of 3D mathematical model adjusting the acquired image with respect to both the angle of cell rotation and the physical conditions during acquisition. Statistical comparison of DNA contents values obtained under different condition.
- ***Utilisation of intelligent methods for control and modeling of aircraft engines in educational process***, Cultural and Educational Grant Agency project No. 001 – 010 TUKE4/2010, duration: 2010-2012, project leader: Ladislav Madarász. The aim of the project is to create a platform for the use of small turbojet engines in the Laboratory of Intelligent control systems of aircraft engines outside the frame of the ongoing research for educational purposes. This project will be oriented on the following areas of education: the area of digital acquisition of operating parameters of the engine in real-time, the area of basic analysis and visualization of the obtained data, visualization and creation of basic models and demonstration of control algorithms. Because the small turbojet engines have similar characteristics as normal engines they are appropriate objects for demonstration of characteristics of real engines, modern methods of measurement of extreme parameters, algorithms of modeling and control.
- ***Cybernetic education center.*** KEGA – Cultural and Education Grant Agency Project No. 037-011TUKE-4/2010, duration 2010 – 2011, members: Iveta Zolotová (project leader), Ján Sarnovský, Eva Ocelíková, Ján Jadlovský, Anna Jadlovská, Vratislav Hladký, Ján Liguš, Jana Ligušová, Stanislav Laciňák, Ladislav Takáč, Marek Duľa, Ľuboš Popovič, Oľga

Duľová, Peter Karch, Richard Lonščák, Rastislav Hošák, Miloš Pavlík, Roman Mihaľ. Activities: The project focuses on creating cybernetic education center, which will promote research and development of education sphere in the Cybernetics and Automation section and related sections within the department, based on the latest technologies. The center will integrate and develop existing education and training portals and distributed laboratories with the objective to achieve synergy effect. It will include functionalities like a modeling and control of real and simulated dynamic systems, accessing electronic educational materials of selected courses from the Cybernetics section or e-testing of students' knowledge. Designed center, especially its brand new central portal, will include also features of adaptive web based on the neural networks with Hebbian learning rules. Project will be compatible with the european project Enhanc-Life-Long-Learning-EIE Community.

- ***Cognitive science – Middle European cross-disciplinary master study program***, Cultural and Educational Grant Agency project No. 3/7300/09, duration: 2009-2011, members: Norber Kopčo, Beata Tomoriová; Jan Rybár, Igor Farkaš, Comenius University Bratislava, Peter Sýkora, University of Constantine and Methodus, Trnava activity: Creation of a joint interdisciplinary Masters program of Cognitive science in collaboration with universities in the central-European region (Vienna, Budapest, Ljubljana, Zagreb).
- ***Perceptual, Contextual, and Cross-Modal Learning in Hearing and Vision***. the European Community's 7FP/2007-13 grant no PIRSES-GA-2009-247543 (Marie Curie program for Research Staff Exchange) PI Norbert Kopčo, staff Rudolf Andoga, Beáta Tomoriová. Collaboration with University of California, Boston University, Martinos Center/Harvard Medical School.
- ***Co-funding grant for Perceptual, Contextual, and Cross-Modal Learning in Hearing and Vision***. Slovak Research and Development Agency Project, No. PP7RP-0027-09. PI Norbert Kopčo, staff Rudolf Andoga, Beáta Tomoriová. Reimbursement grant for the costs of grant preparation for successful applicants for EU research grants.
- ***Centre of information and communication technologies for knowledge-based systems***, project No. 26220120020 supported by the Research & Development Operational Programme funded by the ERDF, duration: 2009 - 2011.

6 CO-OPERATION

6.1 Co-operation in Slovakia

- Department of Automatic Control Systems Bratislava, Slovak University of Technology, Bratislava
- Institute of Intelligent Systems, Faculty of Informatics, Slovak University of Technology, Bratislava
- Institute of Computer Science, Slovak Academy of Sciences in Bratislava
- Department of Biophysics IEP Slovak Academy of Science
- Institute of Computer Science, University of P.J. Šafárik, Košice
- Economic University, Faculty of Business Economics, Košice

- Institute of Experimental Physics, Slovak Academy of Sciences
- Department of applied informatics (Centre for Cognitive Science), Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava
- Košice self-governing region
- Local Authority City Ward Ťahanovce, Košice
- The City of Košice
- Tatrabanka, a.s.
- IT Valley Kosice

6.2 International Co-operation

- The Open University, Knowledge Media Institute, United Kingdom
- University of Vaasa, Finland
- Helsinki University of Technology, Dipoli, Finland
- Department of Software Engineering and Interactive Systems, Vienna University of Technology, Austria
- University of Regensburg, Germany
- Hearing Research Center and Dept. of Cognitive and Neural Systems, Boston University, USA
- Center for Cognitive Neuroscience and Department of Psychology, Duke University
- Institute of Pathological Physiology, 1st Faculty of Medicine, Charles University, Prague
- Budapest Computational Neuroscience Group, Department of Biophysics, Hungarian Academy of Sciences
- Department of Psychology, University of California at Riverside
- Harvard Medical School – Martinos Center for Biomedical Imaging, Massachusetts General Hospital, Boston, USA
- University of Dortmund, Germany
- Waseda University, Tokyo, Japan
- Technical University of Czestochowa
- Tokyo Institute of Technology, Japan
- Kuyshu Institute of Technology, Japan
- Université Joseph Fourier Grenoble, IUT 1 (Institut Universitaire de Technologie 1), Grenoble, France
- Heudiasyc UMR CNRS 6599, UTC, Compiegne, France
- Université Henri Poincaré, Laboratoire CRAN (Centre de Recherche en Automatique de Nancy), Nancy 1, France
- Department of Informatics, Technical University, Ostrava, Czech Republic
- Department of Control Systems and Instrumentation, Faculty of Mechanical Engineering Technical University of Ostrava, Czech Republic
- Department of Cybernetics, Czech Technical University Prague, Czech Republic
- Department of Control Engineering, Czech Technical University, Prague, Czech Republic
- Institute of Information Theory and Automation, Academy of Sciences of Czech Republic, Prague, Czech Republic
- Department of Information Engineering, Faculty of Economics and Management, Czech University of Agriculture, Prague, Czech Republic
- University of Hradec Králové, Czech Republic

- Faculty of Mechanical Engineering, Department of Automation, Institute of Information, University of Miskolc, Hungary
- Óbuda University, Budapest, Hungary
- Budapest University of Technology and Economics, Hungary
- California Institute of Technology, Jet Propulsion Laboratory (Dr. Antal, K. Bejczy), USA, California
- Hungarian Academy of Sciences, Computer and Automation Research Institute, Hungary (prof. Gyorgy Kovács)
- Regional Association of the Hungarian Academy of Sciences, Miskolc, Hungary
- Austrian Academy of Sciences, Acoustics Research Institute (Bernhard Laback)
- Auditory Neuroscience Group, Department of Physiology, University of Sydney

6.3 Membership in International Organizations and Societies

- Jakša, R.: IEEE, Computational Intelligence Society
- Karch, P.: EAEEIE – European Association for Education in Electrical and Information Engineering
- Kopčo, N.: Association for Research in Otolaryngology, Acoustical Society of America, Society for Neuroscience
- Krokavec, D.: Member of the International Federation of Automatic Control IFAC Technical Committee TC 1.4 Stochastic Systems
- Liguš, J.: EAEEIE – European Association for Education in Electrical and Information Engineering
- Madarász, L.: Doctor honoris causa, University of Miskolc (2009)
- Madarász, L.: Honorary professor, Óbuda University Budapest, Hungary (2009)
- Madarász, L.: Honorary Member of the Board of Hungarian Academy of Sciences (2000)
- Madarász, L.: Chairmanship member of the Technical Section, Association of Hungarian Professors (2001)
- Madarász, L.: Honorary Professor, Bánky Donát Polytechnic, Budapest, Hungary (1999)
- Madarász, L.: Membership of Associate Editors, Acta Polytechnica Hungarica, Budapest Tech, Hungary (2004)
- Madarász, L.: Honorary Membership in Hungarian Fuzzy Association, Budapest Hungary (2002)
- Madarász, L.: American Biographical Institute, Gold Record of Achievement, Control of Large Scale Systems, USA (1997)
- Madarász, L.: The American Biographical Institute, The Research Board of Advisors (1996)
- Madarász, L.: Honorary Fellow of micro'CAD The Univesity of Miskolc (2005)
- Ocelíková, E.; Sinčák, P.; Zolotová, I.: CPRS - Czech Pattern Recognition Society
- Ocelíková, E.: CSSS - Czech and Slovak Society for Simulation
- Machová, K.: ACM – Association of Computer Machinery
- Paralič, J.: ACM – Association of Computer Machinery
- Sabol, T.: Information Society Technologies Program Committee (IST PC),

5th Framework Program, Brussels
- Sarnovský, J.: IEEE
- Sarnovský, J.: INES - International Network of Engineers and Scientists for Global Responsibility
- Sarnovský, J.: Principia Cybernetica Web PRNCYB-L
- Sarnovský, J.: SWIIS - Suplementary Ways for Improving International Stability
- Sinčák P.: European Society of Neural Networks
- Sinčák P.: IEEE, Computational Intelligence Society
- Vaščák, J.: IEEE, Computational Intelligence Society
- Zolotová, I.: IEEE, Education Society
- Zolotová, I.: EAEEIE – European Association for Education in Electrical and Information Engineering

6.4 Membership in Slovak Organizations and Societies

- The whole Department of Cybernetics and Artificial Intelligence is a team member of:
  - Slovak Society for Cybernetics and Informatics
  - Slovak AI Society
- Filasová, A.: Slovak Society for Cybernetics and Informatics
- Krokavec, D.: Slovak Electrical Engineering Society
- Krokavec, D.: Scientific Grant Agency of Slovak Republic
- Krokavec, D.: Member of the Editorial Board of the Journal AT&P, Bratislava
- Madarász, L.: Member of the Editorial Board of the Journal AT&P, Bratislava
- Madarász, L.: Slovak Society for Cybernetics and Informatics
- Madarász, L.: Member of the Editorial Board of the Journal Transfer Inovácií, Faculty of Mechanical Engineering (2006)
- Madarász, L.: Member of the Editorial Board of the Acta Polytechnica Hungarica, Budapest Tech, Hungary (2006)
- Jadlovská, A; Ocelíková, E.; Sarnovský, J.: Slovak Society for Cybernetics and Informatics
- Paralič, J.: Slovak Society for Computer Science
- Sabol, T.: Board of the Open Society Fund, Bratislava
- Zolotová, I.: Slovak Research and Development Agency

6.5 International Networks and Exchange Programs

- EIE-Surveyor, REFERENCE POINT FOR ELECTRICAL AND INFORMATION ENGINEERING IN EUROPE, Project Nr. 225997-CP-1-2005-1-FR-ERASMUS-TNPP, Project funded by the European Commission (SOCRATES Thematic Network), Contact person: Ján Liguš
- Socrates - Erasmus agreement between TU of Košice and University Hradec Kralove, Czech Republic. Contact person: Ján Vaščák
- Socrates - Erasmus agreement between TU of Košice and Czech University of Agriculture, Prague, Czech Republic. Contact person: Eva Ocelíková

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	117	57	6

8 OTHER ACTIVITIES

- 8th Slovak – Hungarian Joint Symposium on applied Machine Intelligence (SAMI 2010 - http://www.sami.tuke.sk/) has been organized in Herľany, Slovakia, January 28-30

9 PUBLICATIONS

9.1 Books

[1] Hrubina, Kamil – Jadlovská, Anna – Majerčák, Jozef: Stability Systems and Asymptotic Properties of Solution of Systems of Differential Equations with Variable Coefficients (in Slovak), In: Chapters about Solutions Diferential Equations Systems and Some Application Differential Equations, Brno Tribun EU, 2009 (appeared in 2010), pp 71-92, ISBN 978-80-7399-951-3

[2] Jadlovská, Anna – Hrubina, Kamil: Algorithm of the Succesive Approximation Method Applied to the Solution of Differential Equations System – Problem of Optimal Control, In: Chapters about Solutions Diferential Equations Systems and Some Application Differential Equations, Brno Tribun EU, 2009 (appeared in 2010), pp 35-48, ISBN 978-80-7399-951-3

[3] Madarász, Ladislav - Vaščák, Ján - Andoga, Rudolf - Karoľ, Tomáš: Decission making, complexity and uncertainty: theory and practice (in Slovak). 1st edition - Košice: Elfa, 2010. - 396 s. - ISBN 9788080861421.

[4] Madarász Ladislav – Főző Ladislav – Andoga Rudolf – Bučko Marian: Foundations of mathematical Control. Linear Dynamic Systems (in Slovak). Theory and excercises. 2nd edition, Elfa, s.r.o, Košice, 2010, 401 pp., ISBN 978-50-8086-162-9

[5] Marián Mach: Solving Constraint satisfaction problems (in Slovak) In: Artificial Intelligence and Cognitive Science 2. Bratislava: STU, 2010. ISBN 978-80-227-3284-0. pp. 291-320.

[6] Paralič, Ján: Scheduling and logistics (in Slovak) 1st edition, Košice: Equilibria, 2010. 93 p. - ISBN 9788089284634.

[7] Paralič, Ján - Furdík, Karol - Tutoky, Gabriel - Bednár, Peter - Sarnovský, Martin - Butka, Peter - Babič, František: Text Mining (in Slovak), 1st edition, Košice: Equilibria, 2010. 183 p. - ISBN 9788089284627.

[8] Sabol, Tomáš - Furdík, Karol – Mach, Marián: Employing semantic technologies for the orchestration of government services. In: Semantic Technologies for E-Government. - Heidelberg: Springer-Verlag Berlin, 2010. - ISBN 978-3-642-03506-7. - P. 47-74.

9.2 Journals

[1] Adamčík, František - Kabát, Ján - Modrovičová, Jana: Experimental resarch of the magnetic aura of a small-size jet-engine and the possibilities of application for diagnostics and control. In: Science & Military. - ISSN 1336-8885. - Roč. 5, č. 1 (2010), s. 11-14.

[2] Andoga, Rudolf - Főző, Ladislav - Madarász, Ladislav - Karoľ, Tomáš: Progressive methods in area of turbojet engines' control systems. In: Acta Electrotechnica et Informatica. - ISSN 1335-8243. - Roč. 10, č. 1 (2010), s. 42-46.

[3] Babič, František - Paralič, Ján - Bednár, Peter - Raček, Michal: Analytical

framework for mirroring and reflection of user activities in e-Learning environment. In: Advances in Intelligent and Soft Computing: Advances in Multimedia and Network Information System Technologies. - ISSN 1867-5662. - Vol. 80 (2010), p. 287-296.

[4] Babič, František - Paralič, Ján - Wagner, Jozef: Evaluation of user practices during collaborative processes through proposed historical projection. In: Acta Electrotechnica et Informatica, Vol. 10, No. 4(2010), pp. 82-88, ISSN 1335-8243.

[5] Best, Virginia - Shinn-Cunningham, Barbara G. - Ozmeral, Erol J. - Kopčo, Norbert: Exploring the benefit of auditory spatial continuity. In: The Journal of the Acoustical Society of America. - ISSN 0001-4966. - Vol. 127, no. 6 (2010), p. EL258-EL264.

[6] Budaj, P. - Kubičko, P. - Lukáč, L.: Cyklické procesné riadenie v sociálnych službách. In: Disputationes Scientificae Universitatis Chatholicae in Ružomberok, Ružomberok: KU. - ISSN 1335-9185. - roč. 10, č. 4 (2010), s. 88-94.

[7] Filasová, Anna - Krokavec, Dušan: Control of discrete-time systems with state equality constraints. In: International journal of circuits, systems and signal processing. - ISSN 1998-4464. - Vol. 4, no. 4 (2010), p. 137-144.

[8] Filasová, Anna - Krokavec, Dušan: State estimate based control design using the unified algebraic approach. In: Archives of Control Sciences. - ISSN 0004-072X. - Vol. 20, no. 1 (2010), p. 5-18.

[9] Filasová, Anna - Krokavec, Dušan: Uniform stability guaranty control of the discrete time-delay systems. In: Journal of Cybernetics and Informatics. - ISSN 1336-4774. - Roč. 10 (2010), s. 21-28.

[10] Főző, Ladislav - Andoga, Rudolf - Madarász, Ladislav: Mathematical model of a small Turbojet Engine MPM-20. In: Studies in Computational Intelligence. - ISSN 1860-949X. - Vol. 313 (2010), p. 313-322.

[11] Furdík, Karol - Paralič, Ján - Babič, František - Butka, Peter - Bednár, Peter: Design and evaluation of a web system supporting various text mining tasks for the purposes of education and research. In: Acta Electrotechnica et Informatica. - ISSN 1335-8243. - Roč. 10, č. 1 (2010), s. 51-58.

[12] Klimešová, Dana - Ocelíková, Eva: Study on context understanding, knowledge transformation and decision support systems. In: WSEAS Transactions on Information Science and Applications. - ISSN 1790-0832. - Vol. 7, no. 7 (2010), p. 385-394.

[13] Kopčo, Norbert - Best, Virginia - Carlile, Simon: Speech localization in a multitalker mixture. In: The Journal of the Acoustical Society of America. - ISSN 0001-4966. - Vol. 127, no. 3 (2010), p. 1450-1457.

[14] Krokavec, Dušan - Filasová, Anna: A unified algebraic approach to stabilizing risk-sensitive control design. In: International Journal of Innovative Computing, Information and Control. - ISSN 1349-4198. - Vol. 6, no. 2 (2010), p. 529-540.

[15] Krokavec, Dušan - Filasová, Anna: Exponential stability of networked control systems with network-induced random delays. In: Archives of Control Sciences. - ISSN 0004-072X. - Vol. 20, no. 2 (2010), p. 165-186.

[16] Labun, Ján - Adamčík, František - Piľa, Ján - Madarász, Ladislav: Effect of the measured pulses count on the methodical error of the air radio altimeter. In: Acta Polytechnica Hungarica. - ISSN 1785-8860. - Vol. 7, no. 1 (2010), p. 41-49.

[17] Liguš, Ján - Zolotová, Iveta - Karch, Peter - Ligušová, Jana: Information and control system of traverse and its integration into cybernetic centre. In:

Electronics and electrical engineering. - ISSN 1392-1215. - No. 6 (2010), p. 147-152.
[18] Lukáč, Gabriel: A proposal for an approach to extracting conceptual descriptions of hyper-linked text documents. In: International Journal on Social Media MMM: Monitoring, Measurment, and Mining. - ISSN 1804-5251. - Vol. 1, no. 1 (2010), p. 98-101.
[19] Madarász Ladisla – Andoga Rudolf – Főző Ladislav: Intelligent Technologies in Modeling and Control of Turbojet Engines. In: New Trends in Technologies: Control, Management, Computational Intelligence and Network Systems, Meng Joo Er (Ed.), Sciyo, 2010. s. 17 -38. ISBN: 978-953-307-213-5
[20] Paralič, Ján - Babič, František: KP-Lab System: A collaborative environment for design, realization and examination of different knowledge practices. In: Technology enhanced learning : Quality of teaching and educational reform : Communication in Computer and Information Science. - ISSN 1865-0929. - Vol. 73 (2010), p. 73-79.
[21] Paralič, Ján - Richter, Christoph - Babič, František - Raček, Michal: Timeline-based analysis of collaborative knowledge practices within a virtual environment. In: J.UCS : Journal of Universal Computer Science. - ISSN 0948-6968. - Vol. 16 (2010), p. 231-242.
[22] Paralič, Ján - Babič, František - Wagner, Jozef - Bednár, Peter - Paralič, Marek: KP-Lab System for the Support of Collaborative Learning and Working Practices, Based on Trialogical Learning, In: Informatica: An International Journal of Computing and Informatics, Vol. 34, No. 3(2010), Slovenia, pp.341-351, ISSN 0350-5596.
[23] Sabol, F. - Vasilenko, T. - Novotný, M. - Tomori, Zoltán - Bobrov, N. - Živčák, Jozef - Hudák, Radovan - Gál, P.: Intradermal running suture versus 3MTM VetbondTM tissue adhesive for wound closure in rodents: a biomechanical and histological study. In: European surgical research. - ISSN 0014-312X. - Vol. 45, no. 3-4 (2010), p. 1-6.
[24] Sarnovský, Ján: Dejiny informatiky a kybernetika. In: AT&P Journal. - ISSN 1335-2237. - Roč. 17, č. 10 (2010), s. 9.
[25] Sarnovský, Ján: Ampéry a kybernetika. In: AT&P Journal. - ISSN 1335-2237. - Roč. 17, č. 4 (2010), s. 9.
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[27] Sarnovský, Ján: Summa technologiae. In: AT&P Journal. - ISSN 1335-2237. - Roč. 12, č. 7 (2010), s. 9.
[28] Vaščák, Ján - Madarász, Ladislav: Adaptation of fuzzy cognitive maps – a comparison study. In: Acta Polytechnica Hungarica. - ISSN 1785-8860. - Vol. 7, no. 3 (2010), p. 109-122.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	36	70	3

DEPARTMENT OF MATHEMATICS AND THEORETICAL INFORMATICS

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E-mail: Jan.Plavka@tuke.sk

1 DEPARTMENT'S PROFILE

Department of Mathematics, before 1981 Department of Mathematical Informatics, was founded in 1969. The activities of twenty teachers are oriented to the mathematical research and education. The main educational goal is to prepare undergraduate students during the first two years of study in the following courses: Differential and integral calculus; Theory of complex variable functions; Ordinary differential equations; Qualitative theory of differential equations; Linear algebra; Mathematical statistics; Laplace, Fourier, and Z-Transformations; Numerical methods; Discrete mathematics and Mathematical modelling, Coding theory, Algorithms and complexity. In addition to the basic courses, the programs of the courses for graduate study were adjusted in co-operation with special departments. Members of the department prepared new lectures on various topics of applied mathematics for graduate study and for PhD students, such as Algorithms and complexity, Theory of queues, Fuzzy sets, Selected topics from mathematics, Financial mathematics, Optimization methods, Solving ill-posed problems. Since 2008 the Department offers its own study programme Computer modelling. This is focused on computer-aided mathematical simulation of diverse problems.

Present research projects of the Department of Mathematics are oriented on the next problems:

- Asymptotic properties of higher order functional differential equations
- The study of the scaling laws in nonlinear systems and in the developed turbulence using renormalization group methods
- Algebraic structures and graph algorithms in max-plus and max-min algebras
- Topological graph theory – crossing numbers of graphs
- E-learning of mathematical subjects

2 STAFF

Professors: prof. RNDr. Jozef Džurina, CSc.
prof. RNDr. Ján Plavka, CSc.

Associate Professors: doc. RNDr. Marián Klešč, PhD.
doc. RNDr. Viktor Pirč, CSc.

Assistant Professors: RNDr. Blanka Baculíková, PhD.
RNDr. Štefan Berežný, PhD.
RNDr. Ján Buša, CSc.
Mgr. Ján Buša, PhD.
RNDr. Ivan Daňo, PhD.
RNDr. Emília Draženská, PhD.
RNDr. Anna Grinčová, PhD.
RNDr. Renáta Komariková, PhD.
Mgr. Daniela Kravecová
RNDr. Monika Molnárová, PhD.
RNDr. Helena Myšková, PhD.
PhDr. Eva Ostertagová, PhD.
Mgr. Ján Pribiš, PhD.
RNDr. Michl Staš, PhD.
RNDr. Štefan Schrötter, CSc.

Technical Staff: Mária Schrötterová

The Department consists of two parts:

- Division of Mathematical Analysis and Discrete Mathematics
- Division of Applied Mathematics

3 LABORATORIES

- Laboratory of Mathematical and Computing Modelling

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Mathematics I.	1st	3/3	Buša, Klešč, Daňo, Baculíková
Mathematics I.	1st	4/3	Molnárová,
Mathematics I. (English)	1st	3/3	Berežný
Mathematics I.	1st	3/0	Pribiš, Plavka
Continuous Optimization Methods	2nd	3/3	Džurina
Mathematics II.	2nd	2/2	Molnárová
Numerical Methods	2nd	2/0	Berežný
Mathematical Logic	2nd	2/0	Draženská
Algorithms and Complexity	2nd	2/2	Plavka
Numerical Methods, Probability and Statictic	2nd	3/2	Daňo, Grinčová, Schrötter
Mathematics III.	2nd	2/0	Myšková

Mathematics III.	2nd	2/2	Molnárová
Mathematics III.	2nd	3/2	Berežný, Buša, Klešč, Ostertagová, Schrötter
Numerical Methods, Probability and Statictic	2nd	2/0	Baculíková
Operation Analysis	2nd	2/2	Komariková
Mathematics II.	3rd	3/3	Ostertagová, Pribiš
Mathematics II. (English)	3rd	3/3	Plavka
Mathematics II.	3rd	2/2	Grinčová
Mathematics II.	3rd	2/0	Pirč
Discrete Mathematics	3rd	3/3	Schrötter
Theory of Coding	3rd	2/2	Plavka
Mathematical Logic	3rd	3/2	Draženská, Myšková
Mathematical Logic	3rd	2/0	Staš
Typographical System TEX	3rd	0/2	Buša Jr.
Discrete Mathematics and Logic	3rd	2/0	Schrötter
Linux I	3rd	2/2	Buša Jr.
Operation Analysis	4th	2/2	Berežný
Mathematics III. (English)	4th	3/2	Berežný
Computer-aided Mathematical Simulation	5th	3/2	Džurina
Numerical Mathematics, Probability Theory and Mathematical Statistics (English)	5th	3/2	Berežný
Financial Mathematics	6th	2/2	Pirč
Typographical System TEX	6th	2/1	Buša Jr.

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Differentional Equations and Variational Calculus	7th	2/2	Džurina
Applied Mathematics	7th	3/2	Klešč
Applied Mathematics	7th	2/0	Klešč
Theory of Coding	7th	2/2	Plavka
Theory of Coding	7th	2/0	Plavka, Kravecová
Queueing Theory	7th	2/2	Berežný
Lienar and Quadratic Programming	7th	2/2	Berežný
Mathematical Methods for Neural Networks and Times Series	7th	2/2	Pirč
Applied Mathematics	8th	2/2	Buša

5 RESEARCH PROJECTS

- ***Crossing numbers of selected families of graphs***, VEGA Slovak Grant Agency No. 1/0636/08, duration 2008-2010, co-ordinator: Marián Klešč.
- ***Simulation of protein folding***, VEGA Slovak Grant Agency No. 1/0819/08,

duration 2008-2010, co-ordinator: Ján Buša.

- ***Two textbooks for first and second level for study program Computer Modelling.*** KEGA Slovak Grant Agency No. 3/7353/09, duration 2009-2011, co-ordinator Ivan Daňo.
- ***E-learningová a softvérová podpora výučby matematických predmetov na TUKE a vybranej strednej škole*.** KEGA Slovak Grant Agency No. 019-025TUKE-4/2010, duration 2010-2011.

6 CO-OPERATION

6.1 Co-operation in Slovakia

The members of department work in the main research projects described above and they are involved in research projects at other institutions:

- Faculty of Science UPJŠ, Košice
- Faculty of Mathematics, Physics and Informatics UK, Bratislava
- Special Departments of FEI TU, Košice
- Institute of Experimental Physics of Slovak Academy of Sciences, Košice
- Faculty of Natural Science, Žilina

6.1.1. Visitors to the Department

- Dr. Edik Hayryan, Joint Institute for Nuclear Research, Dubna, Russia
- Dr. Alexander Ayriyan, Joint Institute for Nuclear Research, Dubna, Russia
- Prof. Leonid Sevastyanov, RPFU, Russia
- Prof. Marie Demlová, Czech Technical University in Prague, Czech Republic
- Prof. Vasile Berinde, North University of Baia Mare, Baia Mare, Romania

6.2 International Co-operation

- Technical University in Graz, Austria
- Charles University in Prague, Czech Republic
- University of Birmingham, United Kingdom
- UHK in Hradec Králové, Czech Republic
- Ioaninna University, Greece
- Veszprem University, Hungary
- JINR Dubna, Russia
- Institute of Physics, Academia Sinica, Taiwan

6.2.1. Visits of Staff Members to Foreign Institutions

- Berežný, Š.: North University of Baia Mare, Romania
- Berežný, Š.: ČVUT, Prague, Czech Republic
- Kravecová, D.: University of Miskolc, Hungaria
- Molnárová, M.: UHK Hradec Králove, Czech Republic

6.3 Membership in International Organizations and Societies

- Buša, J.: Czechoslovak TeX Users Group (CSTUG)
- Buša Jr., J.: Czechoslovak TeX Users Group (CSTUG)
- Klešč, M.: American Mathematical Society

6.4 Membership in Slovak Organizations and Societies

- Baculíková, B.: Slovak Mathematical Society

- Berežný, Š.: Slovak Mathematical Society
- Buša, J.: Slovak Mathematical Society
- Buša, J.: Czechoslovak TeX Users Group (CSTUG)
- Buša, J: Slovak Committee for the Cooperation of the Slovak Republic with JINR, Dubna
- Buša Jr., J.: Czechoslovak TeX Users Group (CSTUG)
- Daňo, I.: Slovak Mathematical Society
- Džurina, J.: Slovak Mathematical Society
- Grinčová, A.: Slovak Mathematical Society
- Klešč, M.: OK 9-1-6 Discrete Mathematics
- Klešč, M.: Slovak Mathematical Society
- Kravecová, D.: Slovak Mathematical Society
- Molnárová, M.: Slovak Mathematical Society
- Pirč, V.: Slovak Mathematical Society
- Plavka, J.: OK 9-1-6 Discrete Mathematics
- Schrötter, Š.: Slovak Mathematical Society

6.5 Contracts, International Scientific Projects

- CEEPUS – partner in CEEPUS II program CII-HU-0028-03-0910/M/35079 - Active Methods in Teaching and Learning Mathematics

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	13	0	1

8 OTHER ACTIVITIES

8.1 Workshops:

- Buša, J. – Schrötter, Š.: 11-th Conference of Košice Mathematicians, April 2010, Herľany, co-organisers
- Schrötter, Š.: Workshop Cycles and Colourings, Tatranská Štrba, September 2010, co-organiser

8.2 Study tours:

- Buša, J.: JINR Dubna, Russia
- Buša Jr., J.: Pécs, Hungary
- Buša Jr.: Ghent, Belgium
- Buša Jr.:Karlsruhe, Germany
- Pribiš, J.: JINR Dubna, Russia

9 PUBLICATIONS

9.1 Books

[1] BEREŽNÝ, Štefan – MISLIVCOVÁ, Viera: Požiadavky na prijímacie skúšky z matematiky pre záujemcov o štúdium na Leteckej fakulte Technickej univerzity v Košiciach. LF TUKE (2010) 64 s. - ISBN 978-80-553-0422-9

[2] BEREŽNÝ, Štefan – MISLIVCOVÁ, Viera: Prehľad základov z matematiky pre záujemcov o štúdium na Leteckej fakulte Technickej univerzity v Košiciach - 4. preprac. vyd. - Košice : TU LF - 2010. - 72 s. - ISBN 978-80-553-0465-6.
[3] BUŠA, Ján - SCHRÖTTER, Štefan: Stredoškolská matematika [High School Mathematics]. FEI TUKE (2010) ISBN: 978-80-553-0477-9.
[4] DAŇO, I. – OSTERTAGOVÁ, E.: Numerické metódy, pravdepodobnosť a matematická štatistika: Teória, riešené príklady a praktické aplikácie s MATLABom. 1. vyd., Košice, Equilibria, 2010,166 s., ISBN 9788089284566.
[5] DŽURINA Jozef – PIRČ Viktor: Calculus I , Elfa, s.r.o., Košice, 2010. 134s., ISBN 978-80-8086-165-0

9.2 Journals

[1] BACULIKOVÁ, B. – DŽURINA, J.: Oscillation of third-order neutral differential equations. Math. Comput. Modelling 52 (2010), 215-226.
[2] BACULIKOVÁ, B. – DŽURINA, J.: Comparison theorems for the third order delay trinomial differential equations. Advances in Difference Eq. (2010) vol. 2010, Article ID 160761,12 pages, 2010.
[3] BACULIKOVÁ, B. – DŽURINA, J.: On the asymptotic behaviour of a class of third nonlinear neutral differential equations. Central European Journal of Mathematics 8 (2010), 1091-1013.
[6] BEREŽNÝ, Š.: Statistical processing of arrivals and departures on Košice Airport in 2006. Acta Avionica, Roč. 12, č.19 (2010), s. 35-41. - ISSN 1335-9479
[7] BEREŽNÝ, Š.: Statistical processing of arrivals and departures on Košice Airport in 2007. Acta Avionica. Roč. 12, č.19 (2010), s. 42-48. - ISSN 1335-9479
[8] BEREŽNÝ, Š. – GRINČOVÁ, A.: Regresná analýza špecifických matematických modelov získaných pri skúškach dopravných pásov proti prierazu - 1 elektronický optický disk (CD-ROM). Doprava a logistika, Mimoriadne č. 7 (2010), s. 296-308. - ISSN 1451-107X
[9] BOCKO, J. - FRANKOVSKÝ, P. - KOSTELNÍKOVÁ, A. - OSTERTAGOVÁ, E. – OSTERTAG, O.: Structural design and photoelasticimetric verification of landing gear of ultralight aircraft. Metalurgija, Volume 49, No. 2/2010, p. 145 – 150. - ISSN 0543-5846.
[10] BUŠA, J. – HAYRYAN, S. – HU, Ch-K. – SKŘIVÁNEK, J. – WU, M-K.: Enveloping triangulation method for detecting internal cavities in proteins and algorithm for computing their surface areas and volumes. Computer Physics Communications 181 (2010), 2116–2125.
[11] BUŠA, J. – POKORNÝ, I. – HAYRYAN, E. – SKŘIVÁNEK, J.: Identification of internal points of macromolecular systém for the definition of the parameters of a Poisson-Boltzmann equation. Bulletin of PFUR, Series: Mathematics. Information Sciences. Physics. 2, No. 2 (2010), 70–75.
[12] DAŇO, I. – TANCSÁKOVÁ, M.: Continuos-time neurodynamical system. Transfer inovácií, č. 16 (2010), s. 265-267. - ISSN 1337-7094
[13] DŽURINA, J. – BACULIKOVÁ, B.: Oscillation of third-order functional differential equations. EJQTDE, 43 (2010), 1-10.
[14] DŽURINA, J. – BACULIKOVÁ, B.: On the oscillation of certain class of third-order nonlinear neutral differential equations. Central European Journal of Mathematics 8, (2010), 1091-1103.

[15] DŽURINA, J. – SAKER, S. H.: On the oscillation of certain class of third-order nonlinear delay differential equations, Math. Bohemica. 135 (2010), p. 225-237
[16] GAVALEC, M – Plavka, J.: Monotone interval eigenproblem in max-min algebra. Kybernetika 46 (2010), 387-396.
[17] KLEŠČ, M.: The crossing numbers of join of the special graph on six vertices with path and cycle. Discrete Mathematics 310 (2010), 1475-1481.
[18] KOSTENKO. B. – PRIBIŠ, J.: Mathematical modelling of track formation in YBa2Cu307-x superconductor. Vestnik Rossijskovo Universiteta Družby Narodov, No. 3 (2010), 32-36. – ISSN 0869-8732
[19] MYŠKOVÁ, H.: Solvability concepts for interval systems in max-plus algebra. Journal of Applied Mathematics 32 (2010), 225-235.
[20] OSTERTAGOVÁ, E. – OSTERTAG, O. – ŠARGA, P.: Comparison of tensometric and photoelasticimetric methods for residual stresses determination. Metalurgija, Volume 49, No. 2/2010, p. 428 – 432. - ISSN 0543-5846.
[21] OSTERTAGOVÁ, E. – OSTERTAG, O.: Utilization of automation in separation of stresses components in the optically sensitive material. Metalurgija, Volume 49, No. 2/2010, p. 438. – 442. ISSN 0543-5846
[22] OSTERTAGOVÁ, E. – OSTERTAG, O.: Mathematical formulation of the optical constant of orthotropic optically sensitive material. Metalurgija, Volume 49, No. 2/2010, p. 433 – 437. - ISSN 0543-5846
[23] OSTERTAGOVÁ, E. – OSTERTAG, O.: Aplication of Laplace and Poisson equations in photoelasticimetry. Metalurgija, Volume 49, No. 2/2010, p. 425 – 427. - ISSN 0543-5846
[24] OSTERTAGOVÁ, E. – OSTERTAG, O. – SIVÁK, P.: Posúdenie pružného uloženia chladiarenského kompresora. Transfer inovácií 16/2010, s. 47 – 52. SjF TU v Košiciach, 2010. - ISSN 1337-7094
[25] OSTERTAGOVÁ, E. – KALINA, P.: Použitie MATLABu pri štatistickej kontrole kvality. Transfer inovácií 16/2010, s. 202 – 204. SjF TU v Košiciach, 2010. - ISSN 1337-7094
[26] STAŠ, M.: Application of Hurewicz theorem to classification of Pi_1^1-complete sets, Tatra Mount. Math. Publ., Real Functions '09, Volume 46 (2010), 65-69.
[27] SLODIČKA, M. – BUŠA Jr., J.: Div-curl lemma revisited: Applications in electromagnetism. Kybernetika 46, no. 2 (2010), 328-340.
[28] ŠALIGA, J. – MICHAELI, L. – SAKMÁR, M – BUŠA, J.: Processing of Bidirectional Exponential Stimulus in ADC testing. Measurement 43, No. 8 (2010), 1061–1068.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	17	20	2

DEPARTMENT OF COMPUTERS AND INFORMATICS

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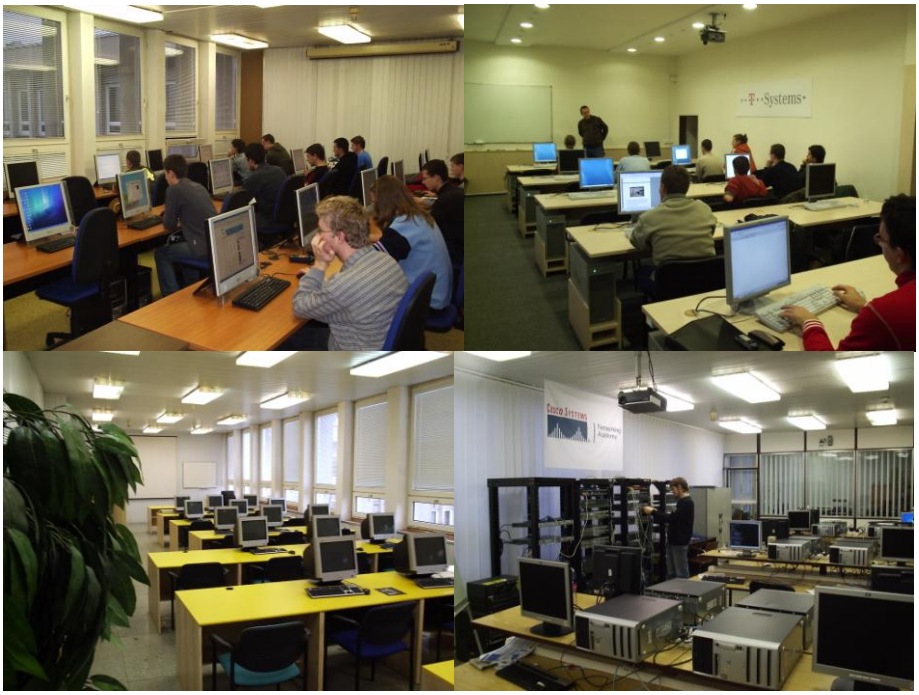
1 DEPARTMENT´S PROFILE

Department of Computers and Informatics (DCI) has been a principal body of the Faculty of Electrical Engineering and Informatics (FEI) conducting the process of education and scientific research in the area of Computer science and engineering (CSE) since 1989. DCI is one of two successors of the former Department of Technical Cybernetics at the FEI.

Education at DCI covers all forms of university studies in CSE and DCI grants bachelor (Bc), master (Ing) and doctoral (PhD) degree in CSE.

DCI consists of 5 laboratories:

- Informatics and Computer Languages Laboratory
- Software Engineering Laboratory
- Information Systems Laboratory
- Computer Networks Laboratory
- Computer Architectures and Security Laboratory



DCI programs enrollment counts more than 560 students in bachelor and 230 students in master programs. Number of doctoral students studying towards PhD degree is more than 40.

The graduates can work as system engineers, specialists for development, installation and maintenance of the information systems and technologies in wide spectrum of applications, designers of the computer systems, specialists dealing with research, development and operation of computer systems and their components.

Scientific research at DCI covers following fields:

- formal methods for design and analysis of discrete systems,
- programming paradigms and theory of programming,
- parallel and distributed programming, real time systems,
- methods, tools and methodologies of analysis and design of software systems,
- computer graphics and virtual reality systems,
- agent and service-based technologies for design and implementation of distributed software systems,
- modeling and simulation of systems,
- advanced database and information technologies,
- information systems security,
- e-learning systems, intelligent tutoring systems,
- parallel architectures for specialized high performance computer systems,
- theory of design of MIMD computer architecture - data-flow,
- computer networks and advanced network infrastructures,
- transfer of the multimedia nature information with the required quality of services parameters, effective methods of quality service property parameters assessment,
- implementation of the powerful streaming technologies in the IP network environment,
- videoconference solution and voice services of the new generation,
- monitoring, control and visualization of topologies in LAN and WAN,
- virtual communication infrastructures and their use in practical, e-learning technologies and their solutions.

2 STAFF

Professors:	prof. Ing. Štefan Hudák, DrSc. prof. Ing. Ján Kollár, CSc. prof. RNDr. Valerie Novitzka, PhD. prof. Ing. Liberios Vokorokos, PhD.
Associate Professors:	doc. Ing. Ján Bača, CSc. doc. Ing. Zdeněk Havlice, CSc. doc. Ing. František Jakab, PhD. doc. Ing. Jaroslav Porubän, PhD. doc. Ing. Ladislav Samuelis, CSc. doc. Ing. Branislav Sobota, PhD. doc. Ing. Milan Šujanský, CSc.

Assistant Professors:	Ing. Norbert Ádám, PhD.	Ing. Marek Paralič, PhD.
	Ing. Anton Baláž, PhD.	Ing. Ján Perháč, PhD.
	Ing. Miroslav Biňas, PhD.	Ing. Ondrej Pločica, PhD.
	Ing. Peter Feciľák, PhD.	Ing. Ladislav Samuelis, CSc.
	Ing. Michal Forgáč, PhD.	Ing. Csaba Szabó, PhD.
	Ing. Ján Genči, PhD.	Ing. Igor Sivý, CSc.
	Ing. Juraj Giertl, PhD.	Ing. Viliam Slodičák, PhD.
	Ing. Milan Hauliš	Ing. Slavomír Šimoňák, PhD.
	Ing. Katarína Kleinová, PhD.	Ing. Stanislav Šuba
	Ing. Štefan Korečko, PhD.	Ing. Henrieta Telepovská, PhD.
	Ing. Branislav Madoš, PhD.	Ing. Martin Tomášek, PhD.
	Ing. Daniel Mihályi, PhD.	Ing. Peter Václavík, PhD.
Senior Scientists:	Ing. Michal Kohut	Ing. Martin Révés, PhD.
	Ing. Miroslav Michalko, PhD.	
Technical Staff:	Karol Hobor	Emília Sidárová
	Roman Ivančík	Jozef Šefčík
	Ivana Macková	Helena Švarcová

Ph.D. Students:
Internal form:

Ing. Iveta Adamuščínová	Ing. Martina Ľaľová
Ing. Michal Augustín	Ing. Pavol Macko
Ing. Eva Danková	Ing. Miroslav Michalko
Ing. Marek Domiter	Ing. Marián Mižík
Ing. Peter Fanfara	Ing. Attila N. Kovács
Ing. Peter Gábor	Ing. Marek Novák
Ing. František Hrozek	Ing. Jana Petrillová
Ing. Róbert Hužvár	Ing. Emília Pietriková
Ing. Sergej Chodarev	Ing. Tomáš Poklemba
Ing. Peter Jakubčo	Ing. Martin Révés
Ing. Jozef Janitor	Ing. Miroslav Sabo
Ing. Martin Kapa	Ing. Ivan Šestina
Ing. Ivan Klimek	Ing. Milan Vrábeľ
Ing. Michaela Kreutzová	Ing. Ľubomír Wassermann
Ing. Dominik Lakatoš	Ing. Wasim Zahra
	Ing. Peter Žársky

External form:

Ing. Gabriel Bocek	Ing. Miloš Očkay
Ing. Jozef Doboš	Ing. Ivan Peťko
Ing. Martin Droppa	Ing. Igor Petz
Ing. Ľuboš Dúbravec	Ing. Ondrej Pločica
Ing. Vratislav Fabián	Ing. Ján Polák
Ing. Milan Hauliš	Ing. Peter Prazňák
Ing. Radovan Janošo	Ing. Kristián Šesták
Ing. Marián Jenčík	Ing. Peter Špireng
Ing. Michal Kohut	Ing. Stanislav Šuba
Ing. Ľubomír Kulich	Ing. Michal Vagač
Ing. Ivan Makatura	Ing. Milan Varga

Ing. Lukáš Mikula
Ing. Matej Lakatoš
Ing. Juraj Vízi
Ing. Otto Železník
Ing. Marián Želinský

3 LABORATORIES

- Computer Networks Laboratory (www.cnl.tuke.sk)
- Computer Architectures and Security Laboratory
- Operation Systems Laboratory
- Software Engineering Laboratory
- Information Systems Laboratory
- Informatics and Computer Languages Laboratory
- Administration and Operational Support

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures / exercises (hours per week)	Name of Lecturer
Introduction to programming and networks	1st	3/2	Sobota, Paralič, Korečko, Slodičák
Assembler	2nd	2/2	Šimoňák
Principles of computer engineering	2nd	2/2	Vokorokos
Programming	2nd	3/2	Paralič, Tomášek, Szabó
Object-Oriented Programming	3rd	2/2	Tomášek
Formal languages and compilers	3rd	2/2	Kollár
Theoretical Foundations of Informatics	3rd	2/2	Hudák, Tomášek
Data structures and algorithms	3rd	2/2	Šimoňák
OS Linux administration I.	3rd	0/2	Biňas
Database Systems	4th	2/2	Telepovská
Operating Systems	4th	2/2	Sivý
Computer Networks	4th	2/2	Jakab
Programming in .NET environment	4th	2/2	Václavík
Java technologies	4th	2/2	Porubän
Security in computer systems	4th	2/2	Vokorokos, Baláž
Documentation in informatics	4th	0/3	Šujanský
OS Linux administration II.	4th	0/2	Biňas
Bachelor project	5th	0/6	Novitzká
Logical Systems	5th	3/3	Bača
Computer Graphics	5th	3/2	Šujanský
Fundamentals of Software Engineering	5th	2/2	Havlice
Distributed programming	5th	2/2	Paralič
Application of the network technologies	5th	2/2	Giertl
Principles of Programming Languages	6th	3/2	Kollár
Computer System Architectures	6th	3/2	Vokorokos, Ádám
Bachelor thesis	6th	0/9	Kollár
Aspect-oriented Programming	6th	2/2	Václavík
Internet security	6th	2/2	Vokorokos, Baláž
Technologies of IS Development I.	6th	2/2	Havlice

4.2 Graduate study (Ing.)

Subject	Semester	Lectures / exercises (hours per week)	Name of Lecturer
Compilers Design	1th	3/2	Havlice
Composition of computers	1th	3/2	Vokorokos
Theoretical Informatics	1th	3/2	Hudák
Type theory	1th	2/2	Novitzká
Database Administration	1th	2/2	Telepovská
Modeling and Simulation	1th	2/2	Šujanský
Design of digital systems	1th	1/3	Bača
Advanced Database Technologies	1th	2/2	Genči
Web Technologies	1th	2/2	Porubän
Technologies of IS Development II	1th	0/3	Telepovská
OpenView and HP UNIX administration	1th	2/2	Baláž
Modeling and Generation of Software Architectures	2nd	2/2	Kollár
Semestral Project	2nd	0/5	Kollár
Semantics of Programming Languages	2nd	3/2	Novitzká
Diagnostics and Reliability	2nd	2/2	Bača
Formal Specifications of Systems	2nd	3/2	Hudák
Logics for informaticians	2nd	2/2	Novitzká
Peripheral devices and connection to environment	2nd	2/2	Vokorokos, Jadlovský
Virtual Reality Systems	2nd	2/2	Sobota
Technologies of Software Projects-I	2nd	2/2	Havlice
Routing algorithms in computer networks	2nd	2/2	Genči
Security in computer systems	3rd	2/2	Vokorokos, Baláž
Diploma Project	3rd	0/8	Kollár
Parallel Programming	3rd	2/2	Kollár
Software Quality and Management	3rd	2/2	Samuelis
Parallel computer systems	3rd	3/2	Vokorokos, Ádám
Designing of computer networks	3rd	2/2	Giertl
Technologies of Software Projects-II	3rd	0/2	Szabó
Knowledge-based Systems	3rd	3/2	Sivý
Medical informatics	3rd	2/0	Zorkovský, Tumidalský
Diploma Thesis	4th	0/18	Kollár

4.3 Undergraduate and Graduate Study for Foreign Students (In English Language)

All subjects listed in the table above are offered also in English language for foreign students.

5 RESEARCH PROJECTS

List of current research and educational projects:

- ***Centre of Information and Communication Technologies for Knowledge Systems***, Research and Development Operational Programme funded by the ERDF No. 26220120020, duration: 2009-2011
- ***Development of Centre of Information and Communication Technologies for Knowledge Systems***, Research and Development Operational Programme funded by the ERDF No. 26220120030, duration: 2010-2013
- ***IT4KT – Information Technologies for Knowledge Transfer***, Research and Development Operational Programme funded by the ERDF No. 26220220123, duration: 2010-2013
- ***Methods for identification and analysis of security threats in computer architectures, distributed systems and dynamic networks***, Project APVV No. APVV-0073-07, duration: 2008-2010, coordinator: prof. Ing. Liberios Vokorokos, PhD.
- ***Development of videoconference archive system AVE for system EVO***, Project. APVV-0732-07, duration: 2008-2010, Partner coordinator: doc. Ing. František Jakab, PhD.
- ***Principles and methods of semantic enrichment and adaptation of knowledge-based languages for automatic software development***, VEGA No. 1/0015/10, duration: 2010-2011, coordinator: prof. Ing. Ján Kollár, CSc.
- ***Modeling and simulation of security attacks in distributed computing environments and networks***, VEGA No. 1/0026/10, duration: 2010–2011, coordinator: prof. Ing. Liberios Vokorokos, PhD.
- ***Tasks Solution for Large Graphical Data Processing in the Environment of Parallel***, ***Distributed and Network Computer Systems***, VEGA No. 1/0646/09, duration: 2009-2011, coordinator: doc. Ing. Branislav Sobota, PhD.
- ***Electronic processing of English names in Slovak language***, VEGA No. 1/0102/09, duration: 2009–2011, Cooperator: Ing. Ján Genči, PhD.
- ***Behavioural Categorical Models for Complex Program Systems***, VEGA No. 1/0175/08, duration: 2008-2010, coordinator: prof. RNDr. Valerie Novitzká, PhD.
- ***Knowledge-Based Software Life Cycle and Architectures***, VEGA No. 1/0350/08, duration: 2008-2010, coordinator: doc. Ing. Zdeněk Havlice, CSc.
- ***Methods of effective information transmission: Developmemt of new generation multimedia communication services,*** VEGA No. 1/0525/08, duration: 2008-2010, coordinator: doc. Ing. František Jakab, PhD.
- ***Cooperation between TUKE and NTNU in the field of distributed computer network security***, Project NIL No. NIL-II-021, duration: 2009-2011, coordinator: prof. Ing. Liberios Vokorokos, PhD.
- ***Sofware Evolution by Language Adaptation***, APVV MVTS No. APVV SK-SI-0004-08, duration: 2009-2010, coordinator: prof. Ing. Ján Kollár, CSc.
- ***Learning simulator for information technology security specialist***, KEGA No. 3/7110/09, duration: 2009-2011, coordinator: prof. Ing. Liberios Vokorokos, PhD.
- ***Development of virtual and remote network of laboratories,*** KEGA No. 3/7245/09, duration: 2009-2011, coordinator: doc. Ing. František Jakab,

PhD.

- ***International Cooperation in Computer Science, CEEPUS No. CII-HU-0019-01-0506 (H81)***, duration: since 2005, coordinator: Ing. Ladislav Samuelis, CSc.
- ***Cisco Networking Academy Program – Regional Academy at DCI FEI TU, Cisco No. 8250,*** duration: since 1999, coordinator: doc. Ing. František Jakab, PhD.

6 CO-OPERATION

6.1 Co-operation in Slovakia

- Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava
- Faculty of Management Science and Informatics, University of Žilina
- Department of Informatics, Armed Forces Academy of gen. M. R. Štefánik in Liptovský Mikuláš
- Department of Informatics, University in Trenčín
- Department of Informatics, Matej Bel University in Banská Bystrica
- Institute of Computer Science, Pavol Jozef Šafárik University in Košice
- Institute of Informatics, Slovak Academy of Sciences, Bratislava
- Department of Informatics, Constantine the Philosopher University, Nitra

6.1.1 Visitors to the Department

- doc. Ing. Jiří Kunovský, CSc. – Faculty of Information Technology, Brno University of Technology, Czech Republic
- doc. RNDr. Petr Šaloun, PhD. – Department of Informatics and Computers, University of Ostrava, Czech Republic
- prof. Ing. Pavol Hováth, CSc., Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava, Slovakia
- prof. Ing. Mikuláš Alexík, CSc., Faculty of Management Science and Informatics, University of Žilina, Slovakia
- doc. Ing. Jaroslav Zendulka, CSc., Brno University of Technology, Czech Republic
- prof. Ing. Marcel Harakaľ, CSc., Military Academy of gen. M. R. Štefanik in Liptovský Mikuláš, Slovakia
- prof. Ing. Igor Mokriš, CSc., prof. Ing. Miroslav Liška, CSc., Military Academy of gen. M. R. Štefanik in Lliptovský Mikuláš, Slovakia
- doc. RNDr. Ľubomír Dedera, PhD., Military Academy of gen. M. R. Štefanik in Liptovský Mikuláš, Slovakia
- doc. Ing. František Zbořil, CSc., Brno University of Technology, Czech Republic
- doc. Ing. Ladislav Hluchý, CSc., Slovak Academy of Sciences, Bratislava, Slovakia
- doc. Ing. Vlastimil Jáneš, CSc., Czech Technical University in Prague, Czech Republic
- doc. Ing. Róbert Lórencz, CSc., Czech Technical University in Prague, Czech Republic
- Ing. Jarmila Škrinárová, PhD., Matej Bel University in Banská Bystrica, Slovakia
- Ing. Penka Martincová, PhD., Faculty of Management Science and

Informatics, University of Žilina, Slovakia
- Marjan Horváth – University of Maribor, Slovenia
- Matej Črepinšek – University of Maribor, Slovenia
- Tatiana Parfirova – National Taras Schevchenko University of Kyiv, Ukraine
- Vadim Vinnik – National Taras Schevchenko University of Kyiv, Ukraine
- Mykola Nikitchenko – National Taras Schevchenko University of Kyiv, Ukraine
- Dmitry Buy – National Taras Schevchenko University of Kyiv, Ukraine
- Juliya Bogatyreva – National Taras Schevchenko University of Kyiv, Ukraine
- Irina Gllushko – National Taras Schevchenko University of Kyiv, Ukraine
- István Bozó – Eőtvős Loránd University, Hungary
- Zsolt Lengyel – Eőtvős Loránd University, Hungary
- Zalán Szűgyi – Eőtvős Loránd University, Hungary
- Jitka Dařbujanová – Technical University of Liberec, Czech Republic
- Jan Horáček – Brno University of Technology, Czech Republic
- Vít Fábera – Czech Technical University in Prague, Czech Republic
- František Zbořil jr. – Brno University of Technology, Czech Republic
- Jan Samek – Brno University of Technology, Czech Republic
- Václav Šimek – Brno University of Technology, Czech Republic
- Radim Dvořák – Brno University of Technology, Czech Republic
- Richard Ružička – Brno University of Technology, Czech Republic
- Jaroslav Rozman – Brno University of Technology, Czech Republic
- Martin Straka – Brno University of Technology, Czech Republic
- Robert Smyk – Gdansk University of Technology, Poland
- Maciej Czyźak – Gdansk University of Technology, Poland
- Doina Zmaranda – University of Oradea, Romania
- Gabor Gianina – University of Oradea, Romania

6.2 International Co-operation

- University of Ostrava, Czech Republic
- VŠB – Technical University of Ostrava, Czech Republic
- University of West Bohemia in Pilsen, Czech Republic
- Czech Technical University In Prague, Czech Republic
- Brno University of Technology, Czech Republic
- Information Systems Institute, Technical University of Vienna, Austria
- Johannes Kepler University, Linz, Austria
- University of Klagenfurt, Austria
- Eötvös Loránd University, Budapest, Hungary
- Technical University of Budapest, Hungary
- University of Szeged, Hungary
- Technical University of Gdansk, Poland
- University of Oradea, Romania
- Babes-Bolyai University, Cluj-Napoca, Romania
- University of Maribor, Slovenia
- University of Kumamoto, Japan
- Frauhofer Institute for Open Communication System (FOKUS), Berlin, Germany
- International Solomon University Kiew, Ukraine
- The National University of T. Schevchenko, Kiew, Ukraine

- Kharkov National University of Radioelectronics, Ukraine
- Uzhgorod National University, Ukraine
- ISTASE, Universite de St-Etienne, France
- Paisii Hilendarski University, Plovdiv, Bulgaria
- Politecnico di Milano Dipartimento di Electronica, Milano, Italy
- Polytechn. Eng. College, Subotica, Serbia
- University of Jyväskylä, Finland
- Jyväskylä University of Applied Sciences, School of Information Technology, Finland
- University of Minho, Portugal
- Instituto Politécnico de Bragança, Bragança, Portugal
- NTNU, Institutt for Telematikk, Trondheim, Norway

6.2.1. Visits of Staff Members to Foreign Institutions

- Biňas, M.: IUT1 Université Joseph Fourier Grenoble, Grenoble, France
- Feciľák, P.: CATC, Rzesow, Poland
- Feciľák, P.: CATC Krakow, Poland
- Feciľák, P.: University of Hradec Králové, Czech Republic
- Feciľák, P.: CEE CCNP meeting, University of IT abd Management ub Rzeszow, Poland
- Genči, J.: ECESIS, Valadolid, Spain
- Genči, J.: Brno University of Technology, Brno, Czech Republic
- Genči, J.: ECESIS, Koblenz, Germany
- Genči, J.: ECESIS, Sumy, Ukraine
- Giertl, J.: University of Plovdiv, Bulgaria
- Giertl, J.: CEE CCNP meeting, University of IT abd Management ub Rzeszow, Poland
- Havlice, Z.: Brno University of Technology, Brno, Czech Republic
- Hudák, Š.: Brno University of Technology, Brno, Czech Republic
- Jakab, F.: CATC, Rzesow, Poland
- Jakab, F.: CATC Krakow, Poland
- Jakab, F.: Cisco Networkers 2010, Bahrain
- Jakab, F.: eSkills Week, Brussels, Belgium
- Jakab, F.: University of Debrecen, Hungary
- Janitor, J.: Cisco Networkers, Barcelona, Spain
- Janitor, J.: CATC, Rzesow, Poland
- Janitor, J.: CATC Krakow, Poland
- Janošo, R.: MOSIS`X, Hradec nad Moravicí, Czech Republic
- Kollár, J.: University of Rzeszow, Poland
- Kollár, J.: Sarospatak, Hungary
- Korečko, Š.: EUROSIM 2010, Prague, Czech Republic
- Korečko, Š.: ISDA 2010, Egypt, Cairo
- Novák, M.: MonAMI, Madrid, Spain
- Novitzká, V.: AEI 2010, University Ca´Foscari, Venezia, Italy
- Novitzká, V.: Politechnika Czestochowa, Poland
- Paralič, M.: IUT1 Université Joseph Fourier Grenoble, Grenoble, France
- Porubän, J.: VŠT-Technical university of Ostrava, Czech Republic
- Porubän, J.: CEEPUS, University of Linz, Austria

- Porubän, J.: ACM-SPY, Czech Technical University in Prague, Czech Republic
- Porubän, J.:ECOOP 2010, University of Maribor, Slovenia
- Porubän, J.: Unviersity of Ljubljana, Slovenia
- Sabo, M.: ECOOP 2010, University of Maribor, Slovenia
- Sabo, M.: Unviersity of Ljubljana, Slovenia
- Samuelis, L.: CEEPUS, Budapest, Hungary
- Sivý, I.: Cisco Networkers 2010, Bahrain
- Slodičák, V.: CECIIS 2010, Varaždin, Croatia
- Sobota, B.: Brno University of Technology, Brno, Czech Republic
- Szabó, Cs.: ISDA 2010, Egypt, Cairo
- Szabó, Cs.: SISY 2010, Subotica, Serbia
- Telepovská, H.: Oracle Academy, Prague, Czech Republic
- Václavík, P.: University of Ljubljana, Slovenia
- Václavík, P.: ECOOP 2010, University of Maribor, Slovenia
- Žársky, P.: IBM EMEA, Boeblingen, Germany

6.3 Membership in International Organizations and Societies

- Bača, J., Genči, J., Havlice, Z., Hudák, Š., Ivančík, R., Kollár, J., Korečko, Š., Novitzká, V., Porubän, J., Samuelis, L., Sobota, B., Straka, M., Šuba, S., Šujanský, M., Telepovská, H., Tomášek, M., Václavík, P.: Members of the CSSS - Czech and Slovak Society for Simulation
- Genči, J., Paralič, M.: Members of Association for Computing Machinery, New York, USA
- Hudák, Š.: Member of Publishing Board of Communications of The International Solomol University: Mathematical Methods in Cybernetics, Kiev, Ukraine
- Jakab, F.: Member of EMEA NetAcad team, Bedfont Lakes, Feltham, Middlesex, United Kingdom
- Novitzká, V.: Member of European Association of Programming Languages and Systems
- Novitzká, V.: Member of Common Framework Initiative, European Strategic Programme for Research in Information Technology WG 29432
- Novitzká, V.: Member of European Association of Theoretical Computer Science
- Samuelis, L.: Member of the J.von Neumann Hungarian informatics society
- Paralič, M.: Member of the Institute of Electrical and Electronics Engineers
- Samuelis, L.: Member of the EuroPACE board (virtual university, Leuven, Belgium)
- Šujanský, M.: Member of CSSIM/Scientific Association

6.4 Membership in Slovak Organizations and Societies

- Bača, J., Biňas, M., Genči, J., Giertl, J., Havlice, Z., Hudák, Š., Ivančík, R., Kollár, J., Korečko, Š., Krokavec, M., Mihályi, D., Novitzká, V., Paralič, M., Pločica, O., Porubän, J., Samuelis, L., Slodičák V., Sobota, B., Sobotová, D., Straka, M., Szabó, Cs., Šimoňák, S., Šuba, S., Šujanský, M., Telepovská, H., Tomášek, M., Tóth, M., Václavík, P., Vokorokos, L.: Members of the SSAKI - „Slovak Society for Applied Cybernetics and Informatics"
- Genči, J., Havlice, Z., Kollár, J., Novitzká, V., Paralič, M., Samuelis, L.,

Sobota, B.: Members of the SIS - "Slovak Society for Computer Science"
- Genči, J.: The Second TU Košice representative in EUNIS-SK
- Havlice, Z.: Scientific board of the Faculty of Electrical Engineering and Informatics, Technical University of Košice
- Havlice, Z.: Scientific board of the Faculty of Faculty of Management Science and Informatics, Technical University of Žilina
- Havlice, Z.: State Examination Commission for state exams in the study field Computer Engineering and Informatics at the Faculty of Electrical Engineering and Informatics of Technical University of Košice
- Havlice, Z.: State Examination Commission for state exams in the study field Applied Informatics and Automation in Industry at the Faculty of Materials Science and Technology of Slovak University of Technology in Bratislava
- Hudák, Š.: Member of Slovak Commission for Defense of DrSc dissertation in the scientific field Computer Engineering and Informatics
- Hudák, Š.: Member of the Common Scientific Commission for Defense of PhD dissertation in the field „Computer Tools and Systems"
- Hudák, Š.: Member of examinational board for AMBI project In Slovak Republic EXIN.SR
- Jakab, F.: Communication Technology Forum in SR (since 1997, Head of the application section, www.ctf.sk)
- Jakab, F.: Chairman of Committee for Business-Academic Cooperation, American Chamber of Commers in Bratislava
- Jakab, F.: Coordinator of the Cisco Networking Academy program for Slovakia
- Jakab F.: Member of Košice IT Valley association board
- Kollár, J.: Member of the review group of the Journal of Electrical Engineering
- Kollár, J.: Member of the review group of the Computers and Informatics journal
- Kollár, J.: Member of the program committee of the international conference ICETA – International Conference on Emerging Telecommunications Technologies and Applications, Košice, Slovak Republic
- Kollár, J.: Member of Common Scientific Commission for Defense of PhD dissertation in the field „Programm and Information System"
- Sivý, I.: Member of the examinational board for AMBI project In Slovak republic EXIN.SR
- Šujanský, M.: Member of the Board of the SSAKI - „Slovak Society for Applied Cybernetics and Informatics"
- Šujanský, M.: EUNIS – the Board of the Association for Information Technologies
- Telepovská, H.: Member of the SIUG - Slovak Informix User Group
- Vokorokos, L.: Member of the Common Scientific Commission for Defense of PhD dissertation in the field „Computer Tools and Systems".
- Vokorokos, L.: Member of the editorial board of the scientific international journal "Transport and Logistics International Journal".
- Vokorokos, L.: Vice-chairman of the editorial board of the scientific journal - "Transactions of the Universities of Košice".
- Vokorokos, L.: Member of the editorial board of the scientific journal "Acta Avionica".
- Vokorokos, L.: Member of the Scientific board at the Technical University of

Košice.
- Vokorokos, L.: Member of the Scientific board at the Faculty of Electrical Engineering and Informatics, Technical University of Košice.
- Vokorokos, L.: Member of the Common Scientific Commission for Defense of PhD dissertation in the field "Informatics".
- Vokorokos, L.: Member of the Board for development and informatization of the Technical University in Košice
- Vokorokos, L.: Member of the Expert group for informatization and development, TU-FEI, Košice

6.5 Contracts, International Scientific Projects

- Computer Networks Laboratory (CNL, www.cnl.sk)
- Cooperation with the Siemens PSE company
- Cooperation with the Sybase company
- Cooperation with the T- Systems company
- Cooperation with the Microsoft company
- Cooperation with the KOGER company
- Cooperation with the IBM company

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	201	88	8

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences, Seminars

- CSE'2010 – International Scientific Conference on Computer Science and Engineering, September 20-22, 2010, Košice - Stará Ľubovňa, Slovakia
- SAMI 2010 – 8th International Symposium on Applied Machine Intelligence and Informatics, January 28 - 30, 2010, Herľany, Slovakia (DCI co-operation)
- ICETA 2010 – 8th International Conference on Emerging e-Learning Technologies and Applications, October 27 – 29, 2010, Stará Lesná, The High Tatras, Slovakia (DCI co-operation)

8.2 Study tours

- Žársky, P.: University of Maribor, Faculty of Electrical Engineering and Computer Science, Maribor, Slovenia
- Hrozek, F.: NTNU, Institutt for Telematikk, Trondheim, Norway
- Kreutzová, M.: NTMU, Institutt for Telematikk, Trondheim, Norway
- Zahra, W.: NTMU, Institutt for Telematikk, Trondheim, Norway
- Danková, E.: NTMU, Institutt for Telematikk, Trondheim, Norway
- Pietriková, E.: NTMU, Institutt for Telematikk, Trondheim, Norway
- Vrábeľ, M.:NTMU, Institutt for Telematikk, Trondheim, Norway
- Fanfara, P.: NTMU, Institutt for Telematikk, Trondheim, Norway
- Ľaľová, M.: NTMU, Institutt for Telematikk, Trondheim, Norway

9 PUBLICATIONS

9.1 Books

[1] HUDÁK, Š. - KOREČKO, Š. - ŠIMOŇÁK, S.: Reachability Analysis of Time-Critical Systems. Petri Nets: Applications, Vukovar, Croatia, In-Teh, 2010, pp. 253-280, ISBN 978-953-307-047-6.
[2] HUDÁK, Š. - ŠIMOŇÁK, S.: Programovacie techniky. Košice, Fakulta elektrotechniky a informatiky TU v Košiciach, 2010, 220 pp. ISBN 978-80-553-0531-8 (in Slovak).
[3] MIHÁLYI, D. - NOVITZKÁ, V.: Princípy duality medzi konštruovaním a správaním programov. Equilibria, 2010, ISBN 978-80-89284-58-0 (in Slovak).
[4] VOKOROKOS, L. - BALÁŽ, A.: Architecture of Computer Intrusion Detection Based on Partially Ordered Events. Vukovar, IN-TECH, 2010, pp. 13-28, 978-953-307-047-6.

9.2 Journals

[1] ÁDÁM, N.: Single Input Operators of the DF KPI System. Acta Polytechnica Hungarica, Vol. 7, No. 1, 2010, pp. 73-86, ISSN 1785-8860.
[2] FECILĽAK, P. - KLEINOVÁ, K. - JANITOR, J.: QoS in Network Traffic Management. Acta Electrotechnica et Informatica, Vol. 10, No. 4, 2010, pp. 24-28, ISSN 1335-8243.
[3] FORGÁČ, M.: Method of Combined Dynamic Modification of Programs and Languages. Information Sciences and Technologies Bulletin of the ACM Slovakia, Vol. 2, No. 1, 2010, pp. 6-12, ISSN 1338-1237.
[4] GENČI, J.: Sposoby razrabotki informacionnych sistem universiteta. Opyt techniceskogo universiteta, Vestnik Moskovskogo Gosudarstvennogo universiteta. Pedagogika, Vol. 6, No. 3, 2010, pp. 207-211, ISSN 2072-8395.
[5] GUZAN, M. - SOBOTA, B.: Visualization of chaotic attractor in 3D space. Journal of Electrical and Electronics Engineering, Vol. 3, No. 2, 2010, pp. 95-98, ISSN 1844 - 6035.
[6] GUZAN, M. - SOBOTA, B.: 3D Visualization of Chua`S Circuit Dynamics. Journal of information, control and management systems, Vol. 8, No. 4, 2010, pp. 311-316, ISSN 1336-1716.
[7] HROZEK, F.: Data glove as input device for computer. Journal of Information, Control and Management Systems, Vol. 8, No. 4, 2010, pp. 329-334, ISSN 1336-1716.
[8] JAKAB, F. - KAPA, M.: Video quality assurance across IP networks. Acta Electrotechnica et Informatica, 2010, Vol. 10, No. 4, 2010, pp. 1-5, ISSN 1335-8243.
[9] JAKUBČO, P. - ŠIMOŇÁK, S. - ÁDÁM, N.: Communication model of emuStudio emulation platform. Acta Univ. Sapientiae, Informatica, Vol. 13, No. 2, 2010, pp. 117-134, ISSN 1453-8245.
[10] KOREČKO, Š. - SOBOTA, B.: Using Coloured Petri Nets for design of parallel raytracing environment. Acta Univ. Sapientiae, Informatica, Vol. 2, No. 1, 2010, pp. 28-39, ISSN 1844-6086.
[11] KOREČKO, Š. - SOBOTA, B. - JANOŠO, R.: Evaluation of Parallel Raytracing Strategy Improvements by Petri Nets. Journal of Computer Science and Control Systems, Vol. 3, No. 1, 2010, pp. 87-92, ISSN 1844-6043.
[12] MIHÁLYI, D. - NOVITZKÁ, V.: Coalgebra as Intrusion Detection System. Acta Polytechnika Hungarica, Budapest, Vol. 7, No. 2, 2010, pp. 71-79, ISSN 1785-8860.

[13] MIHÁLYI, D. - NOVITZKÁ, V.: Duality between formal description of program construction and program behaviour. Information Sciences and Technologies Bulletin of the ACM Slovakia, Volume 1, No. 2, 2010, pp. 1-5, ISSN 1338-1237.
[14] N.KOVACS, A. - HUDÁK, Š.: Time Analysis of Time Basic Nets Using Strong Time Semantics. Acta Electrotechnica et Informatica, Vol.10, No.2, 2010, ISSN 1335-8243.
[15] PORUBÄN, J. - FORGÁČ, M. - SABO, M. - BĚHÁLEK, M.: Annotation Based Parser Generator. Computer Science and Information Systems, Vol. 7, No. 2, 2010, pp. 291-307, ISSN 1820-0214.
[16] RUSKA, Š. - PORUBÄN, J.: Defining Annotation Constraints in Attribute Oriented Programming. Acta Electrotechnica et Informatica, Vol. 10, No. 4, 2010, pp. 89-93, 1335-8243.
[17] SABO, M.: Abstract Syntax Driven Concrete Syntax Recognition. Journal of Information, Control and Management Systems, Vol. 8, No. 4, 2010, pp. 393-402, ISSN 1336-1716.
[18] SLODIČÁK, V. - NOVITZKÁ, V.: Some useful structures for coalgebraic approach. Journal of Computer Science and Control Systems, Vol. 3, No. 1, 2010, pp. 217-220, ISSN 1844-6043.
[19] SLODIČÁK, V. - NOVITZKÁ, V.: Coalgebraic Approach for Program Behavior in Comonads over Toposes. Studia Universita Babes-Bolyai, Informatica, Vol. 55, No. 2, 2010, pp. 15-26, ISSN 2065-9601.
[20] SLODIČÁK, V. - NOVITZKÁ, V. - ĽAĽOVÁ, M.: Algebras on the Duality Principle for Program Behavior. Journal of Information, Control and Management Systems, Vol. 8, No. 1, 2010, pp. 61-70, ISSN 1336-1716.
[21] SOBOTA, B. - GUZAN, M.: Macro and micro view on steady states in state space. Acta Univ. Sapientiae, Informatica, Vol. 2, No. 1, 2010, pp. 90-98, ISSN 1844-6086.
[22] SOBOTA, B. - JANOŠO, R.: 3D Interface based on Augmented Reality in client-server environment. Journal of information, control and management systems, Vol. 8, No. 3, 2010, pp. 247-256, ISSN 1336-1716.
[23] SOBOTA, B. - PERHÁČ, J. - HROZEK, F.: Využitie technológií GPGPU pri vizualizáciách, simuláciách a používateľských rozhraniach. AT&P Journal, XVII, 11, 2010, ISSN 1336-233X.
[24] ŠIMOŇÁK, S. - PEŤKO, I.: PATool – A Tool for Design and Analysis of Discrete Systems Using Process Algebras with FDT Integration Support. Acta Electrotechnica et Informatica, Vol. 10, No. 1, 2010, pp. 59-67, ISSN 1335-8243.
[25] TOMÁŠEK, M.: Výskum počítačovej bezpečnosti na Fakulte elektrotechniky a informatiky TUKE. Transfer, Vol. 2, No. 3, 2010, pp. 15-15, ISSN 1337-9747.
[26] VÁCLAVÍK, P. - PORUBÄN, J. - MEZEI, M.: Automatic derivation of domain terms and concept location based on the analysis of the identifiers. Acta Universitatis Sapientiae, Informatica, Vol. 2, No. 1, 2010, pp. 40-50, ISSN 1844-6086.
[27] VOKOROKOS, L. - DANKOVÁ, E. - ÁDÁM, N.: Parallel scene splitting and assigning for fast ray tracing. Acta Electrotechnica et Informatica, Vol. 10, No. 2, 2010, pp. 33-37, ISSN 1335-8243.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	16	110	3

DEPARTMENT OF TECHNOLOGIES IN ELECTRONICS

http://www.tuke.sk/fei-kte/
Tel./Fax: +421 55 602 3195

Head of Department
prof. Ing. Alena Pietriková, PhD.
E-mail: Alena.Pietrikova@tuke.sk

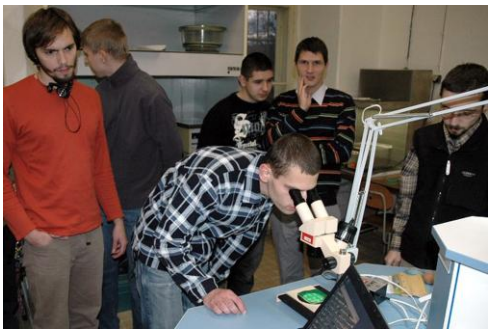
1 DEPARTMENT'S PROFILE

The Department of Technologies in Electronics (Katedra technológií v elektronike – KTE) was founded in 1991. The original name of department was Department of Hybrid Microelectronics (until 2003). The Department offers three types of full-time courses:

Bachelor's Degree course lasts in normal way 3 years and is leading to degree Bc. The graduates get more-or-less practical skills in mastering Manufacturing processes in electronics.

Master's Degree course lasts in normal way 2 years and is leading to degree Ing. The graduates get theoretical and practical skills in the area of Production Technologies in Electronics.

Doctoral Study course lasts in normal way 3 years and is leading to degree PhD. The graduates get erudition in scientific areas Electrotechnology and Materials.



The subjects in the degree courses are orientated to Technologies in Electronics with accent to thick film technology, LTCC technology, polymer technology, mounting technology in electronics and in this area to printed circuit boards and to soldering.

The basic research activities of Department are concentrated on:

- research, development and application of latest trends in the field of mounting technology in electronic,
- investigation of materials and structures of solder joints,
- research and development of microsystems and hybrid sensors,
- LTCC multilayer modules,
- CAD systems in electronics,
- quality and reliability of electronic systems.

2 STAFF

Professors:	prof. Ing. Alena Pietriková, CSc. prof. Ing. Stanislav Slosarčík, CSc. prof. Ing. Juraj Banský, CSc. Dr.h.c. prof. Ing. Miloš Somora, PhD.
Assistant Professors:	Ing. Slavomír Kardoš, PhD. Ing. Ľubomír Livovský, PhD. Ing. Juraj Ďurišin, PhD. Ing. Igor Vehec, PhD.
Research staff:	Ing. Pavol Cabúk Igor Vehec
Secretary:	Eva Sepešiová
Internal Ph.D. Student:	Ing. Michal Jurčišin Ing. Michal Kravčík Ing. Dominik Demeter
External Ph.D. Student:	Ing. Pavol Cabúk

3 LABORATORIES

- Laboratory of Technological Processes I.
- Laboratory of Technological Processes II.
- Workplace of Virtual Technological Laboratory and CAD design systems.
- Laboratory of Diagnostics and Thermal Processing.
- Laboratory of Optical Diagnostics and Control of Electronic Structures.
- Laboratory of Measurement in Electronics.

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Materials Engineering	1st	2/2	Pietriková, Banský, Kardoš, Ďurišin, Vehec
Materials for Electrical Applications	2nd	2/1	Pietriková
Production and Processing of Materials for Electrical Engineering	2nd	3/2	Pietriková
Design Systems and Mounting Technologies in Electronics	3rd	2/3	Pietriková Livovský
Technical Documentation at Electrotechnical Production	3rd	2/3	Livovský
Electronic Components Production	3rd	2/2	Kardoš
Design Systems and Mounting Technologies in Electronics	4th	2/3	Pietriková Livovský
Quality in Materials and Production Processes	4th	2/2	Pietriková
Bachelor Thesis I.	5th	0/3	Slosarčík
Basies of Production Processes in Electronics	5th	2/2	Slosarčík
Production Equipments and Systems in Electronic	5th	3/3	Cabúk
Bachelor Thesis II.	6th	0/9	Slosarčík
Technologic Practise in the Firm	6th	0/8	Pietriková
Fundamentals of Business and Marketing	6th	2/2	Banský
Automated Measuring Systems	6th	3/2	Livovský
Production Processes in Electronics[1]			Pietriková Slosarčík
CAD in Electronics	4th	2/2 (part of lectures)	Livovský Galajda

[1] for Bc. study programs "Applied informatics" (3rd semester) and "Electronics" (5th semester).

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Production Processes in Electronics I	1st	4/4	Pietriková
Production Processes in Electronics	1st	2/2	Slosarčík
Semestral Project	2nd	0/3	Pietriková
Production Processes in Electronics II	2nd	2/4	Slosarčík

Quality and Reliability Management	2nd	2/2	Pietriková
Project Management	2nd	2/0	Pietriková
Electronics Technologies	2nd	2/2	Slosarčík
Diploma Thesis I.	3rd	0/4	Pietriková
Design Systems in Electronic	3rd	3/2	Livovský
Microsystems Technology	3rd	3/2	Somora Kardoš
Production Technologies, Structure, Properties and Applications of Sensors	3rd	2/3	Banský
Marketing of Modern Enterprise	3rd	2/1	Somora
Diploma Thesis II.	4th	0/18	Pietriková
Chosen Chapters from Electronics Technologies	4th	2/3	Pietriková

4.3 Undergraduate and Graduate Study for Foreign Students (In English Language)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Material Engineering	1st	2/2	Pietriková
Production Processes in Electronics	3rd	3/2	Pietriková

4.4 Postgraduate Study (PhD.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Electrotechnologies and Materials	1st	0/2	Slosarčík
Analyse Methods of Electronic Materials and Structures	2nd	0/2	Pietriková
Scientific Research I.	2nd	0/2	Supervisors
Subject of Branch	3rd	0/2	Banský
Scientific Research II.	4th	0/2	Supervisors
Scientific Research III.	5th	0/2	Supervisors
PhD Thesis		0/9	Supervisors
PhD Project		0/4	Supervisors

5 RESEARCH PROJECTS

5.1 Research Projects

- ***Centre of Excellence of the Integrated Research & Exploitation the Advanced Materials and Technologies in the Automotive Electronics*** (Centrum excelentnosti integrovaného výskumu a využitia progresívnych materiálov a technológií v oblasti automobilovej elektroniky). ITMS:

26220120055. Coordinator: prof. Ing. Alena Pietriková, CSc. Duration: 09/2010 - 08/2013.

- ***Developmdent of Unique Low Power Static Source for Electrosystems*** (Vývoj unikátneho nízkoenergetického statického zdroja pre elektrosystémy) ITMS: 26220220029. Coordinator: prof. Ing. Pavol Fedor, CSc. Duration: 01/2010 - 12/2011.
- ***Progressive Materials and Construction Solutions for Technology of Miniaturized Systems Integration*** (Progresívne materiály a konštrukčné riešenia pre technológiu 3D integrácie miniaturizovaných systémov). Project VEGA No. 1/0108/09. Coordinator: prof. Ing. Stanislav Slosarčík, CSc. Members: majority of staff members. Short description: The project is oriented to construction solutions and technological process of 3D integration of miniaturized systems. Duration: 2009 – 2011.
- ***Analysis and Proposal of the Complex Methodology of the Quality Evaluation of the Assembly Components and Systems Based on Lead-free Solders*** (Analýza a návrh komplexnej metodiky hodnotenia kvality spojov montážnych prvkov a systémov na báze bezolovnatých spájok). Project VEGA No. 1/0298/09. Coordinator: prof. Ing. Alena Pietriková, CSc. Members: majority of staff members. Short description: The project solves several questions associated with design, development, preparation, and study of new materials, optimization of technology for new quality of interconnections in the electronics based on environmental materials. Duration: 2009 – 2012.
- ***Advanced Solder, Materials for High Temperature Application-HISOLD.*** *Project COST-MP0602.* Coordinator: prof. Ing. Alena Pietriková, CSc. Members: majority of staff members. Short description: The project is aimed to new materials, optimization of technology for new quality of interconnections in the electronics. Duration: 2008 – 2011.
- ***Innovation transfer and diversification of University education into the assembly Technologies in Electronics*** (Transfer inovácií a diverzifikácia vysokoškolského vzdelávania do montážnych technológií v elektronike). Project KEGA No. 1/6465/08. Coordinator: prof. Ing. Alena Pietriková, CSc. Members: majority of staff members. Short description: The project is aimed to operate the modular educational system for mounting technology as well as to producing university monograph. Duration: 2008 – 2010.

5.2 Educational Projects

- ***Development of Competences of Educational Staff by Integrating Operational Exploration Tasks in Measures of Vocational Training and Further Education (ComEd)***. Project Leonardo da Vinci DE/08/LLP-LdV/TOI/147 174. Coordinator: prof. Ing. Alena Pietriková, CSc. Members: majority of staff members. Short description: Project is oriented to Adapting and transferring the model for integration operational exploration tasks into vocational training and further education in the context of advancement of abilities and competences of education personnel for and in SME of micro- and nanotechnologies. Duration: 2008 – 2010.
- ***The Production of the Multimedia Courses for on-line and e-learning Education of the University Students in the Area of Sensor's Manufacturing Technologies, their Properties and Utilization in the Biomedical Engineering with an Alternative for Handicapped Students***. (Tvorba multimediálnych kurzov pre on-line a e-vzdelávanie

vysokoškolských študentov v oblasti technológie výroby senzorov, ich vlastností a ich využitia v biomedicínskom inžinierstve s alternatívou pre študentov s postihnutím). Project KEGA 3/7117/09. Coordinator: prof. Ing. Juraj Banský, CSc. Members: majority of staff members. Short description: The aim of project is to make the generally accessible system for on-line education in the form of the e-learning by using multimedia technique. The project is divided to the partial modules of the individual topics from the area of the sensor's manufacturing technologies and their applications, CAD design systems and mounting technologies in electronic and their synergetic utilization in the biomedical engineering. Duration: 2009 – 2011.

6 CO-OPERATION

6.1 Co-operation in Slovakia

The Department of Technologies in Electronics has entered into the long-term based co-operation with:

6.1.1. Industrial partners

- Magneti Marelli Slovakia, s.r.o. research, development, education
- ELCOM, s.r.o., Prešov research, development
- PreDops, s.r.o., Prešov research, development, education
- MICRONIC s.r.o., Kysak research, development, education
- ELPRO, s.r.o., Košice development, education

6.1.2. Academic partners

All academic partners intensively co-operate on all of above fields – research, development and education, too:

- Department of Electrotechnology, FEI STU Bratislava,
- Department of Electronics and Electrotechnology, EF ŽU in Žilina,
- Slovak Academy of Science, Košice,

6.2 International Co-operation

The Department of Technologies in Electronics has entered into long-term international co-operation with:

- Zaklad Ukladow Elektronicznych, Politechnika Rzeszow, Poland. Bilateral co-operation, Department of Electrotechnology,
- FEL ČVUT Prague, Czech Republic bilateral co-operation SK/CZ project
- University POLITEHNICA of Bucharest (UPB), Romania - Leonardo da Vinci, COST
- Budapest University of Technology and Economics (BME), Hungary - Leonardo da Vinci, COST

6.2.1. Foreign Visitors to the Department

- Harald Keßler – Germany 14.01. – 16.01.2010
- Marion Wadewitz – Germany 14.01. – 16.01.2010
- Yvonne Böringer – Germany 14.01. – 16.01.2010
- Maria Margarida Segard – Portugal 14.01. – 16.01.2010
- Silvia Schintke – Switzerland 14.01. – 16.01.2010

- Norbert Genoud – Switzerland 14.01. – 16.01.2010
- Raluca Muller – Romania 14.01. – 16.01.2010
- Rodica Cristina Voicu – Romania 14.01. – 16.01.2010
- Zsolt Illyefalvi-Vitez – Hungary 07.10. – 08.10.2010
- Nicholas Randall – USA 07.10. – 08.10.2010

6.2.2. Visits of Staff Members to Foreign Institutions

- Ďurišin, J., Germany (Hamburg) 26.01. – 29.01.2009
- Kravčík, M., Germany (Hamburg) 26.01. – 29.01.2009
- Pietriková, A., Poland (Warsaw) 12.05. – 16.05.2009
- Ďurišin, J., Poland (Warsaw) 12.05. – 16.05.2009
- Pietriková, A., Portugal (Lisabon) 26.05. – 30.05.2010
- Slosarčík, S. Poland (Rzeszow) 30.04. – 30.04.2010
- Pietriková, A., Poland (Krynica) 01.06. – 02.06.2010
- Vehec, I., Hungary (Budapest) 13.06. – 15.06.2010
- Ďurišin, J., Hungary (Budapesť) 13.06. – 15.06.2010
- Kravčík, M., Hungary (Budapesť) 13.06. – 15.06.2010
- Pietriková, A., Yverdon (Switzerland) 01.09. – 04.09.2010
- Kardoš, S., Yverdon (Switzerland) 01.09. – 04.09.2010
- Livovský, Ľ., CZ (Plzeň) 06.09. – 10.09.2010
- Vehec, I., CZ (Plzeň) 06.09. – 10.09.2010
- Ďurišin, J., Germany (Hamburg) 26.09. – 03.10.2010
- Slosarčík, S., Germany (Dresden) 17.10. – 21.10.2010
- Vehec, I., Germany (Dresden) 17.10. – 21.10.2010
- Kravčík, M., Hungary (Budapesť) 13.10. – 15.10.2010

6.3 Membership in International Organizations and Societies

- Pietriková, A.: Member of the International Steering Committee for International Spring Seminar on Electronics Technology – ISSE.
- Pietriková, A.: Member of the International Steering Committee for International Symposium for Design and Technology of Electronics Packages – ISIITME.
- Pietriková, A.: Member of the European Steering Committee for ESTC (Electronic system-integration Technology Conference).
- Slosarčík, S.: Member of the International Steering Committee for IMAPS – Czech and Slovak.

6.4 Membership in Slovak Organizations and Societies

- Banský, J.: Professor in Chair of the Departmental Commission for Ph.D. Study in the Branch “5-2-12 Electrotechnology and Materials” at FEI TU Košice.
- Banský, J.: Member of the Departmental Commission for Ph.D. Study in the Branch “5-2-12 Electrotechnology and Materials” at FEI STU Bratislava
- Banský, J.: Member of "The Convocation of Faculty of Electrical Engineering and Informatics”, FEI TU Košice.
- Pietriková, A.: Member of Editorial Board „ACTA ELECTROTECHNICA ET INFORMATICA“.
- Pietriková, A.: Member of Editorial Board of Scientific Bulletin of University

of Pitesti – Series: Electronics and Computer Science", (Romania)

- Pietriková, A.: Member of Cultural and Educational Commission KEGA No.3.
- Pietriková, A.: Chair of the Departmental Commission for Ph.D. Study in the Branch "5-2-12 Electrotechnology and Materials" at FEI TU Košice.
- Pietriková, A.: Member of working team of the Accreditation Commission at Ministry of Education SROV.
- Slosarčík, S.: Member of the Slovak Metrology Society.
- Slosarčík, S.: Registrar of the Slovak Commission for Ph.D. Study in the Branch "26-35-9 Electrotechnology and Materials".

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	11	4	4

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences, Seminars

- "Reliability and Test" – FSRM course, 07-08.10.2010, Tutor: Dr Nicholas Randall from CSM Instruments, Boston, USA.

9 PUBLICATIONS

9.1 Monographs

[1] PIETRIKOVÁ, A. – ĎURIŠIN, D. – MACH, P.: Diagnostika a optimalizácia použitia ekologických materiálov pre vodivé spájanie v elektronike (Diagnostics and optimisation of use of ecologic materials for solder joints in electronics), 1. vydanie, Editor: Fakulta elektrotechniky a informatiky Technickej univerzity v Košiciach, Košice, 2010, 301 p., 14 AH, ISBN 978-80-553-0447-2.

[2] SLOSARČÍK, S. – VEHEC, I.: Technológia LTCC. Košice, Vienala – 2010, 98 p. ISBN 978-80-89232-97-0.

9.2 Journals

[1] PIETRIKOVÁ, A. – ĎURIŠIN, J.: Mikroštruktúra spájkovaného spoja na báze SnAgCu spájky. In: Časopis pre elektrotechniku a energetiku. Roč. 16, č. 3 (2010), p. 36-37. ISSN 1335-2547.

[2] KARDOŠ, S. – PIETRIKOVÁ, A. – KUSKO, M.: Manipulačná komora pre technologické procesy, In: Elektrotechnika v praxi. Vol. 20, no. 5-6 (2010), p. 42-44. ISSN 0862-9730. http://www.bael.cz/

[3] LIVOVSKÝ, Ľ. – PIETRIKOVÁ, A. – BANSKÝ, J.: Meranie teplotného profilu a chyby vznikajúce pri pretavení spájkovacej pasty, In: Elektrotechnika v praxi. Vol. 20, no. 3-4 (2010), p. 136-139. ISSN 0862-9730. http://www.bael.cz/

[4] PIETRIKOVÁ, A. – ĎURIŠIN, J.: Praktické aspekty bezolovnatého spájkovania, In: Časopis pre elektrotechniku a energetiku. Roč. 16, č. 2 (2010), p. 36-39. ISSN 1335-2547.

[5] PIETRIKOVÁ, A. – ĎURIŠIN, J. – VEHEC, I.: Vývoj unikátnej technológie pre prepojovacie techniky štruktúr výkonovej elektroniky, In.: TRANSFER č. 2, Roč. II, jún/2010, p. 16-19. ISSN 13337-9747.
[6] PIETRIKOVÁ, A. – ĎURIŠIN, J.: Microstructure of Solder Joints and Isothermal Aging. In: Acta Electrotechnica et Informatica, Vol. 10, No. 3, 2010, 43–46. ISSN 1335-8243. http://www.aei.tuke.sk/
[7] SABAT, W. – SLOSARČÍK, S. – JURČIŠIN, M. – CABÚK, P.: Sprzężenia elektromagnetyczne w mikroelektronicznych układach hybrydowych zrealizowanych w technologii LTCC. In: Elektronika. Vol. 51, no. 8 (2010), p. 22-27. ISSN 0033-2089.
[8] KARDOŠ, S. – SLOSARČÍK, S. – MOLČÁNYI, T. – CABÚK, P. – JURČIŠIN, M.: Rehabilitačná vložka s elektronickým systémom pre kontrolu zaťaženia dolnej končatiny v procese rehabilitácie. In: EE – Časopis pre elektrotechniku a energetiku. Roč. 16, mimoriadne č. október (2010), s. 168-170. ISSN 1335-2547.
[9] SLOSARČÍK, S. – KALITA, W. – POTENCKI, J. – SABAT, W. – VEHEC, I. – JURČIŠIN, M. – CABÚK, P.: Possibilities of LTCC technology in sensor applications, In: Elektronika. Vol. 51, no. 8 (2010), 2010, Poland. ISSN 0033-2089.

9.3 Other publications

Publication Type	Confereces		Other
	Abroad	Home	
Number	3	1	3

DEPARTMENT OF THEORETICAL ELECTROTECHNICS AND ELECTRICAL MEASUREMENT

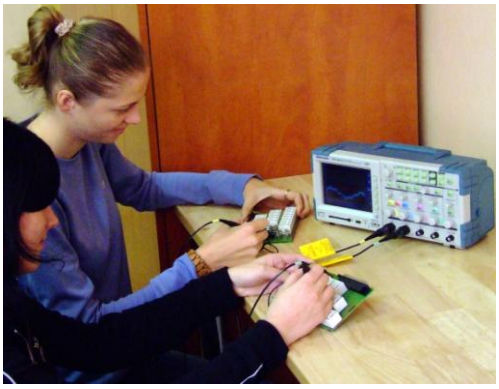
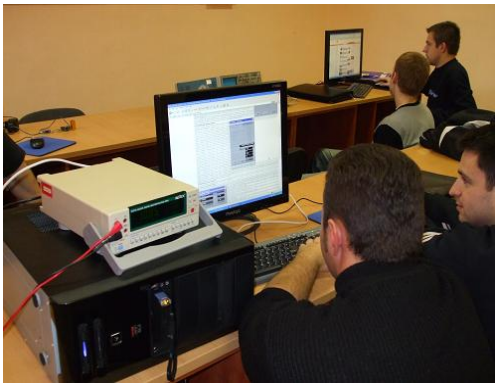
http:/kteem.fei.tuke.sk
Tel./Fax: +421 55 602 2801

Head of Department
Prof. Ing. Dobroslav Kováč, PhD.
E-mail : Dobroslav.Kovac@tuke.sk

1 DEPARTMENT'S PROFILE

Department of Theoretical Electrical Engineering and Electrical Measurement is a workplace, which guarantees the bachelor, master and doctoral study program Industrial Electrical Engineering. In addition to that, department's employees provide education for FEI TU students on all three-education levels. Professional field of the department is oriented on area of theoretical electrical engineering, where students learn the fundamental laws of electrical engineering and area of electrical measurement where students learn basic information and skills regarding the construction of measurement devices and measurement methods. Graduates also gain knowledge about the application of modern methods of automated and industrial measurement.



The research activity of the department is concentrated in the following areas:

- Study of the electrical, magnetic and structural properties of lanthanides and their thin films at low temperatures and in magnetic fields
- Electromagnetic field analysis of the electrotechnical products from the point of view of its electromagnetic compatibility
- Problems of risk factors of neurodegeneration: Morphological and functional study of alcohol and electromagnetic radiation effects in the rat
- Modern virtual, intelligent and automatized measuring and control systems.

2 STAFF

Professor: prof. Ing. Dobroslav Kováč, PhD.

Associate Professors: doc. Ing. Ján Dudáš, DrSc.
doc. Ing. Miroslav Mojžiš, PhD.
doc. Ing. Martin Orendáč, PhD.
doc. RNDr. Darina Špaldonová, PhD.
doc. Ing. Iveta Tomčíková, PhD.

Assistant Professors: Ing. Radoslav Bučko
Ing. Milan Guzan, PhD.
Ing. Anna Hodulíková
Ing. Ján Molnár
Ing. Tibor Vince

Technical staff: Jozef Lenart
Danuša Topolčaniová

PhD. Students: Ing. Martin Bačko
Ing. Ján Perduľak
Ing. Igor Kolla
RNDr. Jozef Bagi (part-time)

3 LABORATORIES

- laboratory for industrial control systems
- two laboratories for electrical measurement
- laboratory for basics of electrical engineering
- PC laboratory
- laboratory for Internet remote measuring systems

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Electrical Engineering	1st	2/2	Tomčíková, Dudáš, Hodulíková
Electrotechnics	2nd	3/2	Dudáš, Kováč, Špaldonová, Tomčíková
Digital Measurement	2nd	2/2	Mojžiš
Electrotechnical Practical Lessons	2nd	0/3	Mojžiš, Bučko, Hodulíková, Molnár, Orendáč
MS Office in Technical Practice	2nd	2/2	Špaldonová
Programming of Industrial Applications I	2nd	2/2	Vince
Windows server	3rd	2/2	Vince
Industrial Electrical Engineering I	3rd	3/3	Kováč, Perduľak
CAD systems in Electrotechnics	3rd	2/3	Špaldonová, Tomčíková, Guzan
Informatics and Industrial Measurement	3rd	2/2	Mojžiš
Computational, Office and Multimedial Technique	4th	2/2	Kováč
Programming of Industrial Applications II	4th	2/2	Vince
Semestral Project II	4th	0/3	Kováč
Metrology	5th	2/2	Mojžiš
Modelling and Measurement	5th	2/2	Kováč
Applied Electronics	5th	2/3	Kováč
Database Systems SQL ORACLE	5th	2/2	Vince
Bachelor´s Project	5th	0/6	Kováč, Tomčíková

4.2 Undergraduate Study for Foreign Students (in English language)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturers
Fundamentals of Electrical Engineering	1st	2/2	Dudáš, Tomčíková
Electrotechnics	2nd	3/2	Dudáš
Windows server	3rd	2/2	Vince

4.3 Graduate study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
EMC	8th	2/2	Kováč

5 RESEARCH PROJECTS

- ***Influence of electromagnetic rediation on postnatal neurogenesis and neurodegradation***. VEGA project No. 2/0058/08, duration: 2008-2010, co-ordinator: M. Orendáč, members: T. Vince, R. Bučko, M. Mojžiš
- ***Metodology of proposition and determination of parameters for distributed systems control of mechatronic systems in real time using Internet***. Project VEGA No. 1/0660/08, duration: 2008-2010, co-ordinator: D. Kováč, members: J. Molnár, T. Vince, I. Tomčíková, D. Špaldonová, M. Mojžiš, A. Hodulíková.
- ***Virtual laboratory of telermetric systems – 2nd stage***. Project KEGA No. 003-003TUKE-4/2010, duration: 2010-2011, co-ordinator: D. Kováč, members: J. Molnár, T. Vince, I. Tomčíková, D. Špaldonová, M. Guzan, A. Hodulíková.
- ***E-learning and web oriented teaching technology of electrical measurenment subjects for present and distant form of study***. Project KEGA No 3/6386/08, duration: 2008-2010, co-ordinator: M. Orendáč, members: D. Kováč, Molnár, T. Vince, I. Tomčíková, D. Špaldonová, M. Guzan, A. Hodulíková.
- ***E-learning multimedial teaching of electromagnetic compability subject***. Project KEGA No. 3/6388/08, duration: 2008-2010, deputy co-ordinator: D. Kováč, members: M. Mojžiš, J. Molnár, T. Vince, I. Tomčíková, D. Špaldonová, A. Hodulíková.

Non-state financed research projects

- ***Study of electric, magnetic and structural properties of thin films of lanthanides at low temperatures and in magnetic field***. Co-ordinator: J. Dudáš, members: M.Guzan, A. Hodulíková, From other Institutions: S.Gabáni (Slovak Academy of Sciences, Košice), V. Kavečanský (SAS, Košice), I. Gościańska (A. Mickiewicz University, Poznaň, Poland & Institute of Molecular Physics, Polish Academy of Sciences, Poznaň, Poland).

6 CO-OPERATION

6.1 Co-operation in Slovakia

- Department of Experimental Physics, Šafárik University, Košice
- Department of Metals Science, TU Košice
- Faculty of Electrical Engineering and Informatics, Slovak University of Technology, Bratislava
- Institute of Electrical Engineering, Slovak Academy of Science, Bratislava
- Department of Metals, Institute of Experimental Physics, Slovak Academy of Sciences, Košice

- Deparment of Low Temperatures, Institute of Experimental Physics, Slovak Academy of Sciences, Košice
- Institute of Materials Research, Slovak Academy of Sciences, Košice
- Institute of Neurobiology, Slovak Academy of Sciences, Košice
- Volkswagen, Slovakia
- LVD II Slovakia - Unicorn Tornaľa
- Molex Slovakia, a.s.
- SPP, a.s.
- US Steel, Košice

6.2 International Co-operation

- Academy of Science, Czech Republic, Praha
- Czech Technical University, Prague, Czech Republic
- Institute of Molecular Physics, Polish Academy of Sciences, Poznaň, Poland
- Institute of Physics, A.Mickiewicz University, Poznaň, Poland
- Politechnika Czestochowska, Poland
- Stefan cel Mare University, Suceava, Romania
- University of Gliwice, Gliwice, Poland
- University of Valencia, Spain
- University, Budapest, Hungary
- University, Florencia, Italy
- University Hartz, Germany
- University, Miskolcz, Hungary
- West Bohemia University, Plzeň, Czech Republic
- Magna Steyr, Gratz, Austria

6.3 Membership in International Organizations and Societies

- D. Kováč: Member of the team of evaluators of Czech Republic Grant Agency
- D. Kováč: Member of Editorial Board of Journal “Acta Technica”

6.4 Membership in Slovak Organizations and Societies

- J. Dudáš: Member of the Slovak Vacuum Society
- J. Dudáš: Member of the Slovak Electrotechnical Society
- J. Dudáš: Member of the Slovak Physical Society
- D. Kováč: Member of the Slovak Committee for Measuring and Evaluating of Electrical Power
- D. Kováč: Member of Editorial Board of Journal “Acta Electrotechnica et Informatica”
- D. Kováč: Member of Slovak Commission for Ph.D. Study in the Branch of Electrical Measurement, Electrical Engineering and Electrotechnologies and Materials
- D. Kováč: Member of Scientific council of FEE&I TU of Košice
- D. Kováč: Member of Editorial Board of Journal „Kvalita, inovácia, prosperita“
- M. Mojžiš: Member of Technical Standardization Committee

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	2	1	0

8 OTHER ACTIVITIES

9 PUBLICATIONS

9.1 Books

[1] ŠPALDONOVÁ, D.: Electromagnetic Field (in Slovak), FEI TU, Košice, 2010, 200 p., ISBN: 978-80-553-0524-0.

[2] VINCE, T. - KOVÁČ, D.: Control and Regulation of Electrotechnical Systems Using Internet (in Slovak), FEI TU, Košice, 2010, 130 p., ISBN 978-80-553-0571-4

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[2] MOJŽIŠ, M.: Measurement of Electrical Quantities (In Slovak), *FEI TU Košice*, 2010, 68 p., ISBN 978-80-553-0480-9.

[3] MOJŽIŠ, M.: Digital Measurement, Lectures (In Slovak), *FEI TU Košice*, 2010, 71p., ISBN 978-80-553-0436-6.

[4] MOJŽIŠ, M.: Digital Measurement, Laboratory Exercises (In Slovak), *FEI TU Košice*, 2010, 67 p., ISBN 978-80-553-0435-9.

9.4 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	14	7	0