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Technical University of Košice
Slovak republic

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Departments of Faculty and their Heads

- Cybernetics and Artificial Intelligence (abbr. KKUI)
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- Electric Power Engineering (abbr. KEE)
  prof. Ing. Michal Kolcun, PhD. – E-mail: Michal.Kolcun@tuke.sk
- 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 (TUKE). 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. The number of students currently attending nine TUKE Faculties exceeds 16,000. Approximately 13,000 of them are full-time students, out of which there are 8,500 Bachelor students, 4,000 Master students and over 500 PhD students. Almost 900 teachers work here, and the same number of research and administrative staff.

Allow me to introduce Faculty of Electrical Engineering and Informatics, Technical University in Košice in Slovakia. Faculty is a school with approx. 2621 students and 219 teachers and research associates. We have 157 PhD students in our courses. We offer more than 40 courses for faculty 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 5 educational and 6 research international projects granted by agencies from EEC countries and USA and also participates on more than 58 research projects granted by Slovak agencies. All this activity brings very interesting and highly valuable results.

There is a small community of 4 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.

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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 15 000 Master's and Bachelor's degree students, about 1 000 PhD. students and 840 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 219 and among them 31 professors, 33 associate professors, 82 assistant professors, 10 research workers, 63 administrative staff and technicians.
- The number of BSc. students is approximately 1500, number of MSc. students is 950 and number of PhD students approximately 160, every year.

Number of the Bc. students in academic year 2012-2013

Bc. level			
1. year	**2. year**	**3. year**	**Sum**
570	438	502	1510

Number of the Ing. students in academic year 2012-2013

MSc. (Ing.) level		
1. year	**2. year**	**Sum**
516	438	954

Overall number of the students in academic year 2012-2013

Bc. level	MSc. (Ing.) level	PhD. level	Total number
1510	954	157	2621

The student numbers in the academic year 2012/13 by study programs area (number of students vs. study program).

Branch of study	Bc.	Ing.	PhD.	Total
Advanced Materials and Technologies in Automotive Electronics	0	31	7	38
Electric Power Engineering	130	69	22	221
Informatics	542	275	41	858
Automotive Electronics	55	0	0	55
Electronics	45	0	0	45
Infoelectronics	0	38	12	50
Telecommunications	122	0	15	137
Multimedia telecommunications	0	84	0	84
Cybernetics	102	0	0	102
Cybernetics and info control systems	0	34	17	51
Intelligent Systems	38	0	0	38
Automation of mechatronic systems	52	35	0	87
Industrial Control Engineering	23	0	0	23
Electrical Engineering	15	51	0	66
Computer modeling	35	18	0	53
Industrial Engineering	47	15	6	65
Applied Informatics	88	27	0	115
Business Informatics	211	237	10	458
Physical Engineering of modern materials	5	0	0	5
Artificial Intelligence	0	40	10	50
Mechatronics systems	0	0	8	8
Electrotechnics systems	0	0	5	5
Electrical measuring systems	0	0	3	3
Electrotechnology and materials	0	0	1	1
Total	**1510**	**954**	**157**	**2621**

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 and Theoretical Informatics	KMTI
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

CENTRES OF EXCELLENCE

The faculty has two Centres of Excellence:

1. **Center of Information and Communication Technologies for Knowledge Systems.**
   Head of the centre: prof. Ing. Dušan Kocur, PhD.
   Email: dusan.kocur@tuke.sk
   WEB: http://www.ce-ikt.fei.tuke.sk/
   The Center consists of:
   - Laboratory of Intelligent Interfaces of Communication and Information Systems
   - Labotratory of Knowledge Technologies
   - Laboratory of Progressive Communication Technologies

2. **Centre of Excellence of the Integrated Research and Exploitation of the Progressive Materials and Technologies in the Area of Automotive Electronics.**
   Head of the centre: prof. Ing. Alena Pietriková, PhD.
   Email: alena.pietrikova@tuke.sk
   WEB: http://ce3.fei.tuke.sk/
   The Center consists of:
   - Laboratory of Sensor and Communication Networks of Safe Automobile of the Future
   - Laboratory of EMC Electronic Devices and Biological Systems
   - Laboratory of Modeling and Measurement for Automotive Electronics
   - Laboratory of Automotive Electrotechnics
   - Technological Laboratory for Research of Progressive Materials for Automotive Electronics
   - Laboratory for Modification and Testing of Properties of Progressive Materials

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 13: Liberios Vokorokos, Katarína Kubišová, Peter Popovec, Eva Boszörmenyová, Marek Andričík, Ľubomír Hodulík, Tomáš Baláž, Martin Kiss, 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:	prof. 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.

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 (2 years) leading to degree Ing.
- Doctoral Study courses (3 years) 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 daily form 3 years. The graduates get more-or-less practical skills in mastering

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

Master's Degree courses

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

- Applied Informatics
- Informatics
- Automation of Mechatronic systems
- Multimedia Telecommunication
- Electrical Engineering
- Electric Power Engineering
- Computer modeling
- Advenced Materials and Technologies in Automotive Electronics
- Industrial Engineering
- Artificial Intelligence
- Cybernetics and Information-Control Systems
- Infoeletronics
- Business Informatics

PhD. courses

Ph.D. course lasts in daily form 3 years:

- Applied Informatics
- Electric Power Engineering
- Electrical Engineering Systems
- Electronic Measuring Systems
- Infoelectronics
- Informatics
- Business Informatics

- Cybernetics and Information-Control Systems
- Mechatronic Systems
- Telecommunications
- Artificial Intelligence
- Industrial Electrical Engineering
- Electro Technology and Materials
- Advenced Materials and Technologies in Automotive Electronics

Courses are available on full-time basis. One semester 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

The research at the Faculty's departments is oriented towards the fields which are contained in both centres of excellence.

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

Category of projects	Number of projects
COST projects (international)	3
6th EU program	1
7th EU program	2
Slovak – Slovenian program	2
Slovak – Romanian program	1
Slovak – Serbian program	1
CEEPUS	2
Leonardo da Vinci	1
Erasmus program	3
TEMPUS program	1
Subtotal	17
National projects supported by VEGA	25
National projects supported by KEGA	15
National projects supported by APVV	10+6
National projects supported by Agency	11+3
Total	**87**

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)
- The Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU (Agency)

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 2012 there were accomplished 11 projects of such category at the Faculty.

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

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

- 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)
- Cooperative Radio Communication for Green Smart Environments – COSTIC1004 (co-ordinator: Ľubomír Doboš, department: KEMT)
- RF/Microwave Communication Subsystems for Emerging Wireless Technologies (RFCSET) – COST IC0803 (co-ordinator: Dušan Kocur, department: KEMT)

Slovak – Romanian program

- Jav degradácie bezolovnatých spájkovacích spojov vplyvom času a vnútorných pnutí (co-ordinator: Alena Pietriková, department: KTE)

Slovak – Slovenian program

- Jazykové vzory v evolúcii doménovo-špecifických jazykov (co-ordinator: Ján Kollár, department: KPI)
- Smerom k multi-agentnému system schopného inkrementálneho učenia sa (co-ordinator: Peter Sinčák, department: KKUI)

Slovak – Serbian program

- Adaptívne perzonalizované výučbové prostredia (co-ordinator: Ladislav Samuelis, department: KPI)

Erasmus projects

- Strategic Alignment of Electrical and Information Engineering in European Higher Education Institutions (contact: Ján Liguš, department: KKUI)
- Developing Open Source Systems Expertise in Europe (contact: Marek Paralič, department: KPI)

TEMPUS program

- Towards trust in quality assurance systems (co-ordinator: František Jakab, department: KPI)

DEPARTMENT OF ELECTRIC POWER ENGINEERING

http://www.tuke.sk/fei-kee
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 independent science and research unit of the faculty. The most important structural changes of the department were:

- 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 Engineering into the Department of Electric Power Engineering on the 1st October 2003.

These structural changes influenced the department activities and staff changes. The Department of Electric Power Engineering currently has 3 professors, 1 guest professor, 3 associate professors, 10 assistant professors, 1 scientific worker and 19 internal PhD. students.

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

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 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 enhances and improves educational process also in cooperation with foreign universities through 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 ensured by the extensive cooperation with the electric power companies (SEPS, VSE, VSD, Siemens, ABB, ZSE, SSE, Landis+Gyr, Schneider Electric and many others).

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. doc. Ing. Alexander Mészáros, Ph.D. doc. Ing. Ladislav Varga, Ph.D. (until 31.08.2012)
Assistant Professors:	Ing. Jozef Balogh, Ph.D. Dr. Ing. Bystrík Dolník Ing. Jaroslav Džmura, Ph.D.

Ing. Daniel Hlubeň, Ph.D. (until 31.05.2012)
Ing. Marek Hvizdoš, Ph.D.
Ing. Stanislav Ilenin, Ph.D.
Ing. Juraj Kurimský, Ph.D.
Ing. Dušan Medveď, Ph.D.
Ing. Jaroslav Petráš, Ph.D.
Ing. Ján Tkáč, CSc.

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

Technical Staff: Ladislav Dančo
doc. Ing. Pavel Novák, CSc.
Dagmar Kramolišová
doc. Ing. Ladislav Varga, Ph.D. (since 01.09.2012)
Ing. Jana Varnavčinová

Ph.D. Students: Ing. Maher A. A. Nasr (until August 2012)
Ing. Vieroslava Sklenárová
Ing. Lýdia Dedinská (until April 2012)
Ing. Ľudovít Csányi (until April 2012)
Ing. Matúš Katin (until August 2012)
Ing. Vladimír Krištof (until August 2012)
Ing. Stanislav Kušnír (until August 2012)
Ing. Martin Marci (until April 2012)
Ing. Pavol Hocko
Ing. Marián Hrinko
Ing. Martin German-Sobek
Ing. Roman Jakubčák
Ing. Jozef Király
Ing. Matúš Novák
Ing. Marek Pavlík
Ing. Ján Zbojovský
Ing. Zsolt Čonka (since 01.09.2012)
Ing. Miroslav Kmec (since 01.09.2012)
Ing. Lukáš Lisoň (since 01.09.2012)

3 LABORATORIES

- Three PC Laboratories
- Laboratory of Electrical 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 Overvoltage Protection
- Laboratory of Intelligent Systems
- Electric Power Systems Control Laboratory, Joint Laboratory of Department of

Electric Power Engineering TU FEI Košice and ABB ELEKTRO, Ltd., Bratislava
- Laboratory of Electro-magnetic Compatibility (since 1.6.2012)
- Laboratory of Photovoltaics (since 1.6.2012)

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	German Sobek
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	1/2	Cimbala
Database systems - SQL Oracle	3rd	2/2	Petráš
Power transmission	3rd	2/2	Varga
Measurement in electric power engineering	3rd	2/2	Kurimský
Designing in electric power engineering	3rd	2/2	Ilenin
Electric Power Plants	4th	2/2	Kolcun
Operating systems - Linux I	4th	2/2	Kurimský
Faults in Electric Power System	4th	2/2	Beňa
Bachelor Thesis I	5th	0/5	(Supervisors)
Electrical installation and substation	5th	2/3	Varga
High Voltage Engineering	5th	2/3	Kolcunová
Conversion of Electrical Energy	5th	2/2	Novak
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
Unconventional energy sources	6th	2/2	Tkáč
Prophylactics of power engineering equipment	6th	2/2	Kolcunová
Overvoltage protection of computer networks	6th	3/1	Dolník

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

Subject	Semester	Lectures/exercises (Hours per week)	Name of lecturer
Simulation in Electric Power System	7th	2/3	Medveď
Optimisation of Electric Power System Operation	7th	2/3	Kolcun
Electrical Heating and Electroheat Devices	7th	2/2	Novák
Electromagnetic compatibility	7th	3/1	Dolník
Automatization of Electric Power Plant Service	8th	2/2	Cimbala
Professional excursion tour	8th	0/2	Mészáros, Medveď
Overvoltages in Electric Networks	8th	2/2	Dolník
Term project	8th	0/4	(Supervisors)
Transient stability of power system	8th	2/2	Džmura
Electric power systems and the environment	8th	2/2	Mészáros
Database systems - SQL Oracle	8th	2/2	Petráš
Design of the illuminating systems	8th	1/3	Beňa
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
Automated electrical installation systems	9th	2/2	Džmura
New trends of the power system economy	9th	2/2	Mészáros
Designing in electric power engineering	9th	2/2	Ilenin
Master Thesis II	10th	0/18	(Supervisors)
Management of Electric Power Enterprises	10th	2/0	Cimbala

4.3 Postgraduate Study (PhD.)

Subject	Semester	Lectures/exercises (Hours per week)	Name of Lecturer
Theoretic electric power engineering	1st	0/2	Cimbala Kolcun Kolcunová Novák Varga Birkner Meszáros Beňa

Subject	Semester	Lectures/exercises (Hours per week)	Name of Lecturer
Electricity supply system analysis	2nd	0/2	Cimbala Kolcun Kolcunová Novák Varga Birkner Mészáros Beňa
Scientific Activity 1	2nd	0/2	(Supervisors)
Subject of specialised area	3rd	0/2	Cimbala Kolcun Kolcunová Novák Varga Mészáros Beňa
Scientific Activity 2	4th	0/2	(Supervisors)
Scientific Activity 3	5th	0/16	(Supervisors)
Dissertation thesis	6th	0/9	(Supervisors)

5 RESEARCH PROJECTS

- ***Research of Degradation Influences of Electrical and Thermal Fields on Electro - physical Structure of High Voltage Insulation Materials***, Scientific grant agency project (S.G.A.) No. 1/0487/12, duration: 2012 – 2014, co-ordinator: Cimbala, R.
- ***Decreasing of energy costingness of buildings by intelligent electric installation system usage***, Cultural and Educational Grant Agency project (KEGA) No. 014TUKE-4/2011, duration: 2011 - 2012, co-ordinator: Cimbala, R.
- ***Photovoltaic component parameters research for effective design of solar systems (Výskum charakteristík fotovoltaických komponentov pre efektívne projektovanie solárnych systémov)***, Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, No. 26220220080, duration: 2010 – 2013
- ***Research centre for combined systems of renewable energy source integration effectiveness (Centrum výskumu účinnosti integrácie kombinovaných systémov obnoviteľných zdrojov energií)***, Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, No. 26220220064, duration: 2010 – 2012
- ***Centre of excellence for integrated research and exploitation of progressive materials and technologies in automobile electronics (Centrum excelentnosti integrovaného výskumu a využitia progresívnych materiálov a technológií v oblasti automobilovej elektroniky)***, Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, No. 26220120055, duration: 2010 – 2013
- ***Protection of population in Slovak republic against electromagnetic field influences (Ochrana obyvateľstva SR pred účinkami elektromagnetických polí)***, Agency of the Ministry of Education, Science,

Research and Sport of the Slovak Republic for the Structural Funds of EU, No. 26220220145, duration: 2011 – 2014

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
- Nuclear Power Plant EMO, Mochovce
- Heat and Power Plant TEKO, Košice
- Slovak Electric Transmission System, Inc. (SEPS, a.s.), Bratislava
- VSE – Eastern Slovakia Power Engineering, Inc., Košice
- SSE - Central Slovakia Power Engineering, Inc., Žilina
- ABB Ltd., Bratislava
- Research Institute of Nuclear Power Plants, Inc. (VUJE, a.s.), Trnava
- Slovak Gas Industry, Division Slovtransgaz, Nitra
- U.S. Steel, Košice
- Siemens Ltd., Bratislava
- Hasma, Ltd.,
- Schneider Electric Slovakia, Ltd.,
- ZSE - Western Slovakia Power Engineering, Inc.,
- SAG ELV Slovensko, Inc.,
- Landis +Gyr, Ltd.,
- HTEST Slovakia

6.1.1. Visitors to the Department

- prof. Ing. Stanislav Rusek, CSc. – VŠB Technical University of Ostrava, Czech Republic
- doc. Ing. Radomír Goňo, PhD. – VŠB Technical University of Ostrava, Czech Republic
- Ing. Jan Škoda, PhD. – Brno University of Technology, Czech Republic
- Ing. David Topolánek, PhD. – Brno University of Technology, Czech Republic
- Prof. Dr hab.inz. Andrzej Rusek – Czestochowa University of Technology, Poland
- Dr. inz. Tadeusz Bewszko – Rzeszow University of Technology, Poland
- prof. Jerzy Szkutnik, Ph.D. – Czestochowa University of Technology, Poland

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
- Czestochowa University of Technology, Poland
- Polytechnika Częstochowska, Poland

- Akademia Górniczo - Hutnicza, Krakow, Poland
- Technical University of Riga, Latvia
- Technical University of Tallinn, Estonia
- COMTEST Ltd. Neederland d
- 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
- Technical University of Varna, Bulgaria
- ABB Switzerland Ltd, Switzerland

6.2.1. Visits of Staff Members to Foreign Institutions

- Beňa, Ľ.: Rzeszow University of Technology, Poland, 25.1.2012
- Hrinko, M.: Czech Technical University in Prague, Czech Republic, 31.1.-30.4.2012
- Cimbala, R.: ÓBUDA University Budapest, Hungary, 3.-5.5.2012
- Kolcun, M.: Brno University of Technology, Czech Republic, 22.-25.5.2012
- Cimbala, R.: Brno University of Technology, Czech Republic, 22.-25.5.2012
- Kolcunová, I.: Brno University of Technology, Czech Republic, 22.-25.5.2012
- Balogh, J.: Brno University of Technology, Czech Republic, 22.-25.5.2012
- Medveď, D.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Balogh, J.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Petráš, J.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Hocko, P.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Mészáros, A.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Hvizdoš, M.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Katin, M.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Kušnír, S.: WBU, Pilsen, Czech Republic, 10.-15.6.20121
- German-Sobek, M.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Király, J.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Novák, M.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Pavlík, M.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Zbojovský, J.: WBU, Pilsen, Czech Republic, 10.-15.6.2012
- Ilenin, S.: TU Varna, Bulgaria, 19.-25.6.2012
- Kolcun, M.: Czestochowa University of Technology, Poland, 12.-14.6.2012
- Kolcun, M.: University of Kiel, Hamburg University of Technology, Germany, 26.8.-2.9.2012
- Kolcunová, I.: University of Kiel, Hamburg University of Technology, Germany, 26.8.-2.9.2012
- Cimbala, R.: University of Kiel, Hamburg University of Technology, Germany, 26.8.-2.9.2012
- Džmura, J.: University of Kiel, Hamburg University of Technology, Germany, 26.8.-2.9.2012
- Tkáč, J.: Czech Technical University in Prague, Czech Republic, 9.-15.9.2012

- Hvizdoš, M.: Czech Technical University in Prague, Czech Republic, 9.-15.9.2012
- Kolcun, M.: Czestochowa University of Technology, Poland, 30.9.-1.10.2012
- Medveď, D.: SVS FEM s.r.o., Brno, Czech Republic, 5.-8.11.2012
- Zbojovský, J.: SVS FEM s.r.o., Brno, Czech Republic, 5.-8.11.2012

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.: Member of Editorial Board Journal Rynek Energii, Lublin, Poland
- Kolcun, M.: Honorary Professor of Óbuda University, Hungary
- Kolcun, M.: nomination of Dr.h.c. Czestochowa University of Technology, Poland
- 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
- 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 IEEE
- 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.: Member of Technical Standardization Commission of Slovak Republic – Electrical Power Engineering, TK No.43
- Balogh, J.: Member of Technical Standardization Commission of Slovak Republic – Electrical Installations and Protection against Electric Shock, TK No.84
- 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

6.5 Contracts, International Scientific Projects

- Erasmus Intensive Programme "Renewable Energy Sources" 2012 (Coordinator: prof. Ing. Jan Mühlbacher, CSc. Technical University, ZČU Pilsen, guarantee for department: Dr.h.c. prof. Ing. Michal Kolcun, Ph.D.)

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	37	49	7

8 OTHER ACTIVITIES

8.1 Conferences, Seminars

- Specialized Seminar: Development of Electric Power Engineering in Slovak Republic (Rozvoj elektroenergetiky na Slovensku), 8.-9.11.2012, Šarpanec - High Tatras, Slovak Republic.

8.2 Expert References

- Kolcun, M.: Opinion of PhD Thesis by Ing. Marek Kušnír, TU Košice Civil Engineering Faculty, Slovak republic.
- Kolcun, M.: Opinion of PhD Thesis by Ing. František Střída, VŠB-TU Ostrava, Czech republic.

8.3 Projects for Industry Companies

- Kolcun, M.: Handbook of Knowledge in the Scope of Electric Power Engineering, VSE,a.s. Košice, 2012, Slovak Republic
- Kolcun, M.: Study, VSD,a.s. Košice, 2012, Slovak Republic
- Cimbala, R.: Calibration, RMS.a.s. Košice, 2012, Slovak Republic
- Cimbala, R.: Calibration, Stroptel, s.r.o., 2012, Slovak Republic
- Cimbala, R.: Calibration, U.S.Steel Košice, 2012, Slovak Republic
- Cimbala, R.: Material Tests, FVT Prešov, 2012, Slovak Republic
- Cimbala, R.: Consulting activities and electric field modelling, Embraco, s.r.o. Sp.N. Ves, Slovac Republic
- Cimbala, R.: Technical support for PTN and T01 failure reason determination, U.S.Steel Košice, 2012, Slovak Republic

8.4 Compositions for Dissertation Examinations

- Halaj, M.: Reliability investigation of substation auxiliary systems. (Varga, L.)
- Hocko, P.: Ancillary services in ENTSO-E power systems. (Kolcun, M.)

- Turčík, M.: Operation and Management of Power System in Liberalized Electricity Market. (Kolcun, M.)

9 PUBLICATIONS

9.1 Books

[1] KOLCUNOVÁ, I. - MARCI, M.: Výskum výbojových procesov v kvapalných dielektrikách / - Košice: TU - 2012. - 149 s. - ISBN 978-80-553-0946-0.

[2] KOLCUNOVÁ, I. - DEDINSKÁ, L.: Vplyv elektrotepelného namáhania na elektroizolačné vlastnosti rastlinných olejov / - 1. vyd - Kolšice: TU - 2012. - 175 s. - ISBN 978-80-553-0945-3.

[3] KUŠNÍR, S. - KOLCUN, M.: Možnosti regulácie tokov výkonov v elektrizačných sústavách pomocou FACTS zariadení / - Košice: Technická univerzita - 2012. - 135 s. - ISBN 978-80-553-1015-2.

[4] KRIŠTOF, V. - KOLCUN, M.: Riadenie elektrizačnej sústavy v krízových podmienkach / - Košice: TU - 2012. - 135 s. - ISBN 978-80-553-1035-0.

[5] CIMBALA, R. - CSÁNYI, Ľ.: Tepelné starnutie izolačných materiálov / - [1. vyd.] - Košice: TU - 2012. - 209 s. - ISBN 978-80-553-1031-2.

[6] KURIMSKÝ, J.: Výboje v transformátoroch / - 1. vyd. - Košice: TU - 2012. - 129 s. - ISBN 978-80-553-1044-2.

[7] DOLNÍK, B.: Harmonická analýza zvodového prúdu obmedzovačov prepätí / - 1. vyd - Košice : TU - 2012. - 193 s. - ISBN 978-80-553-1106-7.

[8] FRÁK, P. - KOLCUN, M.: Možnosti využitia empirickej spoľahlivosti v elektrizačnej sústave / - 1. Vyd. - Košice : TU - 2012. - 84 s. - ISBN 978-80-553-1181-4.

[9] TKÁČ, J. - HVIZDOŠ, M.: Netradičné zdroje energie / - 1. vyd. - Košice: TU - 2012. - 127 s. [CD-ROM]. - ISBN 978-80-553-0924-8.

[10] NOVÁK, P. - MEDVEĎ, D.: Premeny elektrickej energie / - Košice: Technická univerzita - 2012. - 194 s. - ISBN 978-80-553-0883-8.

[11] ILENIN, S. - VARGA, L.: Elektrické siete časť Jednosmerné prenosy/ - 1. vyd. - Košice: TU - 2012. - 67 s. [CD-ROM]. - ISBN 978-80-553-1136-4.

[12] ILENIN, S. - VARGA, L.: Elektrické siete časť Vonkajšie elektrické vedenia/ - 1. vyd. - Košice: TU - 2012. - 93 s. [CD-ROM]. - ISBN 978-80-553-1137-1.

[13] CIMBALA, R.: Počítače v elektroenergetike / - 1. vyd - Košice : TU - 2012. - 90 s. - ISBN 978-80-553-0963-7.

[14] DŽMURA, J.: Úvod do stability prenosu elektrickej energie / - [1. vyd.] - Košice: TU - 2012. - 82 s. - ISBN 978-80-553-1184-5.

[15] ILENIN, S. - VARGA, L.: Elektrické inštalácie a stanice časť Elektrické inštalácie/ - 1. vyd - Košice : TU - 2012. - 66 s. - ISBN 978-80-553-1176-0.

[16] ILENIN, S. - VARGA, L.: Prenos a rozvod elektrickej energie 2012 / - 1. vyd - Košice : TU - 2012. - 120 s. - ISBN 978-80-553-1177-7.

[17] BALOGH, J.: Technická dokumentácia v informatike / - 1. vyd - Košice : TU - 2012. - 93 s. - ISBN 978-80-553-0984-2.

[18] HLUBEŇ, D. - HVIZDOŠ, M.: Návody na cvičenia z predmetu Meranie v elektroenergetike 20112012 / - 1. Vyd. - Košice : L.E.F - 2012. - 95 s. - ISBN 978-80-971174-7-4.

9.2 Journals

[1] KIRÁLY, J. - MARTON, K. - CIMBALA, R. - KOLCUNOVÁ, I.: Dependence of dissipation factor and conductivity of magnetic fluids on temperature / - 2012. In: Electrotehnica, Electronica, Automatica. Vol. 60, no. 1 (2012), p. 32-36. - ISSN 1582-5175

[2] GERMAN-SOBEK, M. - BEŇA, Ľ. - CIMBALA, R.: Thyristor controlled series capacitor used in the electric power system / - 2012. In: Electrotehnica, Electronica, Automatica. Vol. 60, no. 1 (2012), p. 7-15. - ISSN 1582-5175

[3] JUNGHÄNS, G. - OLEINIKOVA, I. - OBUŠEVS, A. - TURČÍK, M.: Kā veidojas elektroenerģijas tirgus cena ? / - 2012. In: Enerģija un Pasaule. Vol. 72, no. 1 (2012), p. 42-45. - ISSN 1407-5911

[4] JUNGHÄNS, G. - OLEINIKOVA, I. - OBUŠEVS, A. - TURČÍK, M.: Lieliem patērētājiem izdevīgi elektroenerģiju pirkt biržā / - 2012. In: Enerģija un Pasaule. Vol. 73, no. 2 (2012), p. 38-41. - ISSN 1407-5911

[5] TURČÍK, M. - OLEINIKOVA, I. - JUNGHANS, G. - KOLCUN, M.: Methods for Estimation of Market Power in Electric Power Industry / - 2012. In: Latvian Journal of Physics and Technical Sciences. Vol. 49, no. 2 (2012), p. 14-23. - ISSN 0868-8257

[6] TIMKO, M. - MARTON, K. - TOMČO, L. - KIRÁLY, J. - MOLČAN, M. - RAJŇÁK, M. - KOPČANSKÝ, P. - CIMBALA, R. - STOIAN, F. - HOLOTESCU, S. - TACULESCU, A.: Magneto-dielectric properties of transformer oil based magnetic fluids in the frequency range up to 2 MHz / - 2012. In: Magnetohydrodynamics. Vol. 48, no. 2 (2012), p. 427-434. - ISSN 0024-998X Spôsob prístupu: http://mhd.sal.lv/.

[7] HLUBEŇ, D. - BEŇA, Ľ. - KOLCUN, M.: Use of TCSC for Active Power Flow Control in the Electric Power / - 2012. In: Przegląd Elektrotechniczny. No. 8 (2012), p. 84-87. - ISSN 0033-2097 Spôsob prístupu: http://pe.org.pl/articles/2012/8/27.pdf.

[8] KOLCUN, M. - RUSEK, B.: Dekompozycyja cen na towarowej giełdze energii i jej wpływ na dokładności predykcji / - 2012. In: Rynek Energii. Vol. 99, no. 2 (2012), p. 1-9. - ISSN 1425-5960

[9] KOLCUN, M. - GOLDSTEIN, V. - VASILYEVA, N. - REVYAKINA, E. - SCHOBAK, A.: To the question about electromagnetic compatibility and electrical installation resources / - 2012. In: Vestnik Samarskogo Gosudarstvennogo Techničeskogo Universiteta : Serija Techničeskie Nauki. Vol. 33, no. 1 (2012), p. 171-177. - ISSN 1991-8542

[10] DUNAEVA, A. - KOLCUN, M. - POLJAKOVA, M.: Rešenije problem upravlenija na primere električeskoj sistemy respubliki Slovakija / - 2012. In: Energetika. Vol. 9, no. 2 (2012), p. 48-52.

[11] MEDVEĎ, D.: Modeling of Electromagnetic Fields Close to the Very High Voltage and Extra High Voltage Poles / - 2012. In: Elektroenergetika. Roč. 5, č. 2 (2012), s. 17-19. - ISSN 1337-6756

[12] MEDVEĎ, D. - KOLCUN, M. - HLUBEŇ, D. - STOLÁRIK, R. - VAŠKO, Š.: Modelovanie teplotných polí v okolí fotovoltických článkov / - 2012. In: Elektroenergetika. Roč. 5, č. 2 (2012), s. 20-22. - ISSN 1337-6756

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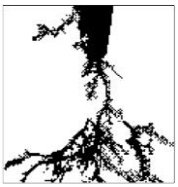
9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	26	39	9



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

1 DEPARTMENT'S PROFILE

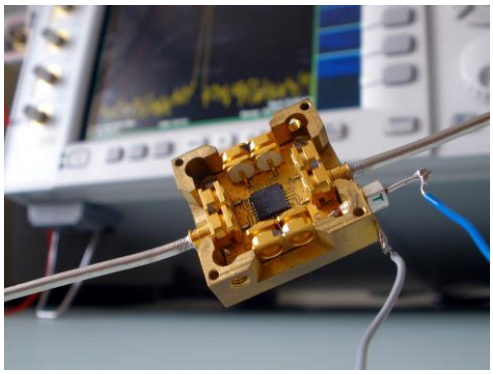
The Department of Electronics and Multimedia Communicati
in 1969. The original name of department was Department of
Department offers three types of full-time courses:

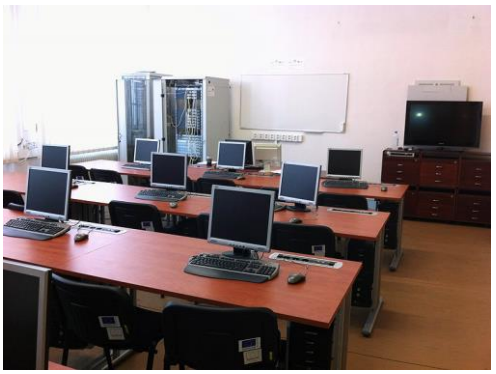
Bachelor's Degree course lasts in normal way 3 years a
degree Bc. The graduates get more-or-less practical skills in mastering

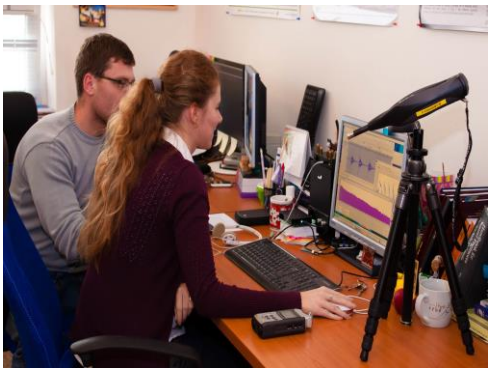
- Electronics,
- Telecommunications.

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,
- Electronics measurement systems.

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, 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. Jozef Juhár, 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. Ľuboš Ovseník, PhD.	
	doc. Ing. Ján Šaliga, CSc.	
Assistant Professors:	Ing. Gabriel Bugár, PhD.	Ing. Ľudmila Maceková, PhD.
	Ing. Mária Gamcová, PhD.	Ing. Stanislav Ondáš, PhD.
	Ing. Juraj Gazda, PhD.	Ing. Ján Papaj, PhD.
	Ing. Iveta Gladišová, CSc.	Ing. Jozef Zavacký, CSc.
Research Assistant:	Ing. Vladimír Bánoci, PhD.	Ing. Matúš Pleva, PhD.
	Ing. Daniel Hládek, PhD.	Mgr. Jana Rovňáková, PhD.
	Ing. Zita Klenovičová, CSc.	Ing. Ján Staš, PhD.
	Ing. Martin Lojka, PhD.	Ing. Michal Varchola, PhD.
Support staff:	Ing. Zuzana Ciulisová	Viera Šumáková
	Božena Marchevská	

Ph.D. students:

Internal form:
Ing. Martin Broda
Ing. Vladimír Cipov
Ing. Denis Dupák
Ing. Patrik Gallo
Ing. Peter Goč-Matis
Ing. Marek Godla
Ing. Tomáš Harasthy
Ing. Peter Kažimír
Ing. Anna Kažimírová Kolesárová
Ing. Ondrej Kováč
Ing. Martin Sekerák
Ing. Lukáš Sendrei
Ing. Martin Sulír
Ing. Matúš Tatarko
Ing. Ján Valiska
Ing. Jozef Vavrek
Ing. Peter Viszlay
Ing. Eva Vozáriková
Ing. Daniel Zlacký

External form:
Ing. Daniel Fábry
Ing. Martin Kmec
Ing. Matúš Kozák
Ing. Ján Krekáň
Ing. Jozef Lipták
Ing. Marián Mižák (do 1.9.2012)
Ing. Martin Petrvalský
Ing. František Rakoci
Ing. Matej Žiga

3 EQUIPMENT

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 and Equipments

- 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
Digital electronics	3rd	3/3	Levický
Microelectronic circuits	4th	3/2	Michaeli
Automotive electronics	5th	2/2	Gamec
Automotive embedded systems	6th	3/2	Drutarovský
Active and passive safety systems	6th	3/2	Gamec
Mobile networks and services	6th	3/2	Doboš
Basics of electronics	2nd	3/2	Micheali
Circuit theory	3rd	3/2	Kocur

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
Programming environments for electronics and communications	3rd	1/2	Varchola, Šaliga
Electronic measurement systems	4th	2/2	Šaliga
Networks technology	4th	2/2	Čižmár
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
Networks architecture	5th	3/2	Čižmár
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
Networks technology	4th	2/2	Čižmár
Programming environments for electronics and communications	3rd	1/2	Varchola, 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
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	Varchola, Galajda
Optoelectronics	1th	2/2	Turán
Signal processors	1th	3/2	Drutarovský
Electronic measurement	1th	3/2	Šaliga
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
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 I.	3rd	0/6	Galajda
UWB sensor networks	3rd	2/2	Kocur Rovňáková
Database systems - Oracle SQL	3rd	2/2	Juhár
Medical electronics	3rd	3/2	Michaeli
Interactive telecommunications systems and services	3rd	3/2	Juhár
Mobile communications	3rd	3/2	Doboš
Satellite communications	3rd	3/2	Marchevský
Project management	4th	0/2	Marchevský
Master thesis II.	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	1th	3/2	Kocur
Semestral projects	2nd	0/4	Galajda
Telecommunications systems theory	2nd	3/2	Čižmár
Digital image processing and coding	2nd	3/2	Mihalík
Optical communication systems	2nd	3/2	Turán
Processing and transmission of speech and audio	2nd	3/2	Juhár
Applied cryptography	2nd	3/2	Levický
Multimedia technologies	3rd	3/2	Levický
Mobile communications	3rd	3/2	Doboš
Database systems - Oracle SQL	3rd	2/2	Juhár
Interactive telecommunications systems and services	3rd	3/2	Juhár
Satellite communications	3rd	3/2	Marchevský
Master thesis I.	3rd	0/6	Galajda
Photonics	3rd	3/2	Turán
Digital television	3rd	3/2	Marchevský
Project management	4th	0/2	Marchevský
Master thesis II.	4th	0/18	Galajda

4.6 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	

4.7 Postgraduate Study (PhD.) – Electronics Measurement Systems

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	

4.8 Graduate 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	

5 RESEARCH PROJECTS

- 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)
- Integrating Biometrics and Forensics for the Digital Age (COST Action IC1106)
- Trustworthy Manufacturing and Utilization of Secure Devices (COST Action IC1204)
- INDECT – Intelligent Information System Supporting Observation, Searching and Detection for Security of Citizens in Urban Environment (7.FP, Contract No 218086)

- European Digital Virtual Design Lab (518565-LLP-1-2011-1-BE-ERASMUS-ESMO)
- Complex Modular Robotic System of Middle Category with Increased Intelligence (Ministry of Education of Slovak Republic Project, No. Req-00169-0001)
- Laboratory Workplace for Electronic Course Controlled by IT Technology (E-Lab) (Ministry of Education of Slovak Republic KEGA Project, No. 029TUKE-4/2012)
- Development of Experimental Measurement Apparatuses and Multimedial e-Learning Textbook for the Purpose of the Education Process Support in the Field of UWB Radar System (Project supported by the Slovak Cultural and Educational Grant Agency under contract, KEGA Project, No. 010TUKE-4/2012)
- Through-Wall Localisation of People by Means of Portable Ultra-Wideband Sensors (Project supported by DAAD and MŠVVaŠ)
- Through Wall Tracking of Moving Targets by Using UWB Radar Systems (Project of Agency for Science and Research, No. APVV LPP-0080-09)
- Electromagnetic Compatibility of Technological Equipment in Tyre Industry (Project of Agency for Science and Research, No. APVV-0333-11)
- Digital Signature Power Analysis Attack and Countermeasures (Project of Agency for Science and Research, No. APVV-0586-11)
- Research of Modules for Intelligent Robotic Systems (Operational Program Research and Development, No. IMTS-26220220141)
- Competency Centre for Knowledge Technologies applied at Innovation of Production Systems in Industry and Services (Operational Program Research and Development, No. IMTS-26220220155)
- Development of the Centre of Information and Communication Technologies for Knowledge Systems (Operational Program Research and Development, No. IMTS-26220120030)
- 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)
- New Testing Methods for Analog-to-Digital Interfaces Based on the Error Model Identification (Scientific Grant Agency Project VEGA, No. 1/0555/11)
- Security in Modern Telecommunication Networks (Scientific Grant Agency Project VEGA, No. 1/0386/12)

6 CO-OPERATION

6.1. Co-operation in Slovakia

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

6.1.1. Visitors to the Department

- Dr. Rudolf Zetík, Technische Universität Ilmenau, Germany, Aug. 30 – Sept. 1, 2012
- Ing. Martin Kmec, Technische Universität Ilmenau, Germany, May 21 – May 25 2012

6.2. International Co-operation

- Austrian Research Institute for Artificial Intelligence (OFAI) of the Austrian Society for Cybernetic Studies
- FTW Telecommunications Research Center Vienna, Austria
- Geozondas Ltd., Lithuania
- Ingenieur Büro Ralf Klukas, Germany
- INESC Lisabon, Portugal
- Meodat Meßtechnik, Germany
- Statens Räddningsverk, Sweden
- ŠkodaAuto Mladá Boleslav, Czech Republic
- Second University of Naples, Italy
- Technische Universität Ilmenau, Germany
- Hamburg University of Technology, Germany
- AGH University of Science and Technology Krakow, Poland
- Gdansk University of Technology, Poland
- Bulgarian Academy of Sciences, Bulgaria
- 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, Benevento, Italy
- University of Reggio Di Calabria, Italy
- University of Mediteranea, Italy
- University of Gävle, Sweeden

6.2.1. Visit of Staff Members to Foreign Institutions

- Bugár,G., VUT Brno, Czech Republic April 16-18, 2012
- Bugár,G., University of Zadar, Croatia September 7-16, 2012
- Bánoci,V., VUT Brno, Czech Republic April 16-18, 2012
- Bánoci,V., AGH University of Science and Technology Krakow, Poland May 29-31, 2012
- Bánoci,V., University of Zadar, Croatia September 7-16, 2012
- Doboš,Ľ., AGH University of Science and Technology Krakow, Poland May 29-31, 2012
- Doboš,Ľ., Paris, France May 12-15, 2012
- Doboš,Ľ., Kiel, Germany Aug. 26 – Sep. 2, 2012
- Doboš,Ľ., Bristol, United Kingdom September 24-27, 2012
- Doboš, Ľ., Belfast, United Kingdom October 24-26, 2012

- Drutarovský,M., TU Ilmenau, Germany March 10-17, 2012
- Drutarovský,M., Leuven, Belgium September 8-13, 2012
- Drutarovský,M., Oslo, Norway November 4-8, 2012
- Drutarovský,M., EC, Brussels, Belgium December 11-13, 2012
- Dupák,D., BUTE Budapest, Hungary January 13-15, 2012
- Galajda,P., TU Ilmenau, Germany March 10-17, 2012
- Galajda,P., VUT Brno, Czech Republic March 28-29, 2012
- Galajda,P., VUT Brno, Czech Republic June 12-13, 2012
- Galajda,P., Uppsala, Sweden October 3-7, 2012
- Gallo,P., University of Zadar, Croatia September 7-16, 2012
- Gamcová,M., Ohio State University, USA August 4-14, 2012
- Gamec,J., Ohio State University, USA August 4-14, 2012
- Gazda,J., BUTE Budapest, Hungary January 13-15, 2012
- Gazda,J., VUT Brno, Czech Republic April 16-18, 2012
- Gazda,J., VUT Brno, Czech Republic June 11-12, 2012
- Hládek,D., University of Zadar, Croatia September 7-16, 2012
- Juhár,J., TU Beograd, Serbia March 21-23, 2012
- Juhár,J., University of Bucharest, Romania June 12-15, 2012
- Juhár,J., EC, Brussels, Belgium September 9-12, 2012
- Kocur,D., TU Ilmenau, Germany March 10-17, 2012
- Kocur,D., VUT Brno, Czech Republic April 16-18, 2012
- Kocur,D., Belfast, United Kingdom May 16-20, 2012
- Kocur,D., TU Warsaw, Poland May 22-26, 2012
- Kocur,D., VUT Brno, Czech Republic June 4-6, 2012
- Kocur,D., TU Ilmenau, Germany June 23-30, 2012
- Kocur,D., Uppsala, Sweden October 3-7, 2012
- Kocur,D., Amsterdam, Nederland Oct. 30 – Nov. 3, 2012
- Liptaj,M., VUT Brno, Czech Republic April 16-18, 2012
- Liptaj,M., TU Ilmenau, Germany June 23-30, 2012
- Lipták,J., BUTE Budapest, Hungary June 25-28, 2012
- Lipták,J., University of Calabria, Cosenza, Italy August 2-11, 2012
- Lojka,M., University of Zadar, Croatia September 7-16, 2012
- Marchevský,S., ČVUT Prague, Czech Republic September 16-17, 2012
- Michaeli,L., Gdyňa, Poland January 26-29, 2012
- Michaeli,L., University of Calabria, Cosenza, Italy July 13-29, 2012
- Michaeli,L., Butan, China September 8-26, 2012
- Ondáš,S., BAS Sofia, Bulgaria November 26-30, 2012
- Ovseník,Ľ., TU Debrecen, Hungary April 23-27, 2012
- Papaj,J., AGH University of Science and Technology Krakow, Poland May 29-31, 2012
- Papaj,J., Bristol, United Kingdom September 24-27, 2012
- Papaj,J., Belfast, United Kingdom October 24-26, 2012
- Pleva,M., Gdansk, Poland March 1-3, 2012
- Pleva,M., AGH University of Science and Technology Krakow, Poland May 29-31, 2012
- Pleva,M., TU Warsaw, Poland September 25-27, 2012
- Pleva,M., Belfast, United Kingdom October 24-26, 2012
- Pleva,M., BAS Sofia, Bulgaria November 26-30, 2012
- Pleva,M., Telecom Paristech Paris, France December 13-16, 2012

- Rovňáková,J., VUT Brno, Czech Republic April 16-18, 2012
- Rovňáková,J., Belfast, United Kingdom May 16-20, 2012
- Rovňáková,J., TU Warsaw, Poland May 22-26, 2012
- Rovňáková,J., TU Ilmenau, Germany June 23-30, 2012
- Rovňáková,J., Uppsala, Sweden October 3-7, 2012
- Rovňáková,J., Amsterdam, Nederland Oct. 30 – Nov. 3, 2012
- Staš,J., Mikulov na Moravě, Czech Republic October 14-16, 2012
- Šaliga,J., Gdyňa, Poland January 26-29, 2012
- Šaliga,J., VUT Brno, Czech Republic April 16-18, 2012
- Šaliga,J., VUT Brno, Czech Republic June 11-12, 2012
- Šaliga,J., ČVUT Prague, Czech Republic June 12-15, 2012
- Šaliga,J., BUTE Budapest, Hungary June 25, 2012
- Šaliga,J., University of Calabria, Cosenza, Italy July 20-24, 2012
- Šaliga,J., National Instruments and University of Texas, Austin, USA July 3-11, 2012
- Šaliga,J., Butan, China September 8-26, 2012
- Turán,J., TU Debrecen, Hungary April 23-27, 2012
- Urdzík,D., Kuala Lumpur, Malaysia March 25-31, 2012
- Varchola,M., VUT Brno, Czech Republic April 16-18, 2012
- Varchola,M., Leuven, Belgium September 8-13, 2012
- Varchola,M., Oslo, Norway November 4-8, 2012
- Vavrek,J., ČVUT Prague, Czech Republic July 2-5, 2012
- Vavrek,J., University of Zadar, Croatia September 7-16, 2012
- Vavrek,J., University of Pisa, Italy October 3-7, 2012
- Viszlay,P., TU Vienna, Austria April 10-15, 2012
- Vozáriková,E., AGH University of Science and Technology Krakow, Poland May 29-31, 2012

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.
- Galajda, P.: Member of EUROPRACTICE IC Service.
- 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".
- Kocur Dušan, Member of the editorial board of the journal "Radioengineering".
- 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 the international board of 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".
- Kocur Dušan, Member of committee of Scientific Grant Agency of the Ministry of Education of the Slovak Republic and of Slovak Academy of Sciences.
- 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".
- Šaliga, J.: Member of the editorial board of the journal "Radioengineering".
- 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

- 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)
- Integrating Biometrics and Forensics for the Digital Age (COST Action IC1106)

- Trustworthy Manufacturing and Utilization of Secure Devices (COST Action IC1204)
- INDECT – Intelligent Information System Supporting Observation, Searching and Detection for Security of Citizens in Urban Environment (7.FP, Contract No 218086)
- European Digital Virtual Design Lab (518565-LLP-1-2011-1-BE-ERASMUS-ESMO)

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	82	87	4

8 PUBLICATIONS

8.1. Books

[1] GAMEC,J.-KUČMA,P.: Signalizačný systém 7. In: Košice: TU, Slovakia, 2012, 120 pp.

[2] GAMEC,J.-BLICHA,Š.: Digitálne spojovacie systémy. In: Košice: TU, Slovakia, 2012, 120 pp.

[3] GLADIŠOVÁ,.-MIHALÍK,J. Kvantovanie a entropické kódovanie (Návody na cvičenia). In: Košice: TU, Slovakia, 2012. 63 pp.

[4] HLÁDEK,D.-VAŠČÁK,J.-SINČÁK,P.: Towards Fuzzy Learning Classifier Systems Theory and Application of the Reinforcement Learning, Fuzzy Logic and Learning Classifier Systems. In: Saarbrücken: Lap Lambert Academic Publishing, Germany, 2012, 117 pp.

[5] KOCUR,D.-GAMEC,J.-GAMCOVÁ,M.-ROVŇÁKOVÁ,J.-URDZÍK,D.: UWB bezdrôtové senzorové siete. In: Košice: TU, Slovakia, 2012, 120 pp.

[6] LEVICKÝ,D.: Multimédiá a ochrana ich obsahu. In: ELFA, Košice, Slovakia, 2012, 249 pp.

[7] LEVICKÝ,D.-KLENOVIČOVÁ,Z.-BUGÁR,G.: Digitálna vodotlač v multimédiách. In: ELFA, Košice, Slovakia, 2012, 64 pp.

[8] MARCHEVSKÝ,S.: Satelitné technológie a služby. In: Košice: TU, Slovakia, 2012, 128 pp.

[9] MIHALÍK,J.-GLADIŠOVÁ,I.: Kódovanie obrazov (Návody na cvičenia). In: Košice: TU, Slovakia, 2012, 75 pp.

[10] MICHAELI,L.: Elektronické súčiastky a obvody. In: ELFA, Košice, Slovakia, 2012, 224 pp.

[11] ŠIMKA,M.-DRUTAROVSKÝ,M.: Selected Blocks for Public-Key Cryptosystems in FPGAs Analysis and Implementation of Montgomery Modular Multiplier and True Random Number Generator. In: Saarbrücken : Lambert Academic Publishing, Germany, 2012, 163 pp.

[12] ŠIMKOVÁ,M.-GARABÍK,R.-GAJDOŠOVÁ,K.-LACLAVÍK,M.-ONDREJOVIČ,S.-JUHÁR,J.-GENČI,J.-FURDÍK,K.-IVORÍKOVÁ,H.-IVANECKÝ,J.: The Slovak Language in the Digital Age. In: Berlin Heidelberg: Springer-Verlag, Germany, 2012, 85 pp.

[13] ZAVACKÝ,J.-MIHALÍK,J.: Banky filtrov. In: Košice: TU, Slovakia, 2012, 93 pp.

[14] GRAZIOSO,P.-TRALLI,V.-KULAKOWSKI,P.-CARNIANI,A.-DOBOŠ,Ľ.: Advances in Wireless Ad Hoc and Sensor Networks. In: Pervasive Mobile and Ambient Wireless Communications: Cost Action 2100, London: Springer Verlag, Germany, 2012, pp. 519-544..

8.2. Journals

[1] BALOGH,L.-KOLLÁR,I.-MICHAELI,L.-ŠALIGA,J.-LIPTÁK,J.: Full information from measured ADC test data using maximum likelihood estimation. In: Measurement, Vol. 45, no. 2 (2012), pp. 164-169.

[2] BÁNOCI,V.-BUGÁR,G.-LEVICKÝ,D.-KLENOVIČOVÁ,Z.: A Novel JPEG Steganography Method Based on Modulus Function with Histogram Analysis. In: Radioengineering. Vol. 21, no. 2 (2012), pp. 758-763.

[3] BUGÁR,G.-BÁNOCI,V.-LEVICKÝ,D.: Steganografia vo farebných obrazoch na báze DWT. In: Slaboproudý obzor, Vol. 68, no. 2 (2012), pp. 11-17.

[4] CIPOV,V.-DOBOŠ,Ľ.-PAPAJ,J.: Anchor-free localization algorithm with time of arrival node distance estimation. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 39-42.

[5] CIPOV,V.-DOBOŠ,Ľ.-PAPAJ,J.: ToA Node Distance Estimation Enhancement in MANET Localization Algorithm Based on Cooperative Trilateration. In: Information and Communication Technologies and Services, Vol.10, no. 4 (2012), pp. 211-217.

[6] CORRADO,M.-DE VITO,L.-RAMOS,H.-ŠALIGA,J.: Hardware and software platform for ADCWAN remote laboratory. In: Measurement, Vol. 45, no. 4 (2012), pp. 795-807.

[7] ČIŽMÁR,A.-PAPAJ,J.-DOBOŠ,Ľ.: Security and QoS integration model for MANETS. In: Computing and Informatics, Vol. 31, no. 5 (2012), pp. 1025-1044.

[8] GAZDA,J.-DUPÁK,D.-KOCUR,D.: Performance evaluation of M-APSK modulation in the nonlinearly distorted LTE uplink. In: Information Technology Journal, Vol. 11, no. 10 (2012), pp. 1418-1425.

[9] HLÁDEK,D.-STAŠ,J.-JUHÁR,J.: Word Clustering for a Slovak Class-Based Language Model. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 85-88.

[10] KREKÁŇ,J.-DOBOŠ,Ľ.-PLEVA,M.: Accelerated GPU powered methods for auditing security of wireless networks using probabilistic password generation. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 111-114.

[11] MIHALÍK,J.: Generovanie textúrovej bázy ľudskej tváre. In: Slaboproudý obzor, Vol. 68, no. 3 (2012), pp. 14-19.

[12] 12. MICHAELI,L.-ŠALIGA,J.: Instrumentation for the information and communication technology era. In: Measurement, Vol. 45, no. 2 (2012), pp. 145-147.

[13] ONDÁŠ,S.-JUHÁR,J.: Improving robustness of the SCORPIO robot speech interface by iterative spectral subtraction. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 151-154.

[14] ONDREJ,D.-OREJAS,M.E.-GAZDA,J.j: Simulation of code tracking error variance with early late Dll for GalileoGPS bandlimited recievers. In: Journal of Theoretical and Applied Information Technology, Vol. 41, no. 2 (2012), pp. 214-219.

[15] OVSENÍK,Ľ.-TURÁN,J.-MIŠENČÍK,P.-BITÓ,J.-CSURGAI-HORVÁTH,L.: Fog Density Measuring System. In: Acta Electrotechnica et Informatica, Vol. 12, no. 2 (2012), pp. 67-71.

[16] PAPAJ,J.-DOBOŠ,Ľ.-ČIŽMÁR,A.: Opportunistic networks and security . In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 163-166.

[17] PAPAJ,J.-DOBOŠ,Ľ.-ČIŽMÁR,A.: Routing Strategies in Opportunistic Networks. In: Journal of Electrical and Electronics Engineering. Vol. 5, no. 1 (2012), pp. 167-172.

[18] PAPAJ,J.-DOBOŠ,Ľ.-ČIŽMÁR,A.: OPNET Modeler Simulation Testing of the New Model Used to Cooperation Between QoS and Security Mechanisms. In: Information and Communication Technologies and Services, Vol.10, no. 4 (2012), pp. 218-223.

[19] 19. PLEVA,M.-ČIŽMÁR,A.-DOBOŠ,Ľ.: Voice Quality Measuring Setup with Automatic Voice over IP Call Generator and Lawful Interception Packet Analyzer. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 191-194.

[20] PLEVA,M,-LOJKA,M,-JUHÁR,J,: Modified Viterbi Decoder for Long-Term Audio Events Monitoring. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 195-198.

[21] ROVŇÁKOVÁ,J.-KOCUR,D.: Experimental Comparison of Two UWB Radar Systems for Through-wall Tracking Application. In: Acta Electrotechnica et Informatica, Vol. 12, no. 2 (2012), pp. 59-66.

[22] STAŠ,J.-HLÁDEK,D.-JUHÁR,J.: Morphologically Motivated Language Modeling for Slovak Continuous Speech Recognition. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 233-236.

[23] STAŠ,J.-HLÁDEK,D.-JUHÁR,J.-ZLACKÝ,D.: Analysis of Morph-Based Language Modeling and Speech Recognition in Slovak. In: Information and Communication Technologies and Services, Vol.10, no. 4 (2012), pp. 291-296.

[24] TATARKO,M.-OVSENÍK,Ľ.-TURÁN,J.: Availability and Reliability of FSO Links Estimated from Visibility. In: Carpathian Journal of Electronic and Computer Engineering Vol. 5, no. 1 (2012), pp. 121-126.

[25] TURÁN,J.-OVSENÍK,Ľ.-TURÁN,M.-VÁSÁRHELYI,J.: Légköri paraméterek minőségi monitorozási rendszerének tervezése és mérése. In: Gép, Vol. 63, no. 5 (2012), pp. 11-14.

[26] TURÁN,J.-OVSENÍK,Ľ.-HARASTHY,T.: Traffic Sign Recognition System based on Cambridge Correlator Image Comparator. In: Carpathian Journal of Electronic and Computer Engineering Vol. 5, no. 1 (2012), pp. 127-132.

[27] TURÁN,J.-OVSENÍK,Ľ.-VÁSÁRHELYI,J.: A Multimedia Visual Feedback in the Web-controlled Laboratory. In: Carpathian Journal of Electronic and Computer Engineering Vol. 5, no. 1 (2012), pp. 133-138.

[28] VISZLAY,P.-JUHÁR,J.-PLEVA,M.: Two-dimensional linear subspace learning based on discriminant analysis of speech. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 273-276.

[29] VISZLAY,P.-JANEČKO,J.-JUHÁR,J.: Eigenvalue Criterion-Based Feature Selectionin Principal Component Analysis of Speech. In: Information and Communication Technologies and Services, Vol.10, no. 4 (2012), pp. 303-307.

[30] VALISKA,J.-HRUŠOVSKÝ,B.-MARCHEVSKÝ,S.-PILLÁR,S.: Error models simulations transmission channels using network simulator environment. In: Acta Electrotechnica et Informatica, Vol. 12, no. 2 (2012), pp. 51-58.

[31] VAVREK,J.-PLEVA,M.-JUHÁR,J.: TUKE MediaEval 2012: Spoken Web Search using DTW and Unsupervised SVM. In: CEUR Workshop Proceedings (CEUR-WS.org): Multimedia Benchmark Workshop 2012, Vol. 927 (2012), pp. 1-2.

[32] VOZÁRIKOVÁ,E.-JUHÁR,J.-ČIŽMÁR,A.: Acoustic event detection based on MRMR selected feature vectors. In: Journal of Electrical and Electronics Engineering, Vol. 5, no. 1 (2012), pp. 277-282.

[33] VOZÁRIKOVÁ,E.-JUHÁR,J.-ČIŽMÁR,A.: Dual Shots Detection. In: Information and Communication Technologies and Services, Vol.10, no. 4 (2012), pp. 297-302.

[34] VOZÁRIKOVÁ,E.-LOJKA,M.-JUHÁR,J.-ČIŽMÁR,A.: Performance of Basic Spectral Descriptors and MRMR Algorithm to the Detection of Acoustic Events. In: Communications in Computer and Information Science: Multimedia Communications, Services and Security, No. 287 (2012), pp. 350-359.

[35] ZAVACKÝ,J.-MIHALÍK,J.: Mnohokanálové diskrétne sústavy s polyfázovou štruktúrou a dokonalou rekonštrukciou. In: Slaboproudý obzor, Vol. 68, no. 2 (2012), pp. 1-7.

8.3. Other publications

Publication Type	Conferences		Other
	Foreign	Home	
Number	34	78	5

DEPARTMENT OF ELECTRICAL ENGINEERING AND MECHATRONICS

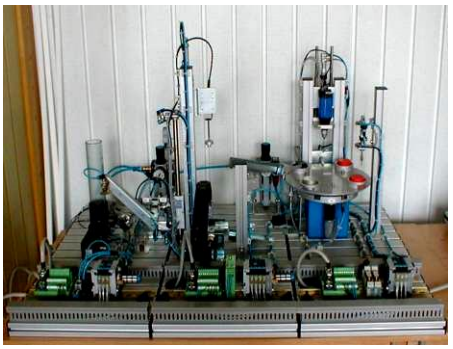
http://www.kem.fei.tuke.sk
Tel.: ++421 55 602 2279, Fax: ++421 55 633 0115

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

1 DEPARTMENT'S PROFILE

The Department belongs to the first departments, established at foundation of the Faculty of Electrical enigneering (founded in 1969). In 2005 staff members from the Laboratory of Industrial Engineering joined the department and it was renamed to Department of Electrical, Mechatronic and Industrial Engineering that was changed to Department of Electrical Engineering and Mechatronics in the year 2010.

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. (till August 2012) prof. Ing. Daniela Perduková, PhD. (since Sept.2012) 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. Daniela Perduková, PhD. (till August 2012) doc. Ing. Jaroslava Žilková, PhD.
Assistant Professors:	Ing. Peter Bober, PhD. Ing. Peter Girovský, PhD. Ing.Mgr. Peter Kmec, PhD. (till April 2012) Ing. Peter Košč, PhD. (till April 2012) Ing. Ján Kaňuch, PhD. Ing. Milan Lacko, PhD. Ing. Karol Kyslan, PhD. (since September 2012) Ing. Peter Višnyi, PhD. (till April 2012)
Assistants:	Ing. Jana Harvanová (till April 2012)
Senior Scientists:	Ing. Peter Keusch Bc. Peter Hajsák Ing.Michal Pajkoš (since November 2012)
Technical Staff:	Ing. Gabriela Brečková Zuzana Olexová František Hajsák (till June 2012) doc. Ing. Michal Kostelný, PhD. prof. Ing. Jaroslav Timko, CSc.
Full time Ph.D. Students:	Ing. Ján Bačík (since September 2012) Ing. Mišel Batmed Ing. Tomáš Béreš (till August 2012) Ing. Marcel Bodor (till August 2012) Ing. Matúš Hric (till August 2012) Ing. Godem Ali M. Ismeal Ing. Michal Kaľavský (till August 2012) Ing. Karol Kyslan (till August 2012) Ing. Peter Nguyen (till August 2012) Ing. Marek Pástor Ing. Radoslav Sivý (since September 2012) Ing.Viktor Šlapák (since September 2012) Ing. Marek Vacek

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	Lacko
Electrical Drives and Power Electronics	4th	2/2	Záskalický
Man-Machine Interfaces	4th	2/2	Perduková
Semiconductor Supplies 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
CAD Programs in Mechatronics	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
Power Semiconductor Converters	5th	2/2	Dudrik
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	Lacko
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	Lacko
Computer Suport of Management	5th	2/2	Fedák
Sensors and Measurement of Non-electrical Variables	5th	2/2	Fedor
Design of Electrical Systems	5th	2/2	Ferková
Power Semiconductor Converters	5th	2/2	Dudrik
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	Kaňuch
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
Construction and Design of Converters	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	Perduková
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
Power Semiconductor 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	1st	2/0	Fedor

Systems			
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 power semiconductor converters with high efficiency of electric energy conversion.* APVV - 0185-10 (Slovak Research and Development Agency), 2011-2014. Principal investigator: DUDRIK, J.
- *Centre of excellence of power electronics systems and materials for their components II.* Code ITMS: ITMS: 26220120046, (9/2010 - 8/2013) 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.
- *Centre of excellence on integrated research and application of progressive materials and technologies in automotive electronics. ITMS 26220120055.* Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU. (2010 – 2013).
- *Research and developement of a small power drives with two-phase motors,* APVV-0138-10, 2011-2014, Coordinator: Záskalický, P.

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, Košice, SEZ Krompachy, DATAKON Košice.

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
- INPL-ENSEM Nancy, France

6.2.1. Visits of Staff Members to Foreign Institutions

- DUDRIK, J.: EPE-PEMC2012, Novi Sad, Serbia, 3-6 September 2012.
- ĎUROVSKÝ, F.: Automatica 2012, München (D), 23-25 May 2012.
- ĎUROVSKÝ, F.: SPS IPC Drives 2012, Nürnberg (D), 27-29 November 2012.
- ĎUROVSKÝ, F.: Czech Academy of Sciences, Institute of Computer Science. 19 October 2012.
- FERKOVÁ, Ž.: TechSoft Praha (CZ), 11-13 April 2012, 5-8 June 2012.
- FERKOVÁ, Ž.: SME 2012, Politechnika Wroclawska, Wroclaw (PL), 16-20 June 2012.
- FERKOVÁ, Ž.: Ansys 2012, TechSoft Praha, Špindleruv Mlyn (CZ), 5-7 September 2012.
- PÁSTOR, M.: ELECTRONICS 2012, Palnga (LT), 18-20 June 2012.
- ZÁSKALICKÝ, P., KAŇUCH, J.; KOMEL Katowice, Rytro (PL), 23-25 May 2012.
- ZÁSKALICKÝ, P., KAŇUCH, J., FERKOVÁ, Ž. VUT Brno (ČR), 14-16 October 2012.

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 and Steering Committee members.
- FEDÁK, V.: EPE – European Power Electronics and Drives Association, Brussels. Executive Council member, General Assembly member, ISC
- FERKOVÁ, Ž: member of Steering Committee ISEM **(**INTERNATIONAL SYMPOSIUM ON ELECTRIC MACHINERY) ČVUT Praha.
- FEDÁK, V: EDPE 2013, Dubrovnik, Co-chairman.
- PERDUKOVÁ, D.: member of Programme Committee: 7th International Conference on Soft Computing Models in Industrial and Environmental Applications – SOCO 2012, Ostrava.

6.4 Membership in Slovak Professional Bodies

- FEDÁK, V.; KAŇUCH, J.; TIMKO, J.; ZÁSKALICKÝ, P.: 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 FEEI TU Košice)
- FEDOR, P.: member of board for the PhD. Course in Mechatronic Systems at FEI TU Košice.
- FERKOVÁ, Ž.: member of Technical Standards Commission on Electrical Machines in SR
- 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.; 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
- ZÁSKALICKÝ, P.: member of board for the PhD. Study in Electrical Engineering at EF ZU Žilina
- ZÁSKALICKÝ, P.: member of board for the PhD. Study in Electrical Engineering at FEI TU Košice
- ZÁSKALICKÝ, P.: member of board for the PhD. Study in Mechatronic systems at FEI TU Košice

6.5 National Educational Projects

- Teaching innovation in control of mechatronic systems. KEGA 042TUKE-4/2012. Coordinator: LACKO, M.

7 THESES

7.1 Defened Ph.D. Theses

- BÉREŠ, T.: Bidirectional DC–DC Converter for Hybrid Battery in Electric Vehicle, Supervisor: Dudrik, J.
- BODOR, M.: Soft Switching DC/DC Power Converter, Supervisor: Dudrik, J.
- HRIC, M.: Control of Serovdrives Having High Requirements to Precision. Supervisor: Fedák, V.
- KAĽAVSKÝ, M.: Application of Potential Field for Determination of Electro Mobiles Motion**.** Supervisor: Ferková Ž.
- KYSLAN, K.: Load Torque Emulator. Supervisor: Ďurovský, F.
- NGUYEN, P.: Sensorless Vector Control of IM by AI methods. Supervisor: Žilková, J.

Thesis type	Bachelor	Master	Doctoral
Number	48	56	6

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences

- KOPES 2012. Symposium of teachers of electrical machines subjects. Herľany, 17 – 19 January 2012.

8.2 Projects for Industry

- Structure Optimization of Compact Drive Modules. For ZTS VVÚ Košice. 84/104001/12/D, Co-ordinator: ĎUROVSKÝ, F.

8.3 Student Competitions and Rewards

- BAČIK Ján: ISTRORBOT Bratislava, (21 April 2012). 1st place in Free Style category (with robot Prometheus).
- BODOR Marcel: The best paper award for students at the 15th International Power Electronics and Motion Control Conference – EPE-PEMC2012, Novi Sad, Serbia, 2012.
- KYSLAN Karol: Dean award for the best poster presentation at the 12th Scientific Conference of Young Researchers of Faculty of Electrical Engineering and Informatics Technical University of Košice (SCYR 2012).
- PÁSTOR Marek: Dean Award for best oral presentation at the 12th Scientific Conference of Young Researchers of Faculty of Electrical Engineering and Informatics Technical University of Košice (SCYR 2012).
- Bosch Electromobil Race 2012. Miskolc, participation of 2 teams.

8.4 Compositions for Dissertation Examinations

- BATMEND, M.: Riadený mechatronický systém pre gravírovanie obrazov. Supervisor: Perduková, D.
- PÁSTOR, M.: Cascade Inverter for Photovoltaic Systems Supervisor: Dudrik, J.

9 PUBLICATIONS

9.1 Books

[1] BANÍK, František - FEDOR, Pavol - PERDUKOVÁ, Daniela: Metódy inteligentnej navigácie autonómneho vozidla. TU Košice 2012. 96 pp. ISBN 978-80-553-0850-0.

[2] FEDÁK, Viliam - ĎUROVSKÝ, František - KEUSCH, Peter: E-learning in Mechatronic Systems Supported by Virtual Experimentation. In: E-Learning - Engineering, On-Job Training and Interactive Teaching. Rijeka, InTech, 2012 pp. 85-106. ISBN 978-953-51-0283-0.

[3] FEDÁK, Viliam – BALOGH, Tibor – ZÁSKALICKÝ, Pavel: Dynamic Simulation of Electrical Machines and Drive Systems Using MATLAB GUI. In: MATLAB - A Fundamental Tool for Scientific Computing and Engineering Applications - Volume 1. Rijeka: InTech, 2012 pp.317-342. ISBN 978-953-51-0750-7. *http://www.intechopen.com/books/matlab-a-fundamental-tool-for-scientific-computing-and-engineering-applications-volume-1/dynamic-simulation-of-electrical-machines-and-drive-systems-using-matlab-gui*.

[4] SLOBODA, Aurel - ĎUROVSKÝ, František - BUGÁR, Tibor - SLOBODA, Oskár: Experimentálne vozidlá. Košice, Vienala 2012. 278 pp. ISBN 978-80-8126-062-9.

9.2 Textbooks

[1] BOBER, Peter: Pneumatické a hydraulické pohony. TU Košice 2012. 107 p. ISBN 978-80-553-0893-7.
[2] FEDOR, Pavol - PERDUKOVÁ, Daniela: Automatizácia priemyselných systémov. Košice, TU 2012. 100 pp. ISBN 978-80-553-1140-1.
[3] GIRMAN, Michal: Modelovanie podnikových procesov, TU Košice, 151 p. ISBN 978-80-553-1185-2.

9.3 Scientific Journals

Forreign Journals

[1] ŽILKOVÁ, Jaroslava - TIMKO, Jaroslav - GIROVSKÝ, Peter: Modelling and control of tinning line entry section using neural networks. In: International Journal of Simulation Modelling. Vol.11, no.2 (2012), p.1-12. ISSN 1726-4529.
[2] LENGYEL, L. - ZGODAVOVÁ, Kristína - BOBER, Peter: Modeling and Simulation of Relocation of a Production in SIMPRO-Q Web Based Educational Environment. In: International Journal of Advanced Corporate Learning. Vol.5, no.1 (2012), p.26-31. ISSN 1867-5565. *http://dx.doi.org/10.3991/ijac.v5i1.1878*.
[3] EÖTVÖS, Erik - DUDRIK, Jaroslav - BÉREŠ, Tomáš: Resonant DC-DC Converter for Photovoltaic Systems. In: Transactions on electrical engineering. Vol.1, no.1 (2012), p. 25-29. ISSN 1805-3386.
[4] ZÁSKALICKÝ, Pavel: Analytical method of a calculation of a torque ripple a two-phase pmsm supplied by a pwm controlled inverter. In: Maszyny elektryczne: Zeszyty Problemowe. Vol. 94, no.1 (2012), p.125-130. ISSN 0239-3646.
[5] ZÁSKALICKÝ, Pavel - KAŇUCH, Ján: Complex fourier series mathematical model of a universal motor supplied by an IGBT transistor. In: Maszyny elektryczne: Zeszyty Problemowe. Vol.94, no.1 (2012), p.33-37. ISSN 0239-3646.
[6] KAŇUCH, Ján - FERKOVÁ, Želmíra: Design and electromagnetic field simulation of disk stepper motor with permanent magnets. In: Zagadnenia maszyn, napedow i pomiarov elektrycznych. Vol.1, no.66/32 (2012), p.48-59. ISSN 1733-0718.
[7] PÁSTOR, Marek - DUDRIK, Jaroslav: Grid-tied Multilevel Inverter With Predictive Current Control. In: Journal of Electrical and Electronics Engineering. Vol.5, no.1 (2012), p.173-178. ISSN 1844-6035.
[8] GIROVSKÝ, Peter - TIMKO, Jaroslav - ŽILKOVÁ, Jaroslava: Shaft Sensorless FOC Control of an Induction Motor Using Neural Estimators. In: Acta Polytechnica Hungarica. Vol.9, no.4 (2012), p.31-45. ISSN 1785-8860.
[9] ZÁSKALICKÝ, Pavel - DOBRUCKÝ, Branislav: Complex Fourier series mathematical model of a three-phase inverter with improved PWM output voltage control. In: Electronics and Electrical Engineering. No.7 (123) (2012), p.65-68. ISSN 1392-1215.
[10] KYSLAN, Karol - ĎUROVSKÝ, František: Control of a Test Bench for Dynamic Emulation of Mechanical Loads. In: Procedia Engineering. No.48 (2012), p.352-357. ISSN 1877-7058.
http://www.sciencedirect.com/science/journal/18777058/48/supp/C
[11] PÁSTOR, Marek - DUDRIK, Jaroslav: Grid-tied 15-level Cascade Inverter with Predictive Current Control. 2012.In: Electronics and Electrical Engineering. 2012 Vol.18, no.9 (2012), p.19-22. ISSN 1392-1215.

http://www.eejournal.ktu.lt/index.php/elt/article/view/2798/1980.

[12] PERDUKOVÁ, D. – FEDOR, P. – BATMEND, M.: Dynamic Analysis and Optimizing a Path of Electromagnetic Diamond Percussion Tool. Precision Instrument and Mechanology – PIM, The World Academic Publishing CO, Volume 1, Issue 2, July 2012, pp.. 42-47, ISSN 2304-1811, www. pim-journal.org@ World Academic Publishing.

National Journals

[1] DUDRIK, Jaroslav: Výkonové polovodičové súčiastky pre mäkké spínanie. In: EE časopis. Vol.18, No.2 (2012), p.14-15. ISSN 1335-2547.

[2] HRIC, Matúš - FEDÁK, Viliam - ĎUROVSKÝ, František: Vplyv nelinearít cykloidnej prevodovky na presnosť polohovania. In: Strojárstvo extra. No.5 (2012), p.1-4. ISSN 1335-2938.

[3] GIROVSKÝ, Peter - LACKO, Milan: Simulácia neurónového pozorovateľa rýchlosti pomocou real-time system. In: ATP Journal. Vol.19, No.5 (2012), p.66-68. ISSN 1335-2237.

[4] GIROVSKÝ, Peter - LACKO, Milan: Real-Time simulácia pozorovateľa rýchlosti na báze umelých neurónových sietí. In: Strojárstvo extra. No.5 (2012), p.38/1-38/3. ISSN 1335-2938.

[5] KAĽAVSKÝ, Michal - FERKOVÁ, Želmíra: Potenciálové polia pri plánovaní cesty robotov. In: Strojárstvo extra. No.5 (2012), p.32/1-32/3. ISSN 1335-2938.

[6] VACEK, Marek - ŽILKOVÁ, Jaroslava: Porovnanie programov pre modelovanie a simulácie robotických ramien v univerzitnom prostredí. In: EE časopis. Roč. Vol.18, No.4 (2012), p.32-33. ISSN 1335-2547.

[7] [PÁSTOR, Marek - DUDRIK, Jaroslav - VACEK, Marek: Sieťové filtre pre striedače. In: EE. Vol.18, No.6 (2012), p.30-31. ISSN 1335-2547.

[8] FEDÁK, Viliam - DOMARACKÁ, Lucia - DOMARACKÝ, Dušan - HLAVŇOVÁ, Barbara: Ekonomické zhodnotenie inštalácie solárneho zariadenia na rodinnom dome v obci Smolník. In: TechCON. Vol.8, No.3 (2012), p.35-37.

[9] KAŇUCH, Ján: Spätný vplyv úsporných žiariviek na napájaciu sieť. In: EE časopis. Vol.18, No.5 (2012), p.27-30. ISSN 1335-2547.

9.4 Patents

[1] DUDRIK, Jaroslav - RUŠČIN, Vladimír - BODOR, Marcel: Bezstratový obvod na zníženie vypínacích strát v nepriamom jednosmernom meniči s výstupným riadeným usmerňovačom. Patent č. 287977. Banská Bystrica ÚPV SR 2012. 4 s.

9.5 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	18	20	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 by radiospectroscopic and static magnetic methods. At present, the research is focused on the study of magnetic properties of ferromagnetic materials and on the study of non-metallic materials using nuclear magnetic resonance (NMR) and some other complementary methods.

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 2009 the Solid State NMR Laboratory was established at the Department of Physics within the project "Completion of Building up of a Modern Nuclear Magnetic Resonance Laboratory" within the state programme of research and development. The laboratory is a part of the Slovak National NMR Centre. Its research is focused on the study of non-metallic materials. The role of the laboratory is to meet research and educational requirements in the field of solid state NMR study of materials in Slovakia. The laboratory contributes to the development of solid state NMR applications in Slovakia.

At present the Laboratory for modification and testing of properties of advanced materials was established at the department within the project "Centre of Excellence for Integrated Research & Exploitation of Advanced Materials and Technologies in Automotive Electronics". The laboratory is equipped with apparatus for the study of thermal and mechanical properties of materials and a desk top elecron microscope for the study of surface structure 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 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. Ján Ziman, CSc.

Assistant Professors:

RNDr. Oľga Fričová, PhD.
RNDr. Zuzana Gibová, PhD.
RNDr. Cyril Hospodár
RNDr. Ľubomír Mucha
RNDr. Mária Hutníková, PhD.
RNDr. Kamila Jelšovská, CSc. (till 31.5.)
Mgr. Jana Kaššovicová, CSc. (till 31.5.)
RNDr. Ján Kecer, PhD.
RNDr. Mária Kladivová, PhD.
RNDr. Mária Kovaľaková, PhD.
RNDr. Jozef Kravčák, PhD.
RNDr. Viktor Hronský, CSc.
Ing. RNDr. Jozef Onufer
Mgr. Mária Rybárová, PhD. (till 31.5.)
RNDr. Ladislav Ševčovič, PhD.
RNDr. Jana Tóthová, PhD.
RNDr. Peter Vrábel, PhD. (since 1.9.)

PhD. Students:

Mgr. Magdaléna Uhrínová
Mgr. Gabriela Vasziová (till 31.8.)
Mgr. Peter Duranka
Mgr. Lukáš Hubač (since 1.9.)
Ing. Viktória Šuhajová

Technical Staff:

Ema Havlíková (till 30.6.)
Ing. František Mižák
Alena Jakabová

3 LABORATORIES

3.1 Teaching and Research Laboratories

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

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
- Desktop electron microscope with disperse rtg spectrometer
- DSC analyser
- Dynamic mechanical analyser
- Sputtering apparatus

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**
Electromagnetism and Optics (FEI)	3rd	3/2	Ziman, Lisý
Physics 1 (FBERG)	2nd	2/2	Lisý
Physics I (FBERG)	2nd	2/2	Jelšovská
Physics (FBERG)	2nd	2/2	Lisý
Physics (FBERG) – external study	2nd	2/0	Jelšovská
Applied Physics (SjF) – external study	2nd	0/2	Kravčák
Physics II (SjF)	2nd	2/2	Novák
Physics II (SjF) – external study	2nd	2/0	Novák
Physics (SvF) – external study	2nd	2/0	Kovaľaková
Physics II (SvF)	2nd	2/1	Kovaľaková
Physics Fundamentals (HF)	2nd	4/3	Ziman
Physics Fundamentals (HF) – external study	2nd	3/0	Kladivová
Physics Seminar (HF)	2nd	0/2	Kladivová
Physics II (FEI)	2nd	3/2	Hlaváčová Kaššovicová Olčák,Gibová

Physics II (FEI, in English)	2nd	3/2	Hlaváčová
Physics (FEI)	2nd	3/2	Hlaváčová
Structure and Properties of Materials (FEI)	2nd	3/2	Hronský
Progressive Materials	2nd	3/0	Lisý
Physics I (SjF)	1st	2/2	Novák
Physics (SjF)	1st	2/2	Novák
Physics II (FBERG)	1st	2/2	Tóthová
Physics II (FBERG) – external study	1st	2/2	Tóthová
Physics I (FEI)	1st	2/2	Hlaváčová Fričová, Olčák, Gibová
Physics (FEI)	1st	2/2	Gibová
Physics Seminar (FEI)	1st	0/2	Kecer, Hospodár
Physics (FEI) – external study	1st	2/0	Hutníková
Physics I (FEI, in English)	1st	2/2	Hlaváčová
Introduction to Measurements (FEI)	1st	2/2	Gibová
Physics I (SvF)	1st	2/1	Kovaľaková

4.2 Graduate Study (Ing.)

Subject	**Semester**	**Lectures/exercises** (hours per week)	**Lecturer**
Physics 2 (FBERG)	1st	2/2	Lisý
Physics III (FBERG)	1st	2/3	Lisý
Physics 2 (FBERG)) – external study	1st	2/0	Lisý
Physics III (FBERG)) – external study	1st	2/0	Lisý
Physics (HF)	1st	3/2 and 4/3	Ziman
Physics (HF)) – external study	1st	2/0 and 3/0	Kladivová
Selected Topics in Modern Physics (FEI)	1st	2/2	Hlaváčová
Solid State Physics (FBERG)	2nd	2/2	Hronský
Theory of Electromagnetic Field (FEI)	1st	2/2	Kravčák

5 RESEARCH PROJECTS

- ***Anomalous Brownian motion***, S.G.A. project No. 1/0370/12, 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.
- ***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

- ***Development of the new generation of environmental adsorbents and biocomposites based on the natural nanomaterials***, S.G.A. project No. 1/0185/12, Principal investigator: Prof. RNDr. E. Chmielewská, CSc. (Faculty of Science, Comenius University in Bratislava), collaborators: M. Kovaľaková
- ***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, 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: 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
- ***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, collaborators: P. Duranka, O. Fričová, V. Hronský, J. Kaššovicová, J. Kecer, M. Kladivová, M. Kovaľaková, J. Kravčák, L. Novák, P. Vrábel, J. Ziman
- ***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

- Faculty of Chemical and Food Technology, Slovak University of Technology, Bratislava
- Faculty of Science, Comenius University in Bratislava
- Institute of Experimental Physics of the Slovak Academy of Sciences, Košice
- Institute of Inorganic Chemistry of the Slovak Academy of Sciences, Bratislava
- Institute of Physics, Faculty of Science, P. J. Šafárik University in Košice
- Joint Laboratory of Glass VILA, Alexander Dubček University of Trenčín
- Polymer Institute, Slovak Academy of Sciences, Bratislava

6.1.1. Visitors to the Department

- Prof. Ing. János Takács, PhD., Budapest University of Technology and Economics, Hungary
- Doc. Dr. Antal Lovas, PhD., Budapest University of Technology and Economics, Hungary
- RNDr. Jiří Spěváček, DrSc., Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic

6.2 International Co-operation

- Budapest University of Technology and Economics, Hungary
- Central Physical Research Institute, RMKI KFKI, Budapest, Hungary
- Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic
- 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
- 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, Member of the Programme and Advisory Committee for Condensed Matter, Joint Institute for Nuclear Research, Dubna, Russia
- 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 and SMAGS
- Tóthová, J.: member of SFS
- Ziman, J.: member of SFS and vice-chairman of SMAGS

7 PUBLICATIONS

7.1 Books

[1] TÓTHOVÁ, Jana - LISÝ, Vladimír: **Unusual Brownian motion**.In: Statistical Mechanics and Random Walks: Principles, Processes and Applications. - New York: Nova Science Publishers, 2012 P. 39-63. - ISBN 978-1-61470-966-4

[2] TÓTHOVÁ, Jana - LISÝ, Vladimír (Eds.): **Physics of Materials 2012** Proceedings of the scientific conference: 17-19 October 2012, Košice, Slovakia: TU - 2012. - 234 s.. - ISBN 978-80-553-1175-3.

7.2 Journals

[1] FRIČOVÁ, Oľga - UHRÍNOVÁ, Magdaléna - HRONSKÝ, Viktor - KOVAĽAKOVÁ, Mária - OLČÁK, Dušan - CHODÁK, Ivan - SPĚVÁČEK, Jiří : **High-resolution solid-state NMR study of isotactic polypropylenes.** In: Express Polymer Letters. Vol. 6, no. 3 (2012), p. 204-212. - ISSN 1788-618X Website: *http://www.expresspolymlett.com*.

[2] HUTNÍKOVÁ, Mária - HUTNÍK, Ondrej: **Affine coherent states and Toeplitz operators.** In: Journal of Physics A: Mathematical and Theoretical. Vol. 45, no. 24 (2012), p. 1-13. - ISSN 1751-8113 Website: *http://iopscience.iop.org/1751-8121/45/24/244021/*

[3] ZIMAN, Ján - ŠUHAJOVÁ, Viktória - KLADIVOVÁ, Mária: **Magnetic domain wall dynamics in an inhomogeneous magnetic field.** In: Physica B : Condensed Matter. Vol. 407, no. 18 (2012), p. 3905-3909. - ISSN 0921-4526 Website: *http://www.sciencedirect.com/science/article/pii/S0921452612006400*.

[4] KRAVČÁK, Jozef: **Single domain wall dynamics in ferromagnetic lamination with variable conductivity** / J. Kravčák - 2012.In: Physica B. Vol. 407, no. 19 (2012), p. 3992-3995. - ISSN 0921-4526 Website: *http://www.sciencedirect.com/science/article/pii/S0921452612006497*.

[5] NAGYOVÁ, Stanislava - KOVAĽAKOVÁ, Mária - FRIČOVÁ, Oľga - HRONSKÝ, Viktor - OLČÁK, Dušan - FORTUNOVÁ, Ľubica: **Characterization of Copper-Modified ZSM-5 with Sorbed Pyridine Using Nuclear Magnetic Resonance**

Spectroscopy. In: Applied Magnetic Resonance. Vol. 43, no. 3 (2012), p. 431-442. - ISSN 0937-9347
Website: *http://www.springerlink.com/content/m751x828g16p0525/*.

[6] LISÝ, Vladimír - TÓTHOVÁ, Jana - GLOD, Lukáš: **On the correlation properties of thermal noise in fluids.** In: International Journal of Thermophysics. Vol. 33, DOI: 10.1007/s10765-012-1290-1 (2012), p. 1-13. - ISSN 0195-928X

[7] TÓTHOVÁ, Jana - LISÝ, Vladimír: **Dynamics of Rouse polymers in Maxwell fluids.** In: Diffusion Fundamentals. Vol. 17, no. 3 (2012), p. 1-10. - ISSN 1862-4138 Website: *http://www.uni-leipzig.de/diffusion/contents_vol17.htm*.

[8] RYBÁR, Pavol - ŠTRBA, Ľubomír - MOLOKÁČ, Štefan - DOMARACKÝ, Dušan - RYBÁROVÁ, Mária - HVIZDÁK, Ladislav - MOLOKÁČ, Mário: **Study of physical-mechanical rock properties for rock disintegration purposes.**.In: Underground Mining Engineering. Vol. 20, no. 21 (2012), p. 131-133. - ISSN 0354-2904 Website: *http://www.rgf.bg.ac.rs/Publikacije/PodzemniRadovi/Broj21/Eng/07%20PR%2021_04%20ENG.pdf*.

[9] RYBÁR, Pavol - ŠTRBA, Ľubomír - MOLOKÁČ, Štefan - RYBÁROVÁ, Mária - KUDELAS, Dušan - DOMARACKÝ, Dušan - MOLOKÁČ, Mário - HVIZDÁK, Ladislav: **Model of rock melt penetration into in radial fractures evolved under high pressure and temperature conditions.** In: Underground Mining Engineering. Vol. 20, no. 21 (2012), p. 143-150. - ISSN 0354-2904
Website: *http://www.rgf.bg.ac.rs/Publikacije/PodzemniRadovi/Broj21/Eng/09%20PR%2021_05%20ENG.pdf*.

[10] NOVÁK, Ladislav - ZIMAN, Ján - KOVAĽAKOVÁ, Mária - KLADIVOVÁ, Mária: **Hydrogen diffusion in amorphous FeCrB ribbons.** In: Acta Electrotechnica et Informatica. Roč. 12, č. 2 (2012), s. 72-75. - ISSN 1335-8243

[11] GLOD, Lukáš - VASZIOVÁ, Gabriela - TÓTHOVÁ, Jana - LISÝ, Vladimír: **Brownian oscillators driven by correlated noise in a moving trap.**.In: Journal of Electrical Engineering. Roč. 63, č. 1 (2012), s. 53-58. - ISSN 1335-3632

7.3 Other publications

Publication Type	Articles on Internet	Conference Papers		Conference Abstracts		Textbooks
		Foreign	Home	Foreign	Home	2
Number	1	3	33	5	0	

DEPARTMENT OF CYBERNETICS AND ARTIFICIAL INTELLIGENCE

http://www.tuke.sk/kkui/
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Head of Department
prof. Ing. Ján Sarnovský, CSc.
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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 and Information-Control Systems, 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; business information systems; 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 21 staff members, 23 internal and 11 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 the following research Centers: Centre for Cybernetics (cybervirtlab.fei.tuke.sk/cybervirtlab/), Centre for Intelligent Technologies (www.ai-cit.sk) and Center of Modern Control Techniques and Industrial Informatics (kyb.fei.tuke.sk/laben).

The Department is involved in a number of research and educational projects. The following types of projects were under way in 2012: 1 Socrates thematic network, 1 US National Institutes of Health research project, 3 grants awarded by the Scientific Grant Agency, 1 grant awarded by the Slovak Research and Development Agency, 4 grants awarded by Cultural and Educational Grant Agency, 1 other international grant, 1 IBM Faculty Award, and 2 projects supported by the Research & Development Operational Programme funded by the ERDF. Moreover, thanks to the members of our department the Technical University of Košice was accepted as associate member of the ALICE project at the European Organization for Nuclear Research (CERN) in October 2012.

2 STAFF

Professors:	prof. Ing. Dušan Krokavec, CSc. Dr.h.c. prof. Ing. Ladislav Madarász, CSc. prof. RNDr. Eva Ocelíková, CSc. prof. Ing. Ján Paralič, PhD. 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.
Assistant Professors:	Ing. František Babič, PhD. Ing. Peter Butka, PhD. Ing. Marek Bundzel, PhD. Ing. Karol Furdík, PhD. Dr. Ing. Vratislav Hladký Ing. Rudolf Jakša, PhD. Ing. Ján Liguš, PhD. Ing. Jana Ligušová, PhD.

Ing. Martin Sarnovský, PhD.
Dr. Ing. Ján Vaščák

Researchers:
Ing. Rudolf Andoga, PhD.
Ing. Ladislav Főzö, PhD.
Ing. Stanislav Laciňák, PhD.
Ing. Jozef Wagner, PhD.
Ing. Gabriel Tutoky, PhD.

Technical Staff:
Tatiana Baňasová
Mária Feješová
Jakub Šterbák

Ph.D. Students:

1st.

Internal	**External**
Ing. Radoslav Bielek	Ing. Ján Adamčák
Ing. Jakub Čerkala	Ing. Matúš Molčányi
Ing. Cecília Havrilová	Ing. Ladislav Miženko
Ing. Pavol Liščinský	
Ing. Daniel Lorenčík	
Ing. Peter Michalik	
Ing. Martina Tarhaničová	

2nd.

Internal	**External**
Ing. Vladimír Gašpar	Ing. Mousa Younes Alfitorey
Ing. Slávka Jadlovská	Ing. Róbert Fónod
Ing. Lukáš Laciňák	Ing. Nikola Kabakov
Ing. Alexandra Lukáčová	Ing. Jan Liguš
Ing. Martin Paľa	Ing. Peter Szabó
Ing. Peter Papcun	
Ing. Vladimír Serbák	
Ing. Ján Štofa	

3rd.

Internal
Ing. Matej Čopík
Ing. Štefan Jajčišin
Ing. Mgr. Peter Koncz
Ing. Roman Mihaľ
Ing. Adela Tušanová
Ing. Mária Virčíková

4th.

Internal	**External**
Ing. Ján Ilkovič	Ing. Stanislav Dvorščák
Ing. Martin Repka	Ing. Peter Kubičko

5th.

External
Ing. Marcel Kudláč

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/
- Center of Modern Control Techniques and Industrial Informatics - CMCT_II (http://kyb.fei.tuke.sk/laben)
- 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 systems of aircraft engines (in cooperation with Faculty of Aeronautics) http://lirslm.fei.tuke.sk
- Laboratory of Knowledge Technologies (V-101a) https://hi.fei.tuke.sk/portal/?q=node/100#v101a
- Laboratory of Business processes (B11) https://hi.fei.tuke.sk/portal/?q=node/100#b11
- Laboratory of Intelligent Control Network and Software Systems for Control (L-509b), http://cybereducentre.fei.tuke.sk/L509/
- Laboratory of Computer Control Systems Design (V101b - CMCT_II), http://kyb.fei.tuke.sk/Laboratoria/miest/V101b.htm
- Laboratory of Robotics (V134 - CMCT_II) http://kyb.fei.tuke.sk/Laboratoria/miest/V134.htm
- Laboratory of Mechatronics Systems (V142 - CMCT_II) http://kyb.fei.tuke.sk/Laboratoria/miest/V142.htm
- Laboratory of Process Control (V144 - CMCT_II) http://kyb.fei.tuke.sk/Laboratoria/miest/V144htm
- Laboratory of Production Lines and Image Recognition (V147 - CMCT_II) http://kyb.fei.tuke.sk/Laboratoria/miest/V147.htm
- Perception and Cognition Laboratory (V-31) http://pcl.tuke.sk

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Computers and Algorithms	2nd	2/2	Jadlovská, Jadlovský
Introduction to Business Informatics	2nd	2/2	Paralič, J.
Elements of Control Systems	2nd	2/2	Hladký
Artificial Intelligence I.	2nd	2/2	Machová
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 II.	3rd	2/2	Sinčák, et al.
Knowledge-Based Systems	3rd	2/2	Machová
Office Information Systems	3rd	1/2	Zolotová
Applications of Operation Systems in Management	3rd	2/2	Liguš
Application Programming	3rd	2/2	Jakša
Analyses and design of Information Systems	4th	1/1	Sarnovský M., Babič
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, J.
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, Babič
Cybernetics and Management	6th	2/2	Sarnovský, J.
System Analysis and Synthesis	6th	2/2	Madarász
Artificial Intelligence Languages	6th	2/1	Mach
Effective and financial management	6th	2/2	Babič
Heuristic Optimization Processes	6th	2/2	Mach

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Optimal and Nonlinear Systems	1st	2/2	Jadlovská, A.
Computer Vision	1st	2/2	Bundzel
Intelligent Control Networks	1st	2/2	Liguš
Knowledge Discovery	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
Stochastic Systems	2nd	2/2	Krokavec, D.
Fuzzy Decision Making	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 and Social Web	3rd	2/2	Machová
Neuro-fuzzy Systems	3rd	2/2	Vaščák
Cybernetics	3rd	2/2	Sarnovský, J.
Knowledge Management	3rd	2/2	Paralič, J.
Philosophic Problems of Cybernetics and AI	4th	2/2	Sarnovský, J.
Repetition of AI Foundations	4th	0/2	Sinčák
AI Applications Seminar	4th	2/2	Sinčák

5 RESEARCH PROJECTS

- ***Cognitive travelling in digital space of the Web and digital libraries supported by personalized services and social networks*** (project lead by FIIT STU Bratislava). Slovak Research and Development Agency, project no. APVV-0208-10, duration: 2011 – 2014, members: Ján Paralič (project leader for TUKE), Peter Butka, Peter Koncz, František Babič, Gabriel Tutoky. Activities: The metaphor of cognitive travelling in the digital space describes a (curious) user who moves in the web or libraries. Travelers leave traces in digital space – evaluations, recommendations, annotations etc. They communicate with others forming communities of shared interests. Users learn more if the information is suitably presented or visualized. Designed and implemented models and prototypes of web services will make use of descriptions of semantics of a given domain, documents and user profile (ontologies, folksonomies). Methods will include both targeted search (e.g. query enrichment or reformulation before submitting to search engines, discovering users' specific needs) and also an exploratory search (browsing information sources without having a precise goal). This research contributes to shifting from providing documents in response to a query to providing answers.
- ***Dynamic hybrid architectures in multiagent network control systems*****,** Scientific Grant Agency project No. 1/0286/11, duration: 2011 – 2014, members: Ján Sarnovský (project leader), Ján Liguš, Vratislav Hladký, Ján Jadlovský, Anna Jadlovská, Iveta Zolotová, Eva Ocelíková, Jana Ligušová, Marek Duľa, Peter Karch, Ján Kažimír, Stanislav Laciňák, Rastislav Hošák, Peter Šuster, Slávka Jadlovská, Peter Papcun, Anton Molčan and Lukáš Laciňák. Activities: The project aims to research methods and algorithms for decision making and management of automatic control systems using the paradigm of hybrid approaches to managing complex systems utilizing methods of artificial intelligence. A tighter focus of the project is research, development and implementation of algorithms and methods for managing multi-agent network management systems (MANMS), where particular agents of MASRS cooperate and communicate via Wifi stochastic communication network. Based on MASRS modeling and formalizing of control processes will be further developed specific algorithms for optimal reconfiguration of MASRS architecture, taking into account redundancy to achieve the best quality of control for the selected MANMS configuration. When designing the control algorithms theoretical knowledge of cybernetics and information theory will be used with application of Ashby´s law of requisite Variety. The project is also intended to formalize the design of

control algorithms and design of dynamic network architectures of industrial network management systems, which will be verified in the lab as well as in practice, in cooperation with the U. S. Steel Košice, Cybernetics Ltd., Košice and MDJ Ltd., Košice.

- ***Integrated design of reconfigurable control structures and embedded diagnostics***, Scientific Grant Agency project No. 1/0256/11, duration: 2011 – 2013, members: Dušan Krokavec (project leader), Filasová Anna, Hladký Vratislav, and Daniel Gontkovič. Activity: The project is focused on design of fault-tolerant control systems (FTCS). The basic research is fundamental part of the project, which is driven for active FTCS with embedded diagnosis in suitable reconfigurable structures, undertaken in performance of the fault detector embedded in the control loop, and constructed in the framework of the integrated design. The focal scientific points of the project are dedicated to development of new design algorithms guarantying stability of fault-tolerant systems and optimized with respect to conflicting requirements among stability, redundancy, and graceful performance degradation; the terminal scientific objectives are dedicated to residual signals embedded in the control loop, with explicit consideration on residual decoupling and evaluation, reconfiguration control methods, as well as to appropriate procedures associated with decoupling of interacting multiple control structures.

- ***Methods for analysis of collaborative processes mediated by information systems***, Scientific Grant Agency project No. 1/1147/12, duration: 2012 – 2015, members: Ján Paralič (project leader), František Babič, Kristína Machová, Martin Sarnovský, Peter Butka, Karol Furdík, Gabriel Tutoky, Jozef Wagner, Martin Repka, Peter Koncz, Adela Tušanová, Alexandra Lukáčová, Ján Štofa, Cecília Havrilová. Activities: This project focuses on research of methods for analysis of collaborative processes, which are mediated by information systems. In these processes collaboration of more people is necessary in order to achieve a common goal. This common goal is usually some kind of artifact (e.g. a product, service, method or new knowledge in explicit form). We focus on the following aspects: *1. Process aspect* – methods for analysis of sequences of events in these collaborative processes. *2. Social aspect* – methods for analysis of various types of interactions between actors of collaborative processes, especially: a. Analysis of collaborative networks derived from interactions between process' actors, b. Sentiment analysis in such kind of processes, where (at least some) activities are available in textual form. *3. Economical aspect* – methods suitable for evaluation of changes in collaborative processes caused by information systems' usage.

- ***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.

- ***CyberLabTrainSystem - Demonstrator and Trainer of Information - Control Systems.*** Cultural and Education Grant Agency Project No. 021TUKE-4/2012, duration 2012 – 2014, members: Iveta Zolotová (project leader), Ján Sarnovský, Eva Ocelíková, Ján Jadlovský, Anna Jadlovská, Vratislav Hladký, Ján Liguš, Jana Ligušová, Peter Karch, Roman Mihaľ, Peter Kubičko, Štefan Jajčišin, Slávka Jadlovská, Peter Michalik, Jakub Čerkala, Lukáš Laciňák. Activities: The main project objective is the creation of demonstrational and training laboratory workplace to support teaching within the development and run-time use of information-control systems for different levels of factory control from the physical processes at the lowest to the visualization and data management at the highest level. Project outputs will support the development of theoretical knowledge of students and its transformation into practical skills through a life cycle of comprehensive 3/17 identifier: 1304075960 CyberLabTrainSystem - demonstrator and trainer of information-control system real project with different access (also web access) and user rights and roles. The project supports the possibility to acquire different approaches and software products intended to promote designing of information-control systems. The project should supplement classical teaching students also with the support of Web-based Training technology, and increase interest of candidates for study in the Cybernetics field.
- ***Virtual laboratory for business information systems***, Cultural and Educational Grant Agency project No. 065TUKE-4/2011, duration: 2011 - 2013, members: Ján Paralič (project leader), František Babič, Kristína Machová, Martin Sarnovský, Karol Furdík, Peter Butka, Peter Bednár, Gabriel Tutoky, Jozef Wagner, Adela Tušanová, Peter Koncz, Alexandra Lukáčová, Ján Štofa. Activity: This project focuses on development and implementation of supporting on-line tools for education of selected courses in Business information systems at the Technical University in Košice. For this purpose there will be designed and implemented elektronic educational materials for particular courses, as well as suitable electronic services for active participation of students in virtual learning environment (including social network support and analysis), as well as methodology for Web based Training.
- ***Development of a Modern University Textbooks for a Core Units of the Newly Trasformed Study Programme Cybernetics and Information Control Systems***, Cultural and Educational Grant Agency project No. 034TUKE-4/2011, duration: 2011–2013, members: Anna Jadlovská (project leader), Ján Sarnovský, Iveta Zolotová, Ján Jadlovský, Vratislav Hladký, Ján Liguš, Jana Ligušová, Marek Bundzel, Ľuboš Popovič, Matej Čopík, Štefan Jajčišin, Slávka Jadlovská, Peter Papcun. Activity: The objective of the project is the preparation, design and implementation of a number of modern university textbooks, the content of which will be methodically processed using the current level of knowledge in the discipline of

"cybernetics" and oriented on the core units of the newly-transformed study program "Cybernetics and information-control systems" at the second (master) study degree. The project research team considers the existence of high-quality textbooks as an important basis for mastering the subjects at the second degree of studies. The textbooks will be accompanied by a set of solved and unsolved problems intended to be processed into functions, program modules and/or application libraries using an appropriately chosen programming environment (Matlab/Simulink, CPN Tools, Microsoft Visual Studio 2008 SQL Developer, Rockwell Automation software). The said problems can be addressed while solving individual tasks, assignments and semester projects, not least in the research, which takes place at the workplace of the project research team.

- ***Innovative Education of Business Analytics for Students***, IBM Faculty Award, duration: 2012, members: Ján Paralič (project leader), František Babič, Peter Koncz, Alexandra Lukáčová, Cecília Havrilová. Activity: The aim of this project was to design and implement effective methods and tools for education of business analytics within the university courses. We built on our experiences in education of knowledge discovery and data mining since ten years, making use of up to date IBM software and existing laboratories. Our experiences show that it is inevitable educate students to understand the business aspects of problems to be solved. Therefore our ambition was in cooperation with experienced IBM specialists to design and develop a couple of cases where the students will be able to better grasp the nature of (real) business problems and how to approach them with suitable business analytics methods and tools.
- ***Perceptual, Contextual, and Cross-Modal Learning in Hearing and Vision***. The European Community's 7FP/2007-13 grant no 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.
- ***Development of the Centre of information and communication technologies for knowledge-based systems***, project No. 26220120030 supported by the Research & Development Operational Programme funded by the ERDF, duration: 2009 - 2013. Most of the department members have been involved in this project.
- ***IT4KT project (Information Technology for Knowledge Transfer)***, project No. 26220220123 supported by the Research & Development Operational Program funded by the ERDF, duration: 2010 - 2013, members from our department: Ján Paralič, Peter Butka, Martin Sarnovský, Jozef Wagner, Gabriel Tutoky, František Babič, Peter Koncz. Ativity: this project is being solved at our Faculty of Electrical Engineering and Informatics as cooperation of researchers and educators from three different departments. We analysed current learning processes and best practices on a set of 15

different courses from mathematics and computer science. Based on the analysis, crutial processes have been identified, modelled and will be supported by various electronic services – exsitng ones, which will be enhanced and combined with new types of services. All these activities are based on a common background of semantic technologies, where the shared semantics is modelled by means of an ontology.

- ***Support Patients through e-Services Solutions***, project no. 3CE286P2 supported by Central Europe Programme funded by ERDF, duration: 2011 – 2014, members from our department: František Babič (project leader), Jozef Wagner, Gabriel Tutoky. Activity: this projects implements tele-health, ambient assisted living and entertainment platform in 4 cities: Ferrara, Vienna, Brno and Kosice, focusing on the following target groups: people with serious respiratory problems, people with dementia, handicapped people and social exclusion. The main aim of the Košice pilot is to provide means which can improve social inclusion of older people through suitable ICT solutions designed and developed within this project.
- The Technical University of Košice was accepted as ***associate member of the ALICE project at*** the European Organization for Nuclear Research (***CERN***) on October 12th, 2012. On this occasion, the fortnightly newsletter ALICE MATTERS published an article about our University. Members of the Center of Modern Control Techniques and Industrial Informatics (Department of Cybernetics and Artificial Intelligence, Faculty of Electrical Engineering and Informatics TUKE) participate in implementing tasks related to the project. They have begun work on the modernization of the Detector Control System, focusing on the optimization of the data exchange interface between online and offline databases.

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
- 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
- The City of Košice
- Tatrabanka, a.s.
- IT Valley Kosice

6.2 International Co-operation

- The Open University, Knowledge Media Institute, United Kingdom
- 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
- 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, IEEE
- 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

- SALEIE, Strategic Alignment of Electrical and Information Engineering in European Higher Education Institutions, Reference number: 527877-LLP-1-2012-1-UK-ERASMUS-ENW. Contact persons: Ján Liguš, Iveta Zolotová
- Socrates - Erasmus agreement between TU of Košice and Czech University of Life Sciences, Prague, Czech Republic. Contact person: Eva Ocelíková
- Socrates - Erasmus agreement between TU of Košice and Université Henri Poincaré, Nancy 1, France, Contact person: Ján Sarnovský
- 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 Univesite de Technologie Compiegne, France, Contact person: Ján Liguš
- Socrates - Erasmus agreement between TU of Košice and Institut Universitaire de Technologie 1 de Grenoble 1, France, Contact person: Jana Ligušová

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	210	111	6

8 OTHER ACTIVITIES

- SAMI 2012 (IEEE 10th Jubilee International Symposium on Applied Machine Intelligence and Informatics) has been organized in Herľany, Slovakia, January 26-28
- CogInfoCom 2012 (3rd IEEE International Conference on Cognitive Infocommunications) has been organized in Košice, Slovakia, December 2-

5

- International seminar New Challenges of Intelligent Systems has been organized at the Centre of Intelligente Technologies in Košice, October 23

9 PUBLICATIONS

[1] HLÁDEK, Daniel - VAŠČÁK, Ján - SINČÁK, Peter: **Towards Fuzzy Learning Classifier Systems** Theory and Application of the Reinforcement Learning, Fuzzy Logic and Learning Classifier Systems. Saarbrücken: Lap Lambert Academic Publishing - 2012. 117 p. ISBN 978-3-8473-1135-5

[2] KOŠČÁK, Juraj - JAKŠA, Rudolf - SINČÁK, Peter: **Stochastic Weight Update in Neural Networks** Theoretical study of stochastic neural networks learning. Saarbrücken: LAP Lambert Academic Publishing - 2012. 95 p. ISBN 978-3-659-23102-5

[3] MADARÁSZ, Ladislav - ŽIVČÁK, Jozef: **Aspects of Computational Intelligence: Theory and Applications** Revised and Selected Papers of the 15th IEEE International Conference on Intelligent Engineering Systems 2011, INES 2011 - 1. vyd. Berlin Heidelberg: Springer-Verlag - 2012. 436 p. ISBN 978-3-642-30667-9

[4] MADARÁSZ, Ladislav - ANDOGA, Rudolf - BUČKO, Marián - GAŠPAR, Vladimír: **Systems Analysis and Synthesis** (in Slovak)**.** 2nd extended edition. Košice: elfa, 2012. 303 p. ISBN 978-80-8086-193-3

[5] SABOL, Tomáš – BABIČ, František – MACEJ, Peter: **Project management** (in Slovak). 2nd extended edition. Košice, Elfa, 2012, 295 p., ISBN 978-80-553-0897-5

[6] SARNOVSKÝ, Ján - LIGUŠ, Ján: **Cybernetics and Management** (in Slovak). 1st edition. CD version. Košice: TU - 2012. 180 p. ISBN: 978-80-553-1132-6

[7] SARNOVSKÝ, Ján - POPOVIČ, Ľuboš: **Cybernetics** (in Slovak). 1st edition, Košice: Elfa, 2012. 152 s. ISBN 978-80-8086-201-5

[8] SMOLÁR, Peter - SINČÁK, Peter - VIRČÍKOVÁ, Mária: **Intelligent Image Categorization** Object Categorization with Artmap Neural Networks. Saarbrucken: LAP Lambert Academic Publishing - 2012. 181 p. ISBN 978-3-659-24795-8

[9] TREBUŇA, František - JADLOVSKÝ, Ján - FRANKOVSKÝ, Peter - PÁSTOR, Miroslav: **Automation in Photostress method** (in Slovak). 1st edition, Košice: TU - 2012. 285 p. ISBN 978-80-553-1207-1

[10] ZOLOTOVÁ, Iveta – DUĽA, Marek: **Office Information Systems** (in Slovak).1st edition, Košice: TU – 2012. 212 p. ISBN 978-80-553-0960-6

[11] ZOLOTOVÁ, Iveta – KARCH, Peter – Laciňák, Stanislav: **Control and Visualization Systems** (in Slovak). 1st edition, Košice: TU – 2012. 222 p. ISBN 978-80-553-0958-3

9.1. Book chapters

[12] JADLOVSKÁ, Anna - KATALINIC, Branko - HRUBINA, Kamil - MACUROVÁ, Anna - WESSELY, Emil: **Solution to the Problem Control of a Distributed Parameter Process**. In: DAAAM International Scientific Book 2012. Vienna: DAAAM International, 2012, p. 169-186. ISBN 978-3-901509-86-5, ISSN 1726-9687

[13] KROKAVEC, Dušan - FILASOVÁ, Anna - HLADKÝ, Vratislav: **Residual generator design for a class of nonlinear systems described by Takagi-Sugeno models**. In: Topics in Intelligent Engineering and Informatics: Aspects of Computational Intelligence: Theory and Applications. Berlin Heidelberg: Springer-Verlag, 2012, p. 3-23. ISBN 978-3-642-30667-9, ISSN 2193-9411

[14] RICHTER, Christoph - SIMONENKO, Ekaterina - SUKIBUCHI, Tsuyoshi - SPYRATOS, Nicolas - BABIČ, František - WAGNER, Jozef - PARALIČ, Ján - RAČEK, Michal - DAMSA, Crina - CHRISTOPHIDES, Vassilis: **Mirroring tools for collaborative analysis and reflection**. In: Collaborative Knowledge Creation: Practices, Tools, Concepts. Rotterdam: Sense Publishers, 2012 p. 117-140. ISBN 978-94-6209-002-6

[15] VAŠČÁK, Ján: **Automatic Design and Optimization of Fuzzy Inference Systems**.In: Intelligent Systems Reference Library: Volume 38: Handbook of Optimization: From Classical to Modern Approach. Berlin Heidelberg: Springer-Verlag, 2012 p. 287-309. ISBN 978-3-642-30503-0, ISSN 1868-4394

[16] WIMMER, Maria A. - FURDÍK, Karol - BICKING, Melanie - MACH, Marián - SABOL, Tomáš - BUTKA, Peter: **Open Collaboration in Policy Development: Concept and Architecture to Integrate Scenario Development and Formal Policy Modelling**. In: Empowering Open and Collaborative Governance: Technologies and Methods for Online Citizen Engagement in Public Policy Making. Berlin Heidelberg: Springer-Verlag, 2012 p. 199-219. ISBN 978-3-642-27218-9

9.1 Journals

[1] BABIČ, František - WAGNER, Jozef - PARALIČ, Ján: **The use of event logs for collaborative practices reflection**. In: International Journal of Intelligent Information and Database Systems. Vol. 6, no. 5 (2012), p. 421-435. ISSN 1751-5866

[2] BABIČ, František - WAGNER, Jozef - PARALIČ, Ján: **Investigation of performed user activities in overall context with IT analytical framework**. In: Lecture Notes in Business Information Processing: Business Information Systems. - Heidelberg: Springer-Verlag, 2012 Vol. 117 (2012), p. 284-295. ISSN 1865-1348

[3] ČOPÍK, Matej - JADLOVSKÝ, Ján: **Utilization of Petri Nets for the Analysis of Production Systems**. In: Procedia Engineering. No. 48 (2012), p. 56–64. ISSN 1877-7058

[4] FILASOVÁ, Anna - KROKAVEC, Dušan: **H∞ control of discrete-time linear systems constrained in state by equality constraints**. In: International Journal of Applied Mathematics and Computer Science. Vol. 22, no. 3 (2012), p. 551-560. ISSN 1641-876X

[5] FILASOVÁ, Anna - GONTKOVIČ, Daniel - KROKAVEC, Dušan: **LMI based control design for linear systems with distributed time delays**. In: Archives of Control Sciences. Vol. 22, no. 2 (2012), p. 217-231. ISSN 0004-072X

[6] FILASOVÁ, Anna - SERBÁK, Vladimír: **Design of fuzzy based virtual actuator for a class of nonlinear systems**. In: Advances in Electrical and Electronic Engineering. Vol. 10, no. 2 (2012), p. 75-80. ISSN 1804-3119

[7] GAŠPAR, Vladimír - MADARÁSZ, Ladislav - PARALIČ, Ján - TÉNAIOVÁ, Katarína - VIDO, Jozef - GRANČÁKOVÁ, Zuzana - RIŇAK, Martin: **Simple**

Mobile Warehouse System for Microsoft Dynamics Navision ERP System. In: Software Engineering. Vol. 2, no. 2 (2012), p. 21-28. ISSN 2162-8408

[8] JADLOVSKÁ, Anna - JAJČIŠIN, Štefan: **Predictive control algorithms verification on the laboratory helicopter model**. In: Acta Polytechnica Hungarica. Vol. 9, no. 4 (2012), p. 221-245. ISSN 1785-8860

[9] JADLOVSKÝ, Ján - PAPCUN, Peter: **Optimizing Industry Robot for Maximum Speed with High Accuracy**. In: Procedia Engineering. No. 48 (2012), p. 533-542. ISSN 1877-7058

[10] JADLOVSKÝ, Ján - ILKOVIČ, Ján: **Material flow modelling in mechatronic manufacturing system**. In: Procedia Engineering. Vol. 48 (2012), p. 254-263. ISSN 1877-7058

[11] KLIMEŠOVÁ, Dana - OCELÍKOVÁ, Eva: **Spatial-temporal modeling and visualisation**. In: International Journal of Mathematical Models and Methods in Applied Sciences. Vol. 6, no. 1 (2012), p. 149-156. ISSN 1998-0140

[12] KONCZ, Peter - HIĽOVSKÁ, Katarína: **Application of Artificial Intelligence and Data Mining Techniques to Financial Markets**. In: ACTA VŠFS. Vol. 6, no. 1 (2012), p. 62-76. ISSN 1802-792X

[13] KOŠČÁK, Juraj - JAKŠA, Rudolf - SINČÁK, Peter: **Prediction of Temperature Daily Profile by Stochastic Update of Backpropagation through Time Algorithm**. In: Journal of Mathematics and System Science. Vol. 2, no. 4 (2012), p. 217-225. ISSN 2159-5291

[14] KOŠČÁK, Juraj - JAKŠA, Rudolf - SINČÁK, Peter: **Influence of Numbers of Neurons inTime Delay Recurrent Networks with Stochastic Weight Update on Backpropagation through Time**. In: Advances in intelligent systems and computing. Vol. 192 (2012), p. 133-142. ISSN 2194-5357

[15] KROKAVEC, Dušan - FILASOVÁ, Anna: **Optimal fuzzy control for a class of nonlinear systems**. In: Mathematical Problems in Engineering. No. 1 (2012), p. 1-29. ISSN 1024-123X

[16] KROKAVEC, Dušan - FILASOVÁ, Anna: **A reduced-order TS fuzzy observer scheme with application to actuator faults reconstruction**. In: Mathematical Problems in Engineering. (2012), p. 1-25. ISSN 1024-123X

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[18] MACHOVÁ, Kristína - RAKUŠČINEC, Tomáš: **Dynamic Analysis of Social Networks**. In: Americal Journal of Intelligent Systems. Vol. 2, no. 6 (2012), p. 148-156. ISSN 2165-8978

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[20] SARNOVSKÝ, Ján: **Claude E. Shannon** (in Slovak). In: ATP Journal. No. 1 (2012), p. 11-11. ISSN 1335-2237

[21] SARNOVSKÝ, Ján: **Digital Maoism** (in Slovak). In: ATP Journal. No. 3 (2012), p. 11-11. ISSN 1335-2237

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[23] SARNOVSKÝ, Ján: **W. R. Ashby** (in Slovak). In: ATP Journal. No. 10 (2012), p. 9-9. ISSN 1335-2237

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9.2 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	37	87	4

DEPARTMENT OF MATHEMATICS AND THEORETICAL INFORMATICS

http://www.tuke.sk/fei-km/index.htm
Tel.: ++421 55 602 3250, Fax: ++421 55 633 0115

Head of Department
prof. RNDr. Ján Plavka, CSc.
E-mail: Jan.Plavka@tuke.sk

KATEDRA MATEMATIKY A TEORETICKEJ INFORMATIKY

1 DEPARTMENT'S PROFILE

Department of Mathematics and Theoretical Informatics, before 1981 Department of Mathematical Informatics, was founded in 1969. The activities of the 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 and Theoretical Informatics 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. Blanka Baculíková, PhD.
doc. RNDr. Viktor Pirč, CSc.

Assistant Professors: 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.
RNDr. Daniela Kravecová, PhD.
RNDr. Monika Molnárová, PhD.
RNDr. Helena Myšková, PhD.
PhDr. Eva Ostertagová, PhD.
Mgr. Ján Pribiš, PhD.
RNDr. Štefan Schrötter, CSc.
RNDr. Michal Staš, PhD.

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	Klešč, Kravecová, Daňo, Baculíková
Mathematics I	1st	4/3	Molnárová,
Mathematics I (English)	1st	3/3	Berežný
Continuous Optimization Methods	2nd	3/3	Džurina
Numerical Methods	2nd	2/0	Berežný
Applications of Differential Equations	2nd	2/2	Baculíková
Mathematical Logic	2nd	3/2	Draženská, Myšková
Discrete Mathematics	2nd	3/3	Schrötter

Mathematics II (English)	3rd	3/3	Plavka
Mathematics II.	3rd	3/3	Buša, Staš
Mathematics II	3rd	2/2	Grinčová
Mathematics I	3rd	3/3	Buša Jr.
Numerical Methods, Probability and Statictic	3rd	3/2	Buša Jr., Klešč, Pribiš, Draženská, Myšková, Grinčová
Mathematics III (English)	3rd	3/2	Berežný
Theory of Coding	3rd	2/2	Plavka
Discrete Mathematics and Logic	3rd	2/0	Schrötter
Operation Analysis	4th	2/2	Kravecová
Numerical Methods, Probability and Statictic	4th	3/	Daňo,Schrötter, Pribiš, Klešč
Typographical System TEX	4th	0/2	Buša Jr.
Algorithms and Complexity	4th	2/2	Plavka
Computer-aided Mathematical Simulation	5th	3/2	Džurina
Linux I.	5th	2/2	Buša Jr.
Numerical Methods, Probability and Statictic	6th	3/2	Klešč
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
Optimization Methods	7th	2/2	Buša
Theory of Coding	7th	2/2	Plavka
Physical Processes Modelling	7th	2/2	Buša
Mathematical Methods for Neural Networks and Time Series	7th	2/2	Pirč, Plavka, Daňo
Selected Topics on Mathematics	7th	2/2	Pirč
Applied Mathematics	8th	2/2	Džurina
Applied Statistic	8th	2/2	Ostertagová
Linux II	8th	2/2	Buša Jr.
Discrete Dinamic Systems	8th	2/2	Molnárová
Linear and Quadratic Programing	8th	2/2	Berežný
Queueing Theory	9th	2/2	Berežný
Finite Element Method	10th	2/2	Buša Jr.

5 RESEARCH PROJECTS

- ***Crossings in non-planar graphs***, VEGA Slovak Grant Agency No. 1/0309/11, duration 2011-2013, co-ordinator: Marián Klešč.

- ***Prenos výsledkov vedeckého výskumu do výučby – tvorba učebného textu pre predmet Matematické modelovanie.*** KEGA Slovak Grant Agency No.020TUKU-4/2012, duration 2012-2013, co-ordinator: Jozef

Džurina.

- ***Funkcionálne priestory, bornológie, hyperpriestory a topologické štruktúty*.** APVV-0269-11, duration 2012-2015, co-ordinator: Michal Staš.

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
- Prof. Marie Demlová, Czech Technical University in Prague, Czech Republic
- Prof. Peter Butkovič, University of Birmingham, United Kingdom
- Prof. Peter Vojtáš, Charles University, Czech Republic
- Prof. Vasile Berinde, North University of Baia Mare, Baia Mare, Romania
- Prof. Stepan Tersian, University Russe, Bulgaria
- Dr. Shura Hayryan, Institute of Physics, Academia Sinica, Taipei, Taiwan
- Prof. Chin-Kun Hu, Institute of Physics, Academia Sinica, Taipei, Taiwan
- Dr. Ming-Chya, Institute of Physics, Academia Sinica, Taipei, Taiwan
- Prof. Demel Jiří, Czech Technical University in Prague, Czech Republic
- Dr. Gyöngyősi Erika, University of Miskolc, Hungaria
- Prof. Kőrtesi Péter, University of Miskolc, Hungaria
- Dr. Lučić Danka, University of Novi Sad, Serbia
- Prof. Rontó Andráš, Mendel University in Brno, Czech Republic
- Prof. Rontó Miklós, University of Miskolc, Hungaria
- Prof. Karel Zimmermann, Charles University, Czech Republic

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
- Texas Univeresity, Kingsville, USA
- Veszprem University, Hungary
- North University of Baia Mare, Romania
- JINR Dubna, Russia
- University of Miskolc, Hungaria
- Institute of Physics, Academia Sinica, Taiwan
- Ghent University, Belgium

6.2.1. Visits of Staff Members to Foreign Institutions

- Berežný, Š.: ČVUT, Prague, Czech Republic

- Buša Jr., J.: Institute of Physics, Academia Sinica, Taipei, Taiwan
- Buša, J.: JINR Dubna, Russia
- Kravecová D.: University of Miskolc, Hungaria

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: Committee for the Cooperation of the Slovak Republic with JINR, Dubna
- Daňo, I.: Slovak Mathematical Society
- Draženská, E.: 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 III program CIII-HU-0028-05-1112 - Active Methods in Teaching and Learning Mathematics and Informatics

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	18	9	0

8 OTHER ACTIVITIES

8.1 Workshops:

- Buša, J. – Schrötter, Š.: 13-th Conference of Košice Mathematicians, April 2012, Herľany, co-organisers
- Buša, J. – Buša Jr., J. – Schrötter, Š.: Conference on Precision Physics on Fundamental Physical Constants, September 10-14, 201, Stará Lesná, High Tatra Mountains, Slovakia, co-organisers
- Buša, J. – Berežný, Š.: Nature in Mathematics: CEEPUS Summer School 2012, July 7 – 21, Košice – High Tatra Mountains, Slovakia, organizers

8.2 Study tours:

- Pribiš, J.: JINR Dubna, Russia

9 PUBLICATIONS

9.1 Books

[1] BEREŽNÝ Štefan: Numerická matematika. 1. vyd., FEI TU Košice, 2012, 119 s. ISBN 978-80-553-1067-1.
[2] BEREŽNÝ Štefan: Numerická matematika. 1. vyd., FEI TU Košice, 2012, 90 s. ISBN 978-80-553-1066-4.
[3] BEREŽNÝ Štefan – KRAVECOVÁ Daniela: Lineárne programovanie. 1. vyd., FEI TU Košice, 2012, 108 s. ISBN 978-80-553-0910-1.
[4] DAŇO, Ivan – OSTERTAGOVÁ, Eva: Vybrané kapitoly z numerických metód, pravdepodobnosti a matematickej štatistiky. 1. vyd., FEI TU Košice, Equilibria, 2012, 200 s. ISBN 978-80-8143-012-1.
[5] DRAŽENSKÁ Emília: Aplikovaná matematika. Zbierka riešených a neriešených príkladov. 1. vyd., FEI TU Košice, 2012, 60 s. ISBN 978-80-553-1196-8.
[6] DRAŽENSKÁ Emília – MYŠKOVÁ Helena: Matematická logika. 2. rozšírené vyd., FEI TU Košice, Equilibria, 2012, 130 s. ISBN 978-80-8143-014-5.
[7] GRINČOVÁ Anna: Matematika 2 a jej využitie v ekonómii. TU Košice, 2012, 124 s. ISBN 978-80-553-0851-7.
[8] GRINČOVÁ Anna **–** MOLNÁROVÁ Monika: Matematika 1 a jej využitie v ekonómii - zbierka riešených a neriešených úloh. 1. vyd., TU Košice, 2012, 171 s. ISBN 978-80-553-1158-6.
[9] KRAVECOVÁ Daniela: Základy kódovania. 1. vyd., FEI TU Košice, 2012, 77 s. ISBN 978-80-553-1178-4.
[10] MOLNÁROVÁ Monika: Matematika 1 a jej využitie v ekonómii. 1. vyd., TU Košice, 2012, 173 s. ISBN 978-80-553-1168-5.
[11] OSTERTAGOVÁ Eva: Aplikovaná štatistika v počítačovom prostredí MATLABu. 1. vyd., Košice, Equilibria, 2012, 193 s. ISBN 978-80-8143-006-0.
[12] PIRČ Viktor – PLAVKA Ján: Matematika so softvérom MAPLE. 1. vyd., Košice, KMTI FEI TU, 2012, 133 s. ISBN 978-80-553-0796-1.

9.2 Journals

[1] AYRIYAN Alexander – AYRYAN Edik – DONETS Eugeny – PRIBIŠ Ján: Numerical Simulation of Heat Conductivity in Composite Object with Cylindrical Symmetry. Lecture Notes in Computer Science: Mathematical Modeling and Computational Science. Vol. 7125 (2012), p. 264-269. ISSN 0302-9743.
[2] BACULÍKOVÁ Blanka - DŽURINA Jozef – ROGOVLENKO Yuri V.: Oscillation of third order trinomial delay differential equations. Applied Mathematics and Computation. Vol. 218, no. 13 (2012), p. 7023-7033. ISSN 0096-3003.
[3] BACULÍKOVÁ Blanka - DŽURINA Jozef: Properties of third-order nonlinear differential equations. Advances in Difference Equations. (2012), p. 1-15. ISSN 1687-1847.

[4] BACULÍKOVÁ Blanka – DŽURINA Jozef: Property (A) and oscillation of third-order differential equations with mixed arguments. Funkcialaj Ekvacioj. Vol. 55, no. 2 (2012), p. 239-253. ISSN 0532-8721.
[5] BACULÍKOVÁ Blanka – DŽURINA Jozef – GRAEF J. R.: On the oscillation of higher order delay differential equations. Nonlinear Oscillations. Vol. 15, no. 1 (2012), p. 13-24. ISSN 1562-3076.
[6] BACULÍKOVÁ Blanka – DŽURINA Jozef: On properties of third-order differential equations via comparison priciples. International Journal of Mathematics and Mathematical Sciences. Vol. 2012, no. 1 (2012), p. 1-10. ISSN 1687-0425.
[7] BEREŽNÝ Štefan: The processing of data for statistical tests of their basic parameters. Creative mathematics and informatics. Vol. 21, no. 1 (2012), p. 27-33. ISSN 1584-286X.
[8] BEREŽNÝ Štefan: Processing Data for Time Series Analysis and Inputs of Algorithms for Airport Simulations. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 5-10. ISSN 1335-8243.
[9] BUŠA Ján: A Graph Annihilation Problem. Lecture Notes in Computer Science: Mathematical Modeling and Computational Science. Vol. 7125 (2012), p. 296-301. ISSN 0302-9743.
[10] BUŠA Ján: Solving Quadratic Programming Problem with Linear Constraints Containing Absolute Values. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 11-18. ISSN 1335-8243.
[11] BUŠA Ján Jr. – HAYRYAN Shura – WU Ming-Chya – BUŠA Ján – HU Chin-Kun: ARVO-CL: The OpenCL version of the ARVO package — An efficient tool for computing the accessible surface area and the excluded volume of proteins via analytical equations. Computer Physics Communications. Vol. 183, no. 11 (2012), p. 2494-2497. ISSN 0010-4655.
[12] DAŇO Ivan: Two Notes on Continuous-Time Neurodynamical Systems. Lecture Notes in Computer Science. Vol. 7125 (2012), p. 148-153. ISSN 0302-9743.
[13] DRAŽENSKÁ Emília: The crossing numbers of products with cycles. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 19-22. ISSN 1335-8243.
[14] DŽURINA Jozef – BACULÍKOVÁ Blanka: Oscillation and Asymptotic Behavior of Higher-Order Nonlinear Differential equations. International Journal of Mathematics and Mathematical Sciences. Vol. 2012, no. 1 (2012), p. 1-9. ISSN 0161-1712.
[15] DŽURINA Jozef – BACULÍKOVÁ Blanka: Oscillation theorems for third order neutral differential equations. Carpathian Journal of Mathematics. Vol. 28, no. 2 (2012), p. 199-206. - ISSN 1584-2851.
[16] DŽURINA Jozef – BACULÍKOVÁ Blanka: Oscillation of third-order quasi linear advanced differential equations. Difference Equations and Applications. Vol. 4, no. 3 (2012), p.), 411-421. ISSN 1847-120X.
[17] DŽURINA Jozef – THANDAPANY Enthiraju. – TAMILVANAN Sivaraj: Oscillation of third order half linear neutral differential equations. Electronic Journal of Differential Equations. No. 29 (2012), p. 1-9. ISSN 1072-6691.
[18] FRANKOVSKÝ Peter – OSTERTAG Oskar – OSTERTAGOVÁ Eva: Automation of experiments in photoelasticity. Procedia Engineering. No. 48 (2012), p. 153-157. ISSN 1877-7058.
[19] HAVLICE Zdeněk – BUŠA Ján – PARALIČ Ján – PARALIČ MAREK – PLAVKA Ján – PORUBÄN Jaroslav – VÁCLAVÍK Peter: Analýza vstupov systému IT4KT pre efektívny prenos znalostí z univerzitného výskumu do

praxe využitím IT. Transfer. Vol. 4, no. 1 (2012), p. 11-13. ISSN 1337-9747.

[20] KLEŠČ Marián – KRAVECOVÁ Daniela: The crossing number of Pn2 □ C3. Discrete Mathematics Vol. 312, no. 1 (2012), p. 1-6 . ISSN 0012-365X.

[21] KLEŠČ Marián – PETRILLOVÁ Jana: On Cartesian products with small crossing numbers. Carpathian Journal of Mathematics. Vol. 28, no. 1 (2012), p. 67-75. ISSN 1843-440.

[22] KLEŠČ Marián – SCHRÖTTER Štefan: The crossing numbers of join of paths and cycles with two graphs of order five. Lecture Notes in Computer Science: Mathematical Modeling and Computational Science. Vol. 7125 (2012), p. 160-167. ISSN 0302-9743.

[23] KLEŠČ Marián – SCHRÖTTER Štefan: On the Packing Chromatic Number of Semiregular Polyhedra. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 27-31. ISSN 1335-8243.

[24] KLEŠČ Marián - VALO Matúš: Minimum Crossings in Join of Graphs with Paths and Cycles. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 32-37. ISSN 1335-8243.

[25] KOČIŠOVÁ Jana – HORVÁTH Denis – KASANICKÝ Tomáš – BUŠA Ján: Prediction of Financial Markets Using Agent-Based Modeling with Optimization Driven by Statistical Evaluation of Historical Data. Lecture Notes in Computer Science: Mathematical Modeling and Computational Science. Vol. 7125 (2012), p. 308-313. ISSN 0302-9743.

[26] KOSTENKO B. F. – PRIBIŠ Ján: On possibility to observe chiral phase transition in separate fragments of dense baryon matter. Physics of Atomic Nuclei. Vol. 75, no. 7 (2012), p. 888-889. ISSN 1063-7788.

[27] KOŠČÁK Peter – BEREŽNÝ Štefan – FERENC Ján: Optimization operations of winter maintenance of airport. International Journal of Traffic and Transportation Engineering. Vol. 1, no. 3 (2012), p. 40-45. ISSN 2325-0062.

[28] KRAVECOVÁ Daniela: The crossing number of P^2_5xPn. Creative Mathematics and Informatics. Vol. 21, no. 1 (2012), p. 65-72. ISSN 1843-441X.

[29] KRAVECOVÁ Daniela – PETRILLOVÁ Jana: The crossing number of P^2_n x C4. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 42-46. ISSN 1335-8243.

[30] MYŠKOVÁ Helena: Interval max-plus systems of linear equations. Linear Algebra and its Applications. Vol. 437, no. 8 (2012), p. 1992-2000. ISSN 0024-3795.

[31] MYŠKOVÁ Helena: An iterative algorithm for testing solvability of max-min interval systems. Kybernetika. Vol. 48, no. 5 (2012), p. 879-889. ISSN 0023-5954.

[32] MYŠKOVÁ Helena: On an algorithm for testing T4 solvability of max-plus interval systems. Kybernetika. Vol. 48, no. 5 (2012), p. 924-938. ISSN 0023-5954.

[33] MYŠKOVÁ Helena: Max-min interval systems of linear equations with bounded solution. Kybernetika. Vol. 48, no. 2 (2012), p. 299-308. ISSN 0023-5954.

[34] MYŠKOVÁ Helena: Weak stability of interval orbits of circulant matrices in fuzzy algebra. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 51-56. ISSN 1335-8243.

[35] MYŠKOVÁ Helena: Interval eigenvectors of circulant matrices in fuzzy algebra. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), p. 57-61.

ISSN 1335-8243.
[36] OSTERTAGOVÁ Eva: Modelling using polynomial regression. Procedia Engineering. Vol. 48 (2012), p. 500-506. ISSN 1877-7058.
[37] OSTERTAGOVÁ Eva: Použitie polynomickej regresie pri modelovaní ekonomických časových radov. Transfer inovácií, no. 24 (2012). P. 226-228. ISSN 1337-7094.
[38] OSTERTAGOVÁ Eva: Aplikácia štatistických testov dobrej zhody. Transfer inovácií. 23 (2012), p. 72-74. ISSN 1337-7094.
[39] OSTERTAGOVÁ Eva – KOVÁČ Jozef – OSTERTAG Oskar – HUŇADY Róbert: Application of morphological analysis in the design of production systems. Procedia Engineering. Vol. 48 (2012), p. 507-512. ISSN 1877-7058.
[40] OSTERTAGOVÁ Eva - OSTERTAG Oskar: Forecasting Using Simple Exponential Smoothing Method. Acta Electrotechnica et Informatica. Vol. 12, no. 3 (2012), s. 62-66. ISSN 1335-8243.
[41] OSTERTAGOVÁ Eva - OSTERTAG Oskar – HUŇADY Róbert: Morphological matrix applied within the design project of the manipulator frame. Procedia Engineering. Vol. 48 (2012), p. 495-499. ISSN 1877-7058.
[42] PLAVKA Ján: On the O(n3) algorithm for checking the strong robustness of interval fuzzy matrices. Discrete Applied Mathematics. Vo1. 160 (2012), p. 640-647. ISSN 0166-218X.
[43] SIVÁK Peter – OSTERTAGOVÁ Eva: Evaluation of fatigue tests by means of mathematical statistics. Procedia Engineering. Vol. 48 (2012), p. 636-642. ISSN 1877-7058.
[44] ŠOLTÉS Vincent - BACULÍKOVÁ Blanka - DŽURINA Jozef: Oscillation in price – adjustment models. International Journal of Business and Social Science. Vol. 3, no. 15 (2012), p. 264-268. ISSN 2219-1933.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	5	10	5

DEPARTMENT OF COMPUTERS AND INFORMATICS

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Head of Department
prof. Ing. Ján Kollár, CSc.
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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 approx. 690 students in bachelor and 290 students in master programs. Number of doctoral students studying towards PhD degree is more than 60.

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 Novitzká, PhD.
prof. Ing. Liberios Vokorokos, PhD.

Associate Professors:
doc. Ing. Ján Bača, CSc.
doc. Ing. Ján Genči, PhD.
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.
doc. Ing. Martin Tomášek, PhD.

Assistant Professors:

Ing. Norbert Ádám, PhD.
Ing. Anton Baláž, PhD.
Ing. Miroslav Biňas, PhD.
Ing. Peter Feciľák, PhD.
Ing. Juraj Giertl, PhD.
Ing. František Hrozek, PhD.
Ing. Sergej Chodarev, PhD.
Ing. Eva Chovancová, PhD.
Ing. Katarína Kleinová, PhD.
Ing. Štefan Korečko, PhD.
Ing. Branislav Madoš, PhD.
Ing. Daniel Mihályi, PhD.
Ing. Miroslav Michalko, PhD.
Ing. Marek Paralič, PhD.
Ing. Ondrej Pločica, PhD.
Ing. Martin Révés, PhD.
Ing. William Steingartner, PhD.
Ing. Csaba Szabó, PhD.
Ing. Slavomír Šimoňák, PhD.
Ing. Stanislav Šuba
Ing. Henrieta Telepovská, PhD.
Ing. Peter Václavík, PhD.

Senior Scientists:

Ing. Miroslav Michalko, PhD.

Technical Staff:

Ivana Macková
Tamara Lumtzerová
Jozef Šefčík
Helena Švarcová

Ph.D. Students:
Internal form:

Ing. Michal Augustín
Ing. Michaela Bačíková
Ing. Marek Blanár
Ing. Dávid Cymbalák
Ing. Marek Čajkovský
Ing. Marek Čopjak
Ing. Eva Danková
Ing. Emília Demeterová
Ing. Marek Domiter
Ing. Zuzana Dudláková
Ing. Michal Ennert
Ing. Peter Fanfara
Ing. Ivan Halupka
Ing. František Hrozek
Ing. Sergej Chodarev
Ing. Peter Ivančák
Ing. Peter Jakubčo
Ing. Jozef Janitor
Ing. Martin Kapa
Ing. Ivan Klimek
Ing. Dominik Lakatoš
Ing. Martina Ľaľová
Ing. Jaroslav Lámer
Ing. Pavol Macko
Ing. Marián Mižík
Ing. Milan Nosáľ
Ing. Marek Novák
Ing. Adrián Pekár
Ing. Emília Pietriková
Ing. Tomáš Poklemba
Ing. Miroslav Sabo
Ing. Veronika Szabóová
Ing. Ivan Šestina
Ing. Iveta Tonhauserová
Ing. Matúš Valo
Ing. Martin Varga
Ing. Milan Vrábeľ
Ing. Ľubomír Wassermann
Ing. Wasim Zahra
Ing. Jana Petrillová
Ing. Peter Žársky

External form:

Ing. Gabriel Bocek
Ing. Jozef Doboš
Ing. Martin Droppa
Ing. Ľuboš Dúbravec
Ing.Marek Dufala
Ing. Rudolf Holodňák
Ing. Radovan Janošo
Ing. Marián Jenčík
Ing. Marián Keltika
Ing. Michal Kohut
Ingl Ľubor Kulich
Ing. Miloš Očkay
Ing. Ivan Peťko
Ing. Igor Petz
Ing. Ján Polák
Ing. Peter Prazňák
Ing. Ján Radušovský
Ing. Štefan Sinčák
Ing. Maroš Ščišlák
Ing. Kristián Šesták
Ing. Peter Špireng
Ing. Michal Vagač

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

3 LABORATORIES

- *Laboratory of Inteligent Interfaces for Information and Communication Systems (LIRKIS)*
- *Computer Networks Laboratory (www.cnl.sk)*
- *Computer Architectures and Security Laboratory*
- *Operating 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, Madoš
Programming	2nd	2/2	Paralič, Tomášek, Szabó
Object-Oriented Programming	3rd	2/2	Tomášek
Formal Languages and Compilers	3rd	3/2	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	Genči
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
Functional Programming	6th	2/2	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, Chovancová
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	Feciľak
SAP Administration	2nd	2/2	Baláž
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:

- ***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
- ***Co-evolution of the Artifacts Written in Domain-specific Languages Driven by Language Evolution*** VEGA No. 1/0305/11, duration: 2011-2013, coordinator: doc. Ing. Jaroslav Porubän, PhD.
- ***Language Patterns in Domain-specific Languages Evolution***, APVV MVTS No. SK-SI-0003-10, duration: 2011-2012, coordinator: prof. Ing. Ján Kollár, CSc.
- ***Adaptive Personalization of Learning Environments***, APVV MVTS-SRB, duration: 2012-2013, coordinator: doc. Ing. Ladislav Samuelis, CSc.
- ***The Platform for Integration of Learning Materials and Tools Used in the Learning Process***, KEGA No. 021TUKE-4/2011, duration: 2011-2013, coordinator: prof. Ing. Ján Kollár, CSc.
- **The Application of Virtual Reality Technology as Innovative Tools in the Process of Teaching Formal Methods**, KEGA No. 050TUKE-4/2012, duration: 2012-2014, coordinator: Ing. Štefan Korečko, PhD.
- **Computer Security E-learning Course**, KEGA No. 026UKF-4/2012, duration: 2012-2014, coordinator: doc. Ing. Ján Genči, PhD.
- ***Modern Software Engineering in the Learning Process – Structure Design and Content Implementation of Current Software Engineering Courses for Computer Science Programs at Technical Universities***, KEGA No. 040TUKE-4/2011, duration: 2011-2013, coordinator: doc. Ing. Ladislav Samuelis, CSc.
- ***International Cooperation in Computer Science, CEEPUS No. CII-HU-0019-01-0506 (H81)***, duration: since 2005, coordinator: doc. 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.
- ***Cisco Networking Academy Program – Academy Support Center/Instructor training center/Cisco Academy DCI FEI TU, Cisco No. 8250,*** duration: since 1999, coordinator: doc. Ing. František Jakab, PhD. and Ing. Peter Feciľak, PhD.
- ***Tovawards Trust in Quality Assurance" – TRAST***. 2011-2013, No: 11-2544/001-001, 516935-TEMPUS-1-2011-1FI-TEMPUS-SMGR. National coordinator: doc. Ing. František Jakab, PhD. (Project coordinator: University of Jyvaskyla, Finland)
- ***Virtlab - „Virtual Reality Laboratory for Factory of the Future" - Hungary Slovakia Cross-Border Co-operation Programme 2007-2013, European Regional Development Fund, HUSK/1101/1.2.1/0039,*** *duration: 2012-2014, coordinator: doc. Ing. Branislav Sobota, 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

- Assoc. Prof. Ines Čeh – University of Maribor, Slovenia
- Assoc. Prof. Mirjana Ivanovic, Univeristy of Novi Sad, Serbia
- Assoc. Prof. Aleksandra Klasnja-Milicević, University of Novi Sad, Serbia
- doc. Ing. Valentino Vranić, Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava, Slovakia
- doc. Mgr. Daniela Chudá, PhD., Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava, Slovakia
- doc. Ing. Viera Rozinajová, PhD., Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava, Slovakia
- doc. Ing. Pavel Čičák, PhD., Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava, Slovakia
- prof. Ing. Mária Bieliková, CSc., Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava, Slovakia
- prof. Ing. Pavol Návrat, PhD., Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava, Slovakia
- doc. Ing. Ladislav Hluchý, CSc., Slovak Academy of Sciences, Institute of Informatics, Bratislava, Slovakia
- doc. Ing. Stanislav Racek, CSc., University of West Bohemia in Pilsen, Czech Republic
- prof. Ing. Jiři Šafařík, CSc., University of West Bohemia in Pilsen, Czech Republic
- doc. Ing. Jaroslav Zendulka, CSc., Brno University of Technology, Czech Republic
- prof. Ing. Miroslav Liška, CSc., Military Academy of gen. M. R. Štefanik in Lliptovský Mikuláš, Slovakia
- prfo. Ing. Marcel Harakaľ, CSc., Military Academy of gen. M. R. Štefanik in Lliptovský 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 Lliptovský Mikuláš, Slovakia
- doc. Ing. František Zbořil, CSc., Brno University of Technology, Czech Republic
- doc. Ing. Jiři Kunovský, CSc., Brno University of Technology, Czech

Republic
- prof. RNDr. Viliam Geffert, DrSc., Pavol Jozef Šafarik University in Košice, Slovakia
- doc. RNDr. Gabriela Andrejková, CSc., Pavol Jozef Šafarik University in Košice, Slovakia
- doc. RNDr. Per Šaloun, PhD., VŠB-Technical University of Ostrava, Czech Republic
- doc. Ing. Hana Kubátová, CSc., Czech Technical University in Prague, Czech Republic
- prof. Ing. Róbert Lórencz, CSc., Czech Technical University in Prague, Czech Republic
- Ing. Jarmila Škrinárová, PhD., Matej Bel University in Banská Bystrica, Slavakia
- Mgr. PaedDr. Vladimír Siládi, PhD., Matej Bel University in Banská Bystrica, Slavakia
- Akademik prof. Ing. Ivan Plander, DrSc., University of Trencin, Slovakia
- Ing. Penka Martincová, PhD., Faculty of Management Science and Informatics, University of Žilina, Slovakia
- RNDr. Štefan Kovalík, PhD., Faculty of Management Science and Informatics, University of Žilina, Slovakia

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
- University of Alcalá, Alcalá de Henares (Madrid), Spain
- 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
- 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
- Bay Zoltán Nonprofit Ltd. for Applied Research, Institute for Logistics and Production Engineering (BAY-LOGI), Miskolc, Hungary
- University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia

6.2.1. Visits of Staff Members to Foreign Institutions

- doc. Ing. František Jakab, PhD., Bauman Moscow Technical University, Moscow, Russia
- doc. Ing. František Jakab, PhD., Humboldt University of Berlin, Germany
- doc. Ing. František Jakab, PhD., International conference "Innovation and Education", Moscow, Russia
- doc. Ing. František Jakab, PhD., Networking Academy Conference, Split, Croatia
- Ing. Peter Feciľák, PhD., Networking Academy Conference, Split, Croatia
- Ing. Katarína Kleinová, PhD., Networking Academy Conference, Split, Croatia
- Ing. Jozef Janitor, PhD., Networking Academy Conference, Split, Croatia
- doc. Ing. Ladislav Samuelis, CSc., University of Novi Sad, APVV Project meeting , Novi Sad, Serbia
- doc. Ing. Ladislav Samuelis, CSc., International Conference "ICWL 2012", Sinaia, Romania
- doc. Ing. Ladislav Samuelis, CSc., International Conference "BCI 2012", Novi Sad, Serbia
- doc. Ing. Ladislav Samuelis, CSc., International Conference "ICL 2012", Villach, Austria
- doc. Ing. Ján Bača, CSc., International Conference ICTERI 2012, Cherson, Ukraine
- prof. Ing. Štefan Hudák, DrSc., International Conference ICTERI 2012, Cherson, Ukraine
- Ing. Csaba Szabó, PhD., MASC 2012 Conference, Siofok, Hungary
- Ing. Csaba Szabó, PhD., International Conference "SISY 2012", Subotica, Serbia
- Ing. Veronika Szabóová, International Conference "SISY 2012", Subotica, Serbia
- Ing. Marek Paralič, PhD., IP DOSSEE 2012, Erasmus Intensive Programm, Kapfenberg, Austria
- Ing. Miroslav Biňas, PhD., IP DOSSEE 2012, Erasmus Intensive Programm, Kapfenberg, Austria
- doc. Ing. František Jakab, PhD., eSkills week, Copenhagen, Denmark
- doc. Ing. František Jakab, PhD., EMINENT 2012, Genoa, Italy
- prof. Ing. Štefan Hudák, DrSc., Brno University of Technology, Brno, Czech Republic
- Ing. Milan Nosáľ, International Conference "Poster 2012", Prague, Czech Republic
- Ing. Ivan Halupka, International Conference "Poster 2012", Prague, Czech Republic
- Ing. Michaela Bačíková, International Conference "Poster 2012", Prague, Czech Republic

- Ing. Emília Pietriková, International Conference “Poster 2012”, Prague, Czech Republic
- Ing. Dominik Lakatoš, International Conference “Poster 2012”, Prague, Czech Republic
- Ing. Martin Varga, International Conference “Poster 2012”, Prague, Czech Republic
- doc. Ing. Jaroslav Porubän, PhD., APVV Project, University of Maribor, Maribor, Slovenia
- Ing. Milan Nosáľ, APVV Project, University of Maribor, Maribor, Slovenia
- Ing. Ivan Halupka, APVV Project, University of Maribor, Maribor, Slovenia
- Ing. Emília Pietriková, APVV Project, University of Maribor, Maribor, Slovenia
- Ing. Štefan Korečko, PhD., International Conference “Petri Nets 2012”, Hamburg, Germany
- Ing. William Steingartner, PhD., International Conference “Petri Nets 2012”, Hamburg, Germany
- doc. Ing. Jaroslav Porubän, PhD., 13th International Conference on Computers Helping People with Special Needs , Linz, Austria
- Bc. Michal Pristáš, 13th International Conference on Computers Helping People with Special Needs , Linz, Austria
- Ing. Michaela Bačíková, 13th International Conference on Computers Helping People with Special Needs , Linz, Austria
- Ing. Dominik Lakatoš, 13th International Conference on Computers Helping People with Special Needs , Linz, Austria
- Ing. Csaba Szabó, PhD., International Conference “ITRO 2012”, Zrenjanin, Serbia
- Ing. William Steingartner, PhD., CEEPUS – teaching staff mobility, Plovdiv, Bulgaria
- Ing. František Hrozek, PhD., International Conference “CSSIM 2012”, Brno, Czech Republic
- doc. Ing. Ján Genči, PhD., TEMPUS TRUST, Ukrainian Catholic University, Lviv, Ukraine
- doc. Ing. František Jakab, PhD., TEMPUS TRUST, Ukrainian Catholic University, Lviv, Ukraine
- Ing. Katarína Kleinová, PhD., ASC Conference, Budapest, Hungary
- Ing. Peter Feciľák, PhD., ASC Conference, Budapest, Hungary
- doc. Ing. František Jakab, PhD., ASC Conference, Budapest, Hungary
- doc. Ing. Ján Genči, PhD., TEMPUS INARM, Koblenz, Germany
- doc. Ing. Jaroslav Porubän, PhD., ACM-SPY, Prague, Czech Republic
- doc. Ing. Ján Genči, PhD., DATAKON 2012, Mikulov, Czech Republic
- Ing. Michaela Bačíková, SLE 2012, Dresden, Germany
- doc. Ing. Branislav Sobota, PhD., BAY-LOGI, Miskolc, Hungary
- Ing. Zuzana Dudláková, BAY-LOGI, Miskolc, Hungary
- Ing. Peter Ivančák, BAY-LOGI, Miskolc, Hungary
- Ing. Štefan Korečko, PhD., BAY-LOGI, Miskolc, Hungary
- Ing. Peter Fecilák, PhD., CISCO meeting, Budapest, Miskolc, Hungary
- Ing. Katarína Klelinová, PhD., CISCO meeting, Budapest, Miskolc, Hungary

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
- Jakab, F.: Member of the Institute of Electrical and Electronics Engineers
- 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
- Paralič, M.: Member of the Institute of Electrical and Electronics Engineers
- Samuelis, L.: Member of the EuroPACE board (virtual university, Leuven, Belgium)
- Samuelis, L.: Member of the J.von Neumann Hungarian informatics society
- 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 Slovak Society for Computer Science (SSCS)
- 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 on 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 of directors
- Jakab F.: Member of working group ICT – Research and development, Ministry of Education
- 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

- Cooperation with the Cisco company (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 IBM company

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	205	158	9

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences, Seminars

- CSE'2012 International Scientific Conference on Computer Science and Engineering, October 3–5th, 2012 in Stará Lesná, High Tatras, Slovakia
- SAMI 2012 – 10th International Symposium on Applied Machine Intelligence and Informatics, 26–28th January, 2012 in Herľany, Slovakia (DCI co-operation)
- ICETA 2012 – 10th IEEE International Conference on Emerging e-Learning Technologies and Applications, November 8–9th, 2012, The High Tatras, Slovakia (DCI co-operation)

8.2 Study tours

- Ing. Marek Novák, Tecnodiscap, University of Zaragoza, Spain (SAIA)
- Ing. Dominik Lakatoš, University of Maribor, Slovenia (CEEPUS)
- Ing. Milan Nosáľ, University of Malaga, Spain (ERASMUS)
- Ing. Ivan Halupka, University of Malaga, Spain (ERASMUS)

9 PUBLICATIONS

9.1 Books

[1] BAČA, J.: Analysis, Synthesis and Diagnosis of Logic and Control Systems. Košice : EQUILIBRIA - 2012 - 103 p. - ISBN 978-80-8143-050-3. (in Slovak)
[2] KOLLÁR, J. - PORUBÄN, J. - CHODAREV, S.: Modeling and Generation of Software Architectures. Košice : TU - 2012 - 124 p. - ISBN 978-80-553-1229-3. (in Slovak)
[3] PARALIČ, M. - BEDNÁR, P. - PARALIČ, J.: Personalized and Adaptive Access to Services – The Semantic Web Services Approach. In: Semantic Hyper/Multimedia Adaptation : Schemes and Applications : Studies in Computational Intelligence Volume 418. - Berlin Heidelberg: Springer-Verlag - 2012 - pp. 1-17. - ISBN 978-3-642-28976-7.
[4] PORUBÄN, J. - KOLLÁR, J. - SABO, M.: Abstraction of Computer Language Patterns: The Inference of Textual Notation for a DSL. In Formal and practical aspects of domain-specific languages: recent developments. USA: IGI Global 2012- pp. 373-393 - ISBN 978-1-4666-2092-6.
[5] SAMUELIS, L. - BOLLIN, A. - FÜHAUF, K. - LUDEWIG, J. - SANDMAYR, H.: Software Engineering Fundamentals Measuring, Comprehending, and Managing your Software Projects. Košice : TU - 2012 - 208 p. - ISBN 978-80-553-0848-7.
[6] SAMUELIS, L.: The Challenges of Automatic Program Construction, Software Reuse, and Evolution in Software Engineering. Košice : TU - 2012 - 78 p. - ISBN 978-80-553-0888-3.
[7] SOBOTA, B. - KOREČKO, Š. - LÁTKA, Ondrej - SZABÓ, C. - HROZEK, F.:

Solving tasks of Processing Large Graphics Data in Parallel Computing Environment. Košice : UK TU - 2012 - 384 p. - ISBN 978-80-553-0864-7.

[8] SZABÓ, C. - KOREČKO, Š. - SOBOTA, B.: Data Processing for Virtual Reality. In: Advances in Robotics and Virtual Reality : Intelligent Systems Reference Library : Volume 26. - Berlin Heidelberg : Springer-Verlag - 2012 - pp. 333-361 - ISBN 978-3-642-23362-3.

[9] SZABÓ, C. - SOBOTA, B.: Path-Finding Algorithm Application for Route-Searching in Different Areas of Computer Graphics. In: New Frontiers in Graph Theory. - Rijeka : InTech - 2012 – pp. 169-186, ISBN 978-953-51-0115-4.

[10] ŠIMKOVÁ, M. - GARABÍK, R. - GAJDOŠOVÁ, K. - LACLAVÍK, M. - ONDREJOVIČ, S. - JUHÁR, J. - GENČI, J. - FURDÍK, K. - IVORÍKOVÁ, H. - IVANECKÝ, J.: The Slovak Language in the Digital Age. Berlin Heidelberg : Springer-Verlag - 2012 - 85 p. - ISBN 978-3-642-30369-2.

[11] VOKOROKOS, L. - ÁDÁM, N. - MADOŠ, B.: P-Single Operators in Pipeline System of DF-KPI Architecture. Berlin : Springer Verlag, 2012 pp. 277-291 - ISBN 978-3-642-30667-9.

9.2 Journals

[1] BAČÍKOVÁ, M. - PORUBÄN, J.: Analyzing stereotypes of creating graphical user interfaces. In: Central European Journal of Computer Science. Vol. 2, no. 3 (2012), p. 300-315. - ISSN 1896-1533.

[2] CYMBALÁK, D. - JAKAB, F. - MICHALKO, M.: Advanced multimedia solution for interactive teaching via whiteboards over IP network. In: Cyber Journals: Multidisciplinary Journals in Science and Technology. No. November (2012), p. 1-8. - ISSN 1925-2676.

[3] GUZAN, M. - SOBOTA, B. - ASTALOŠ, J.: Calculating the marginal surface using Grid technology and GPGPU. In: Posterus. Vol. 5, No. 10 (2012), p. 1-9 - ISSN 1338-0087.

[4] HAJDUK, M. - VARGA, M. - SUKOP, M.: History and Present of Exoskeletons. In: International Scientific Herald. Vol. 3, no. 2 (2012), p. 74-81. - ISSN 2218-5348

[5] HALUPKA, I. - KOLLÁR, J. - PIETRIKOVÁ, E.: A Task-driven Grammar Refactoring Algorithm. In: Acta Polytechnica. Vol. 52, no. 5 (2012), p. 51-57. - ISSN 1210-2709.

[6] HAVLICE, Z. - BUŠA, J. - PARALIČ, J. - PARALIČ, M. - PLAVKA, J. - PORUBÄN, J. - VÁCLAVÍK, P.: Analysis of IT4KT inputs for effective knowledge transfer from university research into practice using IT. In: Transfer. Vol. 4, No. 1 (2012), p. 11-13. - ISSN 1337-9747.

[7] HROZEK, F. - IVANČÁK, P.: Depth Map Calculation for Autostereoscopic 3D Display. In: Journal of Computer Science and Control Systems. Vol. 5, no. 1 (2012), p. 37-42. - ISSN 1844-6043.

[8] CHODAREV, S.: Development of Domain-Specific Languages Based on Generic Syntax and Functional Composition. In: Information Sciences and Technologies Bulletin of the ACM Slovakia. Vol. 4, No. 3 (2012), p. 47-53. ISSN 1338-6654.

[9] JAKUBČO, P. - ŠIMOŇÁK, S.: Utilizing GPGPU in computer emulation. In: Journal of Information and Organizational Sciences. Vol. 36, No. 1 (2012), p. 39-53. - ISSN 1846-9418.

[10] JENČÍK, M. - MIHÁLYI, D.: Program components & abstract behavioral types. In: Acta Electrotechnica et Informatica. Vol. 12, No. 1 (2012), p. 38-43. - ISSN 1335-8243.

[11] KLEINOVÁ, K. - FECIĽAK, P.: New approach to remote laboratory in regard to topology change and self-repair feature. In: Central European Journal of Computer Science. Vol. 2, no. 3 (2012), p. 344-353. - ISSN 2081-9935.
[12] KOLLÁR, J. - VAGAČ, M.: Aspect-oriented approach to metamodel abstraction. In: Computing and Informatics. Vol. 31, No. 5 (2012), p. 983-1002. - ISSN 1335-9150.
[13] KOLLÁR, J. - PIETRIKOVÁ, E. - CHODAREV, S.: Abstraction in Programming Languages According to Domain-Specific Patterns. In: Acta Electrotechnica et Informatica. Vol. 12, No. 2 (2012), p. 9-15. - ISSN 1335-8243.
[14] KOREČKO, Š. - MARCINČIN, J. - STEINGARTNER, W.: CPN Assistant 2: A Tool for Management of Networked Simulations. In: Lecture Notes in Computer Science : Application and Theory of Petri Nets. Vol. 7347 (2012), p. 408-417. - ISSN 0302-9743.
[15] MIHÁLYI, D. - NOVITZKÁ, V. - PRAZŇÁK, P. - POPOVEC, P.: Network Routing Modelled by Game Semantics. In: Studia Universita Babeş-Bolyai : Informatica. Vol. 57, no. 4 (2012), p. 19-29. - ISSN 2065-9601.
[16] POKLEMBA, T. - HAVLICE, Z.: Knowledge based LMS. In: International Review on Computers and Software (IRECOS). Vol. 7, no. 4 (2012), p. 1569-1575. - ISSN 1828-6003.
[17] SAMUELIS, L.: On Principles of Software Engineering - Role of the Inductive Inference. In: e-Informatica Software Engineering Journal. Vol. 6, no. 1 (2012), p. 71-77. ISSN 1897-7979.
[18] STEINGARTNER, W. - MACKO, P. - NOVITZKÁ, V.: Some New Approaches in Functional Programming Based on Categories. In: Lecture Notes in Computer Science. - Berlin : Springer-Verlag Berlin Heidelberg, 2012 Vol. 7241 (2012), p. 517-532. - ISSN 1302-9743.
[19] STEINGARTNER, W. - NOVITZKÁ, V.: Principles of Action Semantics for Functional Programming Languages. In: Studia Universitatis Babes-Bolyai Series Informatica. Vol. 57, No. 1 (2012), p. 35-47. ISSN 2065-9601.
[20] STEINGARTNER, W.: Toposes are symmetric monoidal closed categories. In: Scientific Research of the Institute of Mathematics and Computer Science. No. 1 (11) (2012), p. 107-116. - ISSN 1731-5417.
[21] ŠIMOŇÁK, S.: Verification of Communication Protocols Based on Formal Methods Integration. In: Acta Polytechnica Hungarica. Vol. 9, no. 4 (2012), p. 117-128. - ISSN 1785-8860.
[22] ŠIMOŇÁK, S.: Assignment Workflow Support System / - 2012. In: Acta Electrotechnica et Informatica. Vol. 12, No. 1 (2012), p. 25-29. - ISSN 1335-8243.
[23] ŠIMŠÍK, D. - GALAJDOVÁ, A. - SIMAN, D. - BUJŇÁK, J. - ANDRÁŠOVÁ, M. - NOVÁK, M.: MonAMI Platform in Elderly Household Environment Architecture, Installation, Implementation, Trials and Results. In: Lecture Notes in Computer Science : Computer Helping People with Special Needs. - Berlin Heidelberg : Springer-Verlag, No. 7383 (2012), p. 419-422. ISSN 0302-9743
[24] TELEPOVSKÁ, H. - HAVLICE, Z.: Relational Algebra Knowledge Assessment in Practice. In: Journal of Communication and Computer. Vol. 9, No. 2 (2012), p. 226-233. - ISSN 1548-7709.
[25] VAGAČ, M. - KOLLÁR, J.: Improving Program Comprehension by Automatic Metamodel Abstraction. In: Computer Science and Information Systems. Vol. 9, no. 1 (2012), p. 235-247. - ISSN 1820-0214.
[26] VÁCLAVÍK, P. - PRIBULA, M.: Verification of Metadata Specified in Various

Forms. In: Journal of information, control and management systems. Vol. 10, No. 1 (2012), p. 113-124. - ISSN 1336-1716.

[27] VASZI, Z. - SZÉPLAKY, D. - SZABÓ, C. - VARGA, A.: Matematický model výpočtu priepustnosti tranzitnej siete / - 2012. In: Doprava a logistika. Mimoriadne č. 11 (2012), s. 209-213. - ISSN 1451-107X

[28] VOKOROKOS, L. - MADOŠ, B. - ÁDÁM, N. - BALÁŽ, A.: Data acquisition in non-invasive Brain-Computer interface using emotiv EPOC neuroheadset. In: Acta Electrotechnica et Informatica. Vol. 12, No. 1 (2012), p. 5-8. - ISSN 1335-8243.

[29] ŽELEZNÍK, O. - HAVLICE, Z.: Knowledge Based Embedded System Modeling With Real-Time Response Requirements. In: International Journal of Computer Theory and Engineering (IJCTE). Vol.4, No. 1 (2012), p. 103-111. - ISSN 1793-8201.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	38	53	27

DEPARTMENT OF TECHNOLOGIES IN ELECTRONICS

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

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

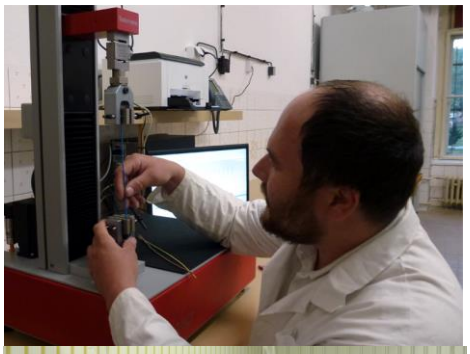
1 DEPARTMENT'S PROFILE

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 "*Automotive electronics*" lasts in normal way 3 years and is leading to degree Bc. The graduates get more-or-less practical skills in mastering automotive electronics.

Master's Degree course "*Progresive materials and technologies in automotive electronics*" lasts in normal way 2 years and is leading to degree Ing. The graduates get theoretical and practical skills in the area of automotive electronic with the aspect on progresive materials and technologies. Study programme "*Production Technologies in Electronics*" at the Department was finished and closed in the year 2011.

PhD. course "*Progresive materials and technologies in automotive electronics*" lasts in normal way 3 years and is leading to degree PhD. The graduates get erudition in scientific areas and acquire deeper knowledge in specific area of materials and technologies in automotive electronics.

The subjects in the degree courses are orientated to technologies in electronics with accent on automotive electronics: mounting technology in electronics, printed circuit boards, thick film technology, LTCC technology and polymer technology.

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,
- 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, CSc.
Assistant Professors:	Ing. Slavomír Kardoš, PhD. Ing. Ľubomír Livovský, PhD. Ing. Juraj Ďurišin, PhD. Ing. Igor Vehec, PhD. Ing. Pavol Cabúk, PhD.
Research staff:	Igor Vehec
Secretary:	Mgr. Alena Focková
Internal Ph.D. Student:	Ing. Michal Jurčišin Ing. Michal Kravčík Ing. Dominik Demeter Ing. Kornel Ruman Ing. Tibor Rovenský

3 LABORATORIES

- Laboratory of Technological Processes I.
- Laboratory of Technological Processes II.
- Virtual Technological Laboratory and CAD design systems.
- Laboratory of Diagnostics and Thermal Processing.
- Laboratory of Optical Diagnostics and Control of Electronic Structures.
- Laboratory of Measurements 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, Cabúk
Production and Properties of Pasive Components	3rd	2/2	Kardoš
Design Systems and Mounting Technologies in Electronics	4th	2/3	Pietriková Livovský
Measurement of Electronics Structures	4th	3/3	Cabúk
Bachelor Thesis I.	5th	0/3	Pietriková
Fundamentals of Microelectronic Technologies	5th	2/2	Vehec
Microstructural Analyses of Materials in Electronics	5th	3/3	Ďurišin
Technologic Practise in the Firm	6th	0/8	Pietriková
Automated Measuring Systems	6th	3/2	Livovský
Bachelor Thesis II.	6th	0/9	Pietriková

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Production Processes in Electronics I	1st	4/4	Pietriková
Microsystems Technology	2rd	3/2	Somora
Semestral Project	2nd	0/3	Pietriková
Production Processes in Electronics II	2nd	2/4	Slosarčík
Quality and Reliability Management	2nd	2/2	Pietriková
Materials for Electrotechnical Applications	2nd	2/1	Pietriková
Diploma Thesis I.	3rd	0/4	Pietriková
Design Systems in Electronic	3rd	3/2	Livovský
Production Technologies, Structure, Properties and Applications of Sensors	3rd	2/3	Banský
Diploma Thesis II.	4th	0/18	Pietriková
Chosen Chapters from Progressive Materials and Technologies in Car Electronics	4th	2/3	Pietriková

4.3 Undergraduate and Graduate Study for Foreign Students (in nglish 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 the 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 Structural Funds

- ***Centre of Excellence of the Integrated Research and Exploitation of the Progressive Materials and Technologies in the Area of 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.
- Participation on the project from structural funds: ***Innovation Tools Package for Reform of Education at TUKE*** (Balík inovatívnych prvkov pre reformu vzdelávania na TUKE). ITMS: 26110230018. Coordinator: prof. Ing. Pavel Raschman, CSc. Duration: 09/2010-12/2012.

5.2 Research Projects

- ***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.

- ***Time and Stress Degradation Phenomena in Lead-free Solder Joints*** (Jav degradácie vplyvom času a namáhania v bezolovnatých spájkovaných spojoch). Project APVV SK-RO-0025-10. Coordinator: prof. Ing. Alena Pietriková, CSc. Duration: 2011 - 2012.
- ***Construction technologies for 3D systems integration based on low temperature co-fired ceramic*** (Konštrukčné technológie 3D integrácie systémov na báze nízkoteplotne vypaľovanej keramiky). Project VEGA 1/0059/12. Coordinator: prof. Ing. Stanislav Slosarčík, CSc. Duration: 2012 - 2014.
- ***Concept Formulation of Transformation of Education Process with Orientation on Study Programs Aimed to Progressive Materials and Smart Technologies in Autoelectronics*** (Vypracovanie koncepcie transformácie edukačného procesu so zameraním na tvorbu študijných programov orientovaných na progresívne materiály a inteligentné technológie autoelektroniky). Project KEGA 003TUKE-4/2011. Coordinator: prof. Ing. Alena Pietriková, CSc. Members: majority of staff members. Duration: 2011 - 2013.

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:

- FEL ČVUT Prague, Czech Republic,
- IMT Bucharest, Romania, bilateral co-operation SK/Ro project,
- University POLITEHNICA of Bucharest (UPB), COST,
- Budapest University of Technology and Economics (BME), COST,
- Politechnika Rzeszow, Poland.

6.2.1. Foreign Visitors to the Department

- Dr. Ing. Virgil Emil Ilian, Romania 18.09. – 22.09.2012
- Dr. Marius Bazu, Romania 18.09. – 22.09.2012
- dr hab. inż. Włodzimierz Kalita, Poland 27.09. – 28.09.2012

6.2.2. Visits of Staff Members to Foreign Institutions

- Ďurišin, J., Germany (Hamburg) 24.01. – 28.01.2012
- Kardoš, S., Romania (Bucharest) 18.04. – 20.04.2012
- Pietriková, A., Romania (Bucharest) 18.04. – 20.04.2012
- Slosarčík, S., Poland (Rzeszow) 11.05. – 11.05.2012
- Demeter, D., Austria 09.05. – 13.05.2012
- Ruman, K., Austria 09.05. – 13.05.2012
- Pietriková, A., Austria 09.05. – 13.05.2012
- Demeter, D., CZ (Prague) 16.05. – 18.05.2012
- Kravčík, M., CZ (Prague) 16.05. – 18.05.2012
- Jurčišin, M., Poland (Rzeszow) 25.05. – 25.05.2012
- Cabúk, P., Poland (Rzeszow) 25.05. – 25.05.2012
- Demeter, D., CZ (Brno) 27.06. – 30.06.2012
- Slosarčík, S., CZ (Prague) 28.06. – 30.06.2012
- Pietriková, A., USA (Ohio) 04.08. – 14.08.2012
- Pietriková, A., Germany (Kiel) 26.08. – 02.09.2012
- Slosarčík, S., Germany (Dresden) 04.09. – 08.09.2012

6.3 Membership in International Organizations and Societies

- Banský, J.: Honorary Consul of Federal Republic of Germany in Slovak Republic.
- 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 – SIITME.
- Slosarčík, S.: Member of the International Steering Committee for IMAPS – Czech and Slovak.
- Slosarčík, S.: Member of „Scientific Commitee“ International Interdisciplinary PhD Workshop I2PhDW.
- Slosarčík, S.: Member of „International Program Commitee“ The International Conference on Advances in Elektronik and Photonic Technologies.

6.4 Membership in Slovak Organizations and Societies

- 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 Commission for Ph.D. Study in the Branch "5-2-12 Electrotechnology and Materials" at FEI TU Košice.
- Pietriková, A.: Member of the Commission for Ph.D. Study in the Branch "5-2-12 Electrotechnology and Materials" at Faculty of Electrical Engineering, University of Žilina.
- Slosarčík, S.: Member of the Slovak Metrology Society.

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	25	0	1

8 OTHER ACTIVITIES

8.1 Student Competitions and Rewards

- KRAVČÍK, M.: 2nd place at the International student conference on Electrical Engineering – POSTER 2012 in Prague.

9 PUBLICATIONS

9.1 Monographs

[1] SLOSARČÍK, S. - JURČIŠIN, M.: Meranie tlaku vybraných lokalít ľudského tela. Košice, Vienala - 2012. - 108 s. - ISBN 978-80-8126-059-9

[2] PIETRIKOVÁ, A. - ĎURIŠIN, J.: Studies of Temperature Influence on Solder Structure by in-situ investigation. In: Handbook of High-Temperature Lead-Free Solders: Group Project Reports: Volume 3. - Brussels: COST Office, 2012 P. 237-242. - ISBN 978-80-905363-3-3

9.2 Journals

[1] SABAT, W. - KLEPACKI, D. - KALITA, W. - SLOSARČÍK, S. - JURČIŠIN, M. - CABÚK, P.: EMC aspects in microelectronics structures made in LTCC technology. In: Elektronika. No. 1 (2012), p. 65-67. - ISSN 0033-2089

[2] KAŤUCH, P. - DOVICA, M. - SLOSARČÍK, S. - KOVÁČ, J.: Comparision of contact and contactless measuring methods for form evaluation. In: Procedia Engineering. Vol. 48 (2012), p. 273-279. - ISSN 1877-7058 Spôsob prístupu: http://www.sciencedirect.com/science/journal/18777058/48/supp/C...

[3] BÂZU, M. - ILIAN, V. E. - PIETRIKOVÁ, A. - GĂLĂTEANU, L. - VÂRSEŞCU, D. - ILIAN, V. L.: Accelerated Testing of Lead-Free solder Joints. In: Asigurarea Călitatii. Vol. 18, no. 71 (2012), p. 24-27. - ISSN 1224-5410

[4] SLOSARČÍK, S. - BANSKÝ, J. - DOVICA, M. - JURČIŠIN, M. - KARDOŠ, S.: 3D integration of control electronic for mobile minimachine. In: Procedia Engineering. Vol. 48 (2012), s. 643-649. - ISSN 1877-7058 Spôsob prístupu: http://www.sciencedirect.com/science/journal/18777058/48/supp/C...

[5] GIRAŠEK, T. - CABÚK, P.: Snimanie dažďa v automobilovom priemysle. In: Posterus. Roč. 5, č. 2 (2012), s. 1-6. - ISSN 1338-0087 Spôsob prístupu: http://www.posterus.sk/?p=12783&output=pdf...

[6] SLOSARČÍK, S. - CABÚK, P. - SABAT, W. - JURČIŠIN, M.: Technology of 3D integration based on heterostructure in system on module assembly. In: Transactions of the Universities of Košice. Č. 1 (2012), s. 1-6. - ISSN 1335-2334
[7] BEHUN, P. - KARDOŠ, S.: Systémy pasívnej bezpečnosti v dopravných prostriedkoch. In: Posterus.sk: portál pre odborné publikovanie. Roč. 5, č. 7 (2012),s.1-12.-ISSN 1338-0087 Spôsob príst.: http://www.posterus.sk/?p=13248
[8] CABÚK, P. - SLOSARČÍK, S. - MOLČÁNYI, T. - KARDOŠ, S. - JURČIŠIN, M.: Zariadenie pre automatizované udržiavanie tonusu. In: EE. Roč. 18, mimoriadne č. (2012), s. 78-80. - ISSN 1335-2547
[9] JURČIŠIN, M. - SLOSARČÍK, S. - BANSKÝ, J. - MOLČÁNYI, T.: Meranie vnútrobrušného tlaku neinvazívnou metódou. In: EE časopis. Roč. 18, č. mimoriadne (2012), s. 100-104. - ISSN 1335-2547
[10] RUMAN, K. - PIETRIKOVÁ, A. - VEHEC, I.: Návrh mikropásikovej pásmovej priepuste pre UWB aplikácie. In: Posterus. Roč. 5, č. 10 (2012), s. 1-5. - ISSN 1338-0087 Spôsob prístupu: http://www.posterus.sk/?p=13796&output=pdf...

9.3 Textbooks

[1] BANSKÝ, J. - VEHEC, I. - KARDOŠ, S.: Technológie výroby senzorov. 1. vyd. - Košice: TU - 2012 - 120 s. [online]. - ISBN 978-80-553-1180-7. Spôsob prístupu: http://kte.fei.tuke.sk/moodle/course/view.php?id=7...
[2] KARDOŠ, S.: Úvod do pasívnych elektronických prvkov. 1. vyd. - Košice: TU - 2012-90 s. ISBN 978-80-553-1194-4. Spôsob príst.: http://kte.fei.tuke.sk/moodle/course/view.php?id=11...
[3] LIVOVSKÝ, Ľ. - BANSKÝ, J.: Návrhové systémy v elektronike. 1. vyd. - Košice: TU - 2012 - 90 s. [online]. - ISBN 978-80-553-1195-1. Spôsob prístupu: http://kte.fei.tuke.sk/moodle/course/view.php?id=4...

9.4 Books of scientific works

[1] DEMETER, D. - BANSKÝ, J.: Concept of the virtual laboratory for the assembling technologies in electronics. - 1 elektronický optický disk (CD-ROM). In: Electrical Engineering and Informatics 3: proceeding of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice: FEI TU, 2012 S. 786-788. - ISBN 978-80-553-0890-6
[2] PIETRIKOVÁ, A. - RUMAN, K. - VEHEC, I. - GALAJDA, P.: Design and comparison of different methods of measurement of low pass filter for Ultra Wide-Band application. - 1 elektronický optický disk (CD-ROM). In: Electrical Engineering and Informatics 3: proceeding of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice: FEI TU, 2012 S. 789-794. - ISBN 978-80-553-0890-6
[3] PIETRIKOVÁ, A. - KRAVČÍK, M.: Simulation of stencil printing process. - 1 elektronický optický disk (CD-ROM). In: Electrical Engineering and Informatics 3: proceeding of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice: FEI TU, 2012 S. 795-799. - ISBN 978-80-553-0890-6
[4] VEHEC, I. - PIETRIKOVÁ, A. - RUMAN, K.: Influence of ultrasonic wedge bonding parameters on resistivity. - 1 elektronický optický disk (CD-ROM). In: Electrical Engineering and Informatics 3: proceeding of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice: FEI TU, 2012 S. 800-804. - ISBN 978-80-553-0890-6
[5] KAINZ, O. - KARDOŠ, S.: Visualization of PCB Fabrication in Education. In: Electrical Engineering and Informatics 3: proceeding of the Faculty of Electrical

Engineering and Informatics of the Technical University of Košice. - Košice: FEI TU, 2012 S. 580-584. - ISBN 978-80-553-0890-6

9.5 Other publications

Publication Type	Conferences		Other
	Abroad	Home	
Number	9	10	1

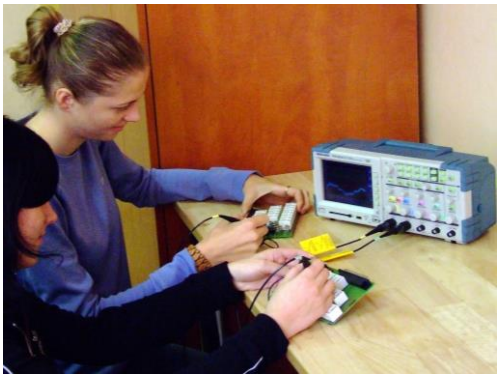
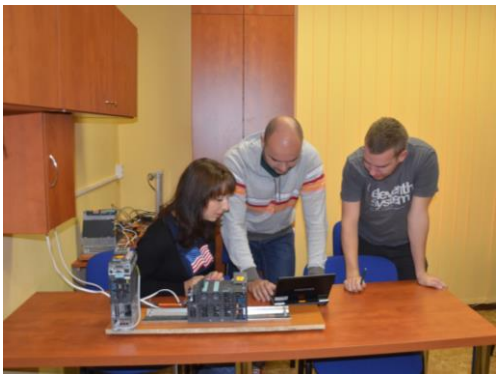
DEPARTMENT OF THEORETICAL ELECTRICAL ENGINEERING AND ELECTRICAL MEASUREMENT

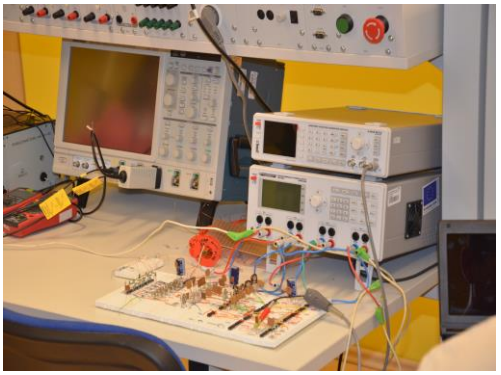
http:/kteem.fei.tuke.sk
Tel./Fax: +421 55 602 2801

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
- Integrated research and exploitation the advanced materials and technologies in the automotive electronics
- Modern virtual, intelligent and automated measuring and control systems.

2 STAFF

Professor: prof. Ing. Dobroslav Kováč, PhD.
Prof. Ing. Irena Kováčová, PhD.

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

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

Technical staff: Jozef Lenárt
Danuša Topolčaniová

PhD. Students: Ing. Martin Bačko
Ing. Ján Perduľak
Ing. Igor Kolla
Ing. Matúš Ocilka
Ing. Jozef Dziak
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
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	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	Guzan
Programming of Industrial Applications II	4th	2/2	Ocilka
Semestral Project II	4th	0/3	Kováč
Metrology	5th	2/2	Mojžiš
Modelling and Measurement	5th	2/2	Molnár
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	Kováčová
Linux II	7th	2/2	Molnár

5 RESEARCH PROJECTS

- ***Centre of Excellence of the Integrated Research & Exploitation the Advanced Materials and Technologies in the Automotive Electronics***. ITMS 26220120055, activity 2.5 - Laboratory for modeling and measuring (MODMER), duration: 2010-2013, co-ordinator: D. Kováč, members: I. Tomčíková, M. Guzan, T. Vince, R. Bučko, J. Molnár, M. Bačko, J. Perduľak.
- ***Automated testing system based on modern information technologies***. Project KEGA No. 005TUKE-4/2012, duration: 2012-2014, co-ordinator: D. Kováč, members: I. Kováčová, M. Mojžiš, J. Molnár, T. Vince, I. Tomčíková, R. Bučko, M. Bačko, J. Perduľak.

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
- Kremenchuk Mykhailo Ostrohradskyi National University, Ukraine

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 Theoretical Electrical Engineering
- 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	12	0	2

8 OTHER ACTIVITIES

9 PUBLICATIONS

9.1. Journals

[1] TOMČÍKOVÁ, I. - ROMASHIHINA, Z.: Modelling of field problems in MATLAB. In: *Electromechanical and energy saving systems*, Vol. 14, No. 2 (2011), pp. 58-63, ISSN 2072-2052.

[2] ŠPALDONOVÁ, D. – RYKOV, G.: Simple simulation of long-distance line. In:

Electromechanical and energy saving systems, Vol. 14, No. 2 (2011), pp. 166-170, ISSN 2072-2052.

[3] VINCE, T. - KOVÁČ, D. - PEREKREST, A.: Remote measurements of variable topology electric circuit software. In: *Electromechanical and energy saving systems*, No. 3 (2011), pp. 178-181, ISSN 2072-2052.

[4] MOLNÁR, J. - KOVÁČ, D. - BRATASH, O.: Diagnostics of automobile power system via Internet. In: *Electromechanical and energy saving systems*, No. 2 (2011), pp. 150-155, ISSN 2072-2052.

[5] HODULÍKOVÁ, A. - KOVÁČ, D. - OGAR, V.: Modelling of magnetic field of elastomagnetic pressure force sensor in CosmosEMS environment. In: *Electromechanical and energy saving systems*, Vol. 15, No. 3 (2011), pp. 155-159, ISSN 2072-2052.

[6] BAČKO, M. - KOVÁČ, D. - ALEKSEEVA, J.: Methodology for meeting object´s energy demands by renewable energy sources. In: *Electromechanical and energy saving systems*, No. 2 (2011), pp. 81-85, ISSN 2072-2052.

[7] BUČKO, R. - KOVÁČ, D. - KONOKH, I.: Embedded system and speech recognition. In: *Electromechanical and energy saving systems*, No. 3 (2011), pp. 168-172, ISSN 2072–2052.

[8] PERDUĽAK, J. - KOVÁČ, D. - MELNYKOV, V.: A novel multiphase boost converter with high energy efficiency. In: *Electromechanical and energy saving systems*, No. 2 (2011), pp. 96-100, ISSN 2072-2052.

[9] GUZAN, M. - SOBOTA, B. - ASTALOŠ, J.: Calculation of boundary area by GRID and GPGPU technologies. In: *Posterus*, Vol. 5, No. 10 (2012), pp. 1-9, ISSN 1338-0087.

[10] GUZAN, M.: Calculation of boundary area by PC using. In: *Posterus*, Vol. 5, No. 9 (2012), pp. 1-9, ISSN 1338-0087.

9.3. Textbooks

[1] MOJŽIŠ, M.: Tutorials for digital measurements. *FEI TU Košice*, 2012, 67 p., ISBN 978-80-553-0866-1.

[2] MOJŽIŠ, M.: Informatics and industrial measuring. *FEI TU Košice*, 2012, 77 p., ISBN 978-80-553-0867-8.

[3] VINCE, T. - BAČKO, M.: Windows Server – lectures, 2nd part. *FEI TU Košice*, 2012, 80 p., ISBN 978-80-553-0898-2.

[4] MOJŽIŠ, M. - GUZAN, M.: Tutorials for metrology. *FEI TU Košice*, 2012, 81 p., ISBN 978-80-553-0907-1.

[5] VINCE, T. - BAČKO, M.: Windows Server – lectures, 3rd part. *FEI TU Košice*, 2012, 71 p., ISBN 978-80-553-1052-7.

[6] ŠPALDONOVÁ, D.: OrCAD – simulations. *FEI TU Košice*, 2012, 77 p., ISBN 978-80-553-1116-6.

[7] KOVÁČOVÁ, I. - KOVÁČ, D.: Procedures in DA – 3rd part. *FEI TU Košice*, 2012, 104 p., ISBN 978-80-553-0873-9.

[8] TOMČÍKOVÁ, I.: CAD systems in electrical engineering – Drawing of electrical engineering schemes: lectures. *FEI TU Košice*, 2012, 128 p., ISBN 978-80-553-1071-8.

[9] TOMČÍKOVÁ, I.: Fundamentals of Electrical Engineering Instructions on Safety at Work : Lectures. *FEI TU Košice*, 2012, 78 p., ISBN 978-80-553-1072-5.

[10] BUČKO, R.: Non-traditional control of electrical engineering systems by microcomputer. *FEI TU Košice*, 2012, 79 p., ISBN 978-80-553-1199-9.

9.4. Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	31	20	11