ANNUAL REPORT

FEE&I

Technical University of Košice
Slovak republic

FOR YEAR

2013

Cover Design and Editing: Ľubomír Doboš and Katarína Tomková

Contacts

Mail Address:
FEI – TU Košice
Letná 9
042 00 Košice
Slovak Republic

Phone number:
+421 55 632 2483

Fax number:
+421 55 633 0115

Internet information:
Faculty WEB page:
http://***www.fei.tuke.sk***

WEB page of City of Košice:
http://***www.kosice.sk***

Management of the Faculty

Dean:

prof. Ing. Liberios Vokorokos, PhD. - E-mail: Liberios.Vokorokos@tuke.sk

Vice-deans:

prof. Ing. Roman Cimbala, PhD. - responsible for development and public relations
E-mail: Roman.Cimbala@tuke.sk

prof. Ing. Iveta Zolotová, PhD. - responsible for education in the bachelor and master study
E-mail: Iveta.Zolotova@tuke.sk

prof. Ing. Alena Pietriková, CSc. - responsible for research and doctoral study
E-mail: Alena.Pietrikova@tuke.sk

doc. Ing. Ľubomír Doboš, CSc. - responsible for foreign relations, mobility and projects co-ordinations
E-mail: Lubomir.Dobos@tuke.sk

Departments of Faculty and their Heads

- Cybernetics and Artificial Intelligence (abbr. KKUI)
  prof. Ing. Ján Sarnovský, PhD. – E-mail: Jan.Sarnovsky@tuke.sk (until 28.2.2013)
  prof. Ing. Peter Sinčák, CSc. – E-mail: peter.Sincak@tuke.sk (since 1.3.2013)
- Computers and Informatics (abbr. KPI)
  prof. Ing. Ján Kollár, PhD. – E-mail: Jan.Kollar@tuke.sk (until 28.2.2013)
  doc.Ing. Jaroslav Porubän, PhD. – E-mail: Jaroslav.poruban@tuke.sk (since 1.3.2013)
- Electrical Engineering and Mechatronic (abbr. KEM)
  doc. Ing. Michal Girman, PhD. – Michal.Girman@tuke.sk (until 28.2.2013)
  prof. Ing. Daniela Perduková, PhD. – Daniela.perdukova@tuke.sk (since 1.3.2013)
- Mathematics and Theoretical Informatics (abbr. KMTI)
  prof. RNDr. Ján Plavka, PhD. – E-mail: Jan.Plavka@tuke.sk (until 28.2.2013)
  doc. RNDr. Marián Klešč, PhD. – E-mail: marian.klesc@tuke.sk (since 1.3.2013)
- Faculty Computer Center (abbr. PC FEI)
  prof. Ing. Liberios Vokorokos, PhD. – E-mail: Liberios.Vokorokos@tuke.sk
- Electronics and Multimedia Telecommunications (abbr. KEMT)
  prof. Ing. Dušan Levický, PhD. – E-mail: Dusan.Levicky@tuke.sk (until 28.2.2013)
  prof. Ing. Jozef Juhár, CSc. – E-mail: jozef.juhar@tuke.sk (since 1.3.2013)
- Technologies in Electronics (abbr. KTE)
  prof. Ing. Alena Pietriková, PhD. – E-mail: Alena.Pietrikova@tuke.sk
- Physics (abbr. KF)
  doc. RNDr. Dušan Olčák, PhD. – E-mail: Dusan.Olcak@tuke.sk
- 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. 2322 students and 179 teachers and research associates. We have 108 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 9 educational and 5 research international projects granted by agencies from EEC countries and USA and also participates on more than 55 research projects granted by Slovak agencies. All this activity brings very interesting and highly valuable results.

There is a small community of 5 foreign students studying at our faculty. We hope that this community will grow and will appreciate our skills and good conditions for study here in Košice.

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

Yours Sincerely

prof. Ing. Liberios Vokorokos, PhD.

CONTENTS

Košice and the Technical University

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

The Technical University of Košice was established in 1952, but in the fact, the origin and roots of two from their faculties go back to the 18th century and they are derived from the Mining Academy in Banská Štiavnica. The University is a state-supported institution. At present, the University consists of nine faculties. It has more than 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 223 and among them 32 professors, 32 associate professors, 85 assistant professors, 9 research workers, 62 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 2013-2014

Bc. level			
1. year	**2. year**	**3. year**	**Sum**
550	328	415	1293

Number of the Ing. students in academic year 2013-2014

MSc. (Ing.) level		
1. year	**2. year**	**Sum**
407	514	921

Overall number of the students in academic year 2013-2014

Bc. level	MSc. (Ing.) level	PhD. level	Total number
1293	921	108	2322

The student numbers in the academic year 2013/14 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	36	8	44
Electric Power Engineering	121	73	14	208
Informatics	573	288	27	888
Automotive Electronics	40	0	0	40
Electronics	35	0	0	35
Infoelectronics	0	30	10	40
Telecommunications	73	0	11	84
Multimedia telecommunications	0	96	0	96
Cybernetics	89	0	0	89
Cybernetics and info control systems	0	37	11	48
Intelligent Systems	18	0	0	18
Automation of mechatronic systems	0	0	0	0
Industrial Control Engineering	43	17	3	63
Electrical Engineering	0	64	0	64
Computer modeling	26	18	0	44
Industrial Engineering	0	0	0	0
Applied Informatics	25	20	0	45
Business Informatics	200	203	8	411
Physical Engineering of modern materials	5	0	0	5
Artificial Intelligence	0	39	7	46
Control of Electromechanical Systems	45	0	0	45
Mechatronics systems	0	0	4	4
Electrotechnics systems	0	0	3	3
Electrical measuring systems	0	0	2	2
Electrotechnology and materials	0	0	0	0
Total	**1293**	**921**	**108**	**2322**

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, Renáta Giannusis, Peter Popovec, Eva Boszörmenyová, Marek Andričík, Ľubomír Hodulík, Tomáš Baláž, Martin Kiss, Jana Trelová, Henrieta Marchevská, Mário Harčarik, Martin Tomášek, Slavomír Šimoňák.

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 (4 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
- Control of Electromechanical Systems
- Electric Power Engineering
- Electronics
- Industrial Electrical Engineering
- Telecommunication
- Automotive Electronics
- Applied Informatics
- Intelligent systems
- Computer modeling
- 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
- Multimedia Telecommunication
- Electrical Engineering
- Electric Power Engineering
- Computer modeling
- Advenced Materials and Technologies in Automotive Electronics
- Industrial Control Engineering
- Artificial Intelligence
- Cybernetics and Information-Control Systems
- Infoeletronics
- Business Informatics

PhD. courses

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

- 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)	4
7th EU program	1
Slovak – Austrian program	1
Slovak – Serbian program	1
CEEPUS	2
Leonardo da Vinci	2
Erasmus program	3
Erasmus MUNDUS	1
TEMPUS program	1
Subtotal	16
National projects supported by VEGA	18
National projects supported by KEGA	21
National projects supported by APVV	6+6
National projects supported by Agency	10+4
Total	**81**

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 2013 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:

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)

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)
- Virtual and Practical Applications to Electronic assembling Technology (co-ordinator: Alena Pietriková, department: KTE)

COST projects

- Truthworthy Manufacturing and Utilization of Secure Device COST IC1204 (co-ordinator: Miloš Drutarovský, department: KEMT)
- Cooperative Radio Communication for Green Smart Environments – COST IC1004 (co-ordinator: Ľubomír Doboš, department: KEMT)
- Integrating Biometrics and Forensics for the Digital age COST IC1106 (co-ordinator: Matúš Pleva, department: KEMT)
- Wireless Power Transmission for Sustainable Electronics (WiPE) COST IC1301 (co-ordinator: Dušan Kocur, department: KEMT)

Slovak – Austrian program

- Pokročilá výučba softvérového inžinierstva - metódy a nástroje (co-ordinator: Csaba Szabó, department: KPI)

Slovak – Serbian program

- Adaptívne perzonalizované výučbové prostredia (co-ordinator: Jaroslav Porubän, 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)
- SUSCOMTEC – IP Intercultural Knowledge Transfer in Engineering for a Sustainable Global ICT Community (contact: Ľubomír Doboš, department: KEMT)

Erasmus MUNDUS

- THELXINOE: Erasmus Euro-Oceanian Smart City Network (contact: Ľubomír Doboš, department: KEMT)

TEMPUS program

- Towards trust in quality assurance systems (co-ordinator: František Jakab, department: KPI)
- Technological Transfer Network (abbr.: TecTNet, co-ordinator: Ján Šaliga, department: KEMT)

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, 2 associate professors, 10 assistant professors, 1 scientific worker and 14 internal PhD. students.

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

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

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

The department provides 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. Juraj Kurimský, Ph.D. (since 01.11.2013)
Assistant Professors:	Ing. Jozef Balogh, Ph.D. Dr. Ing. Bystrík Dolník Ing. Jaroslav Džmura, Ph.D. Ing. Marek Hvizdoš, Ph.D.

	Ing. Stanislav Ilenin, Ph.D. Ing. Martin Kanálik, Ph.D. (since 01.01.2013) Ing. Juraj Kurimský, Ph.D. (until 31.10.2013) 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:	doc. Ing. Pavel Novák, CSc. Dagmar Kramolišová doc. Ing. Ladislav Varga, Ph.D. Ing. Jana Varnavčinová
Ph.D. Students:	Ing. Vieroslava Sklenárová 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 Ing. Miroslav Kmec Ing. Lukáš Lisoň Ing. Miroslav Mikita (since 01.09.2013) Ing. Samuel Bucko (since 01.09.2013)

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
- Laboratory of Photovoltaics

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	0/2	Petráš
Fundamentals of environmental engineering	2nd	2/2	Mészáros
Programming	2nd	0/2	Petráš
Computers in Electric Power Engineering	2nd	1/2	Cimbala
Power transmission	3rd	2/2	Varga
Light - technology	3rd	2/2	Beňa
Designing in electric power engineering	3rd	2/2	Ilenin
Generation and transmission of electrical energy	3rd	2/2	Kolcun Kanálik
Electric Power Plants	4th	2/2	Kolcun
Operating systems - Linux I	4th	2/2	Kurimský
Faults in Electric Power System	4th	2/2	Beňa
Computers in Electric Power Engineering	4th	1/2	Cimbala
Overvoltage protection of computer networks	4th	3/1	Dolník
Bachelor Thesis I	5th	0/5	(Supervisors)
Electrical installation and substation	5th	2/3	Varga
Software engineering environment	5th	2/2	Cimbala
High Voltage Engineering	5th	2/3	Kolcunová
Economy in the electric power engineering	5th	2/2	Mészáros
Operation of electric power plants	5th	2/2	Džmura
Bachelor Thesis II	6th	0/9	(Supervisors)
Electrical relaying in electric power system	6th	2/3	Hvizdoš
Electric Power System Operation	6th	2/3	Kolcun
Unconventional energy sources	6th	2/2	Tkáč
Safety at work on electric devices	6th	2/2	Balogh
Overvoltage protection of computer networks	6th	3/1	Dolník

4.2 Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (Hours per week)	Name of lecturer
Automatization of Electric Power Plant Service	7th	2/2	Cimbala
Quality and reliability of electric power delivery	7th	2/2	Beňa Kanálik
Simulation in Electric Power System	7th	2/3	Medveď
Optimisation of Electric Power System Operation	7th	2/3	Kolcun

Subject	Semester	Lectures/exercises (Hours per week)	Name of lecturer
Electrical Heating and Electroheat Devices	7th	2/2	Novák
Overvoltages in Electric Networks	7th	2/2	Dolník
Simulation in Electric Power System	7th	2/3	Medveď
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
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
Protection Systems of Electric Power System	9th	2/2	Hvizdoš
Automated electrical installation systems	9th	2/2	Džmura
Electromagnetic compatibility	9th	3/1	Dolník
New trends of the power system economy	9th	2/2	Mészáros
Software engineering environment	9th	2/2	Cimbala
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
Safety at work on electric devices	10th	2/2	Balogh

4.3 Postgraduate Study (PhD.)

Subject	Semester	Lectures/exercises (Hours per week)	Name of Lecturer
Theoretic electric power engineering (4)	1st	0/2	Cimbala Kolcun Kolcunová Novák Varga Birkner Meszáros Beňa
Scientific Activity 1 (4)	1st	0/8	(Supervisors)

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 (4)	3rd	0/2	Cimbala Kolcun Kolcunová Novák Varga Mészáros Beňa
Scientific Activity 2 (4)	3rd	0/16	(Supervisors)
Scientific Activity 2	4th	0/2	(Supervisors)
Scientific Activity 3 (4)	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.
- ***Research of dynamic processes in the electric power system of the Slovak Republic.*** Scientific grant agency project (S.G.A.) No. ***1/0388/13,*** duration: ***2013-2015,*** co-ordinator: Kolcun, M.
- ***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

- ***University Science Park Technicom for innovative applications with support of knowledge technologies (Univerzitný vedecký park TECHNICOM pre inovačné aplikácie s podporou znalostných technológií),*** Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, No. 26220220182, duration: 2013 – 2015

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.,

6.1.1. Visitors to the Department

- Assoc. prof. Ph.D. Hristo Krachunov – Technical University of Varna, Bulgaria
- prof. Ing. Stanislav Rusek, CSc. – VŠB Technical University of Ostrava, Czech Republic
- doc. Ing. Radomír Goňo, PhD. – VŠB Technical University of Ostrava, Czech Republic
- Prof. Dr hab.inz. Waldemar Minkina – Czestochowa University of Technology, Poland
- Dr. inz. Slawomir Grys – 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. Netherlands
- 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.: Czech Technical University in Prague, Czech Republic, 29.1.-1.2.2013
- Džmura, J.: Czech Technical University in Prague, Czech Republic, 29.1.-1.2.2013
- Novák, M.: Technical University of Riga, Latvia, 27.2. – 31.5.2013
- Király, J.: WBU, Pilsen, Czech Republic, 3.2 – 3.5.2013
- German-Sobek, M.: WBU, Pilsen, Czech Republic, 3.2 – 3.5.2013
- Jakubčák, R.: Czech Technical University in Prague, Czech Republic, 3.2 – 3.5.2013
- Cimbala, R.: Budapest University of Technology and Economics, Hungary, 16.-17.4.2013
- Cimbala, R.: Budapest University of Technology and Economics, Hungary, 17.-19.4.2013
- Dolník, B.: Budapest University of Technology and Economics, Hungary, 17.-18.4.2013
- Petráš, J.: Budapest University of Technology and Economics, Hungary, 17.-18.4.2013
- Cimbala, R.: Technical University of Liberec, Czech Republic, 21.-23.5.2013
- Hvizdoš, M.: Czech Technical University in Prague, Czech Republic, 26.5.-1.6.2013
- Ilenin, S.: Czech Technical University in Prague, Czech Republic, 26.5.-1.6.2013
- Medveď, D.: Czech Technical University in Prague, Czech Republic, 26.5.-1.6.2013
- Kolcun, M.: VŠB-Technical University of Ostrava, Czech Republic, 28.-30.5.2013
- Kolcunová, I.: VŠB-Technical University of Ostrava, Czech Republic, 28.-30.5.2013

- Balogh, J.: VŠB-Technical University of Ostrava, Czech Republic, 28.-30.5.2013
- Kolcun, M.: Universita Degli Study di Genova, Italy, 31.8.-11.9.2013
- Kolcunová, I.: Universita Degli Study di Genova, Italy, 31.8.-11.9.2013
- Cimbala, R.: Universita Degli Study di Genova, Italy, 31.8.-11.9.2013
- Tkáč, J.: Czech Technical University in Prague, Czech Republic, 1.-7.9.2013
- Kolcun, M.: Wold Energy Council, Daegu, South Korea, 8.10.-20.10.2013
- Kolcunová, I.: Wold Energy Council, Daegu, South Korea, 8.10.-20.10.2013

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	36	36	2

8 OTHER ACTIVITIES

8.1 Conferences, Seminars

- Symposium: Elektroenergetika 2013, 18.-20.9.2013, Stará Lesná - High Tatras, Slovak Republic
- Specialized Seminar: 40 years of cooperation between Department of Electric Power Engineering FEI TUKE with electric power industry, 7.-8.11.2013, Poráč, Slovak Republic.

8.2 Expert References

- Marton, K.: Opinion of PhD Thesis by Ing. Jozef Drga, ŽU Žilina Faculty of Electrical Engineering 2013, Slovak republic.

8.3 Projects for Industry Companies

- Kolcun, M., Kurimský, J.: Evaluation of interlaboratory comparating tests, VSE,a.s. Košice, 2013, Slovak Republic
- Kolcun, M.: Study, VSD,a.s. Košice, 2013, Slovak Republic
- Cimbala, R.: Processing and Evaluation of HF signal in earthning system KS 03 Veľké Zlievce, PSM, s.r.o. Košice, 2013, Slovak Republic
- Kolcun, M.: Design of fuse protection and maximal load of cables in the middle of TS protected pole, VSE,a.s., 2013, Slovak Republic
- Cimbala, R.: Calibration, U.S.Steel Košice, 2013, Slovak Republic
- Kolcun, M.: Contract for providing service on EE 2013 Symposium, VSE,a.s., 2013, Slovak Republic

8.4 Compositions for Dissertation Examinations

- Košický, T.: Usage of FACTS devices with possibility of energy accumulation in electric power network (Beňa, Ľ.)
- Rusek, B.A.: Use of selected forecasting methods for the planning of prices for biomass applicable to renewable energy sources (Kolcun, M.)
- Novák, M.: Transient stability of Power System of Slovak Republic, (Kolcun, M.)
- Király, J.: Thermal degradation of insulating systems, (Cimbala, R.)
- German-Sobek, M.: Dielectric spectroscopy of insulation materials, (Cimbala, R.)
- Pavlík, M.: Research of electromagnetic waves transfer, reflection and absorption in laminated materials, (Kolcunová, I.)
- Zbojovský, J.: Electromagnetic Field Modelling in Inhomogeneous Material Environs, (Mészáros, A.)
- Jakubčák, R.: Possibilities of using FACTS devices to decrease active power losses, (Beňa, Ľ.)
- Čonka, Z.: Research of devices designed to improve the transient stability of the power system, (Kolcun, M.)

9 PUBLICATIONS

9.1 Journals

[1] KURIMSKÝ, J. - DOLNÍK, B. - KOLCUN, M.: Unipolar characteristics of ZnO ceramics / - 2013. In: Journal of Electrostatics. Vol. 71, No. 3 (2013), pp. 418-421. ISSN 0304-3886, http://www.sciencedirect.com/science/article/pii/S0304388612001246.

[2] MARTON, K. - TOMČO, L. - CIMBALA, R. - KIRÁLY, J. - RAJŇÁK, I.M. - TIMKO, M. - KOPČANSKÝ, P. - KOLCUNOVÁ, I. - KURIMSKÝ, J. - GERMAN-SOBEK, M.: Magnetic fluid in ionizing electric field / - 2013. In: Journal of Electrostatics. Vol. 71, no. 3 (2013), p. 467-470. - ISSN 0304-3886

[3] MARTON, K. - KAPÁS, P. - CIMBALA, R. - KOLCUN, M.: The contribution of space charge in a high non-homogenous electric field to the creation of negative differential conductivity / - 2013. In: Journal of Electrostatics. Vol. 71, no. 3 (2013), p. 276-280. - ISSN 0304-3886, http://www.sciencedirect.com/science/article/pii/S030438861200174X.

[4] PADLYAK, B. V. - ADAMIV, V. T. - BURAK, Ya. V. - KOLCUN, M.: Optical harmonic transformations in borate glasses with Li2B4O7, LiKB4O7, CaB4O7, and LiCaBO3 compositions / - 2013. In: Physica B: Condensed Matter. Vol. 412 (2013), p. 79-82. - ISSN 0921-4526, http://www.sciencedirect.com/science/article/pii/S0921452612010496.

[5] RAJŇAK, M. - KURIMSKÝ, J. - DOLNÍK, B. - MARTON, K. - TOMČO, L. - TACULESCU, A. - VEKAS, L. - KOVAC, J. - VAVRA, I. - TÓTHOVÁ, J. - KOPČANSKÝ, P. - TIMKO, M.: Dielectric response of transformer oil based ferrofluid in low frequency range / - 2013. In: Journal of Applied Physics. Vol. 114, no. 3 (2013), p. 34313-1-34313-6. - ISSN 0021-8979

[6] MARTON, K. - BALOGH, J. - DŽMURA, J. - PETRÁŠ, J.: Elimination of dust particle sedimentation in industry environment / - 2013. In: Journal of Electrostatics. Vol. 71, no. 3 (2013), p. 208-213. - ISSN 0304-3886

[7] MEDVEĎ, D.: Utilising of EMTP ATP for Modelling of Decentralized Power Sources Connection / - 2013. In: Transactions on electrical engineering. Vol. 2, no. 1 (2013), p. 26-29. - ISSN 1805-3386, http://www.transoneleng.org/2013/20131e.pdf.

[8] BALOGH, J. - PETRÁŠ, J.: Inductive sensor parameters important for partial discharge measurement / - 2013. In: Electrotehnica, Electronica, Automatica. Vol. 61, no. 1 (2013), p. 14-18. - ISSN 1582-5175

[9] BALOGH, J. - PETRÁŠ, J. - HOCKO, P.: Utilization of solar systems / - 2013. In: Electrotehnica, Electronica, Automatica. Vol. 61, no. 1 (2013), p. 31-34. - ISSN 1582-5175

[10] BEŇA, Ľ. - JAKUBČÁK, R. - KOLCUN, M.: Use of Specialized Devices to Power Flow Control in Power Systems / - 2013. In: Transactions on Electrical Engineering. Vol. 2, no. 1 (2013), p. 30-33. - ISSN 1805-3386

[11] PAVLÍK, M.: Posúdenie denného osvetlenia meraním a výpočtom / - 2013. In: Světlo. Vol. 16, no. 3 (2013), p. 54-55. - ISSN 1212-0812

[12] DIMA, I. C. - GRABARA, J. - KOLCUN, M.: Econometric Model for Planning The Industrial Production / - 2013. In: Journal of Applied Mathematics and Computational Mechanics. Vol. 12, no. 1 (2013), p. 11-20. - ISSN 2299-9965, http://www.amcm.pcz.pl/get.php?article=2013_1/art_02.pdf.

[13] KANÁLIK, M.: Computation of RMS Voltage at the Point of Common Coupling in Low Voltage Three–phase Systems for Purposes of Power Quality Evaluation / - 2013. In: Transactions on electrical engineering. Vol. 2, no. 2 (2013), p. 50-53. - ISSN 1805-3386, http://www.transoneleng.org/2013/20132c.pdf.

[14] KOLCUNOVÁ, I. - HRINKO, M. - KURIMSKÝ, J.: Short-term thermal stress of high voltage coil / - 2013. In: Przegląd Elektrotechniczny. Vol. 89, no. 11 (2013), p. 16-19. - ISSN 0033-2097, http://pe.org.pl/articles/2013/11/5.pdf.

[15] DŽMURA, J. - PETRÁŠ, J. - BALOGH, J.: Verifikácia eliminácie povrchových nábojov / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 1 (2013), pp. 18-20. - ISSN 1337-0103

[16] DŽMURA, J. - PETRÁŠ, J. - BALOGH, J.: Elektrické parametre priemyselných fólií a ich vplyv na vznik povrchových nábojov / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 1 (2013), pp. 9-12. - ISSN 1337-0103

[17] KOLCUNOVÁ, I. - LISOŇ, L. - CIMBALA, R.: Vplyv teploty na zmenu vlastnosti izolačných olejov / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 1 (2013), pp. 5-8. - ISSN 1337-0103, http://web.tuke.sk/fei-kee/jses/.

[18] KOLCUNOVÁ, I. - HRINKO, M. - KURIMSKÝ, J.: Vplyv krátkodobého tepelného namáhania na výbojovú činnosť / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 1 (2013), pp. 13-17. - ISSN 1337-0103, http://jeen.fei.tuke.sk/jeen2/index.php/JSES/article/view/292/260.

[19] JAKUBČÁK, R. - KMEC, M. - BEŇA, Ľ.: Možnosti využitia FACTS zariadení v elektrizačných sústavách / - 2013. In: Elektroenergetika. Vol. 6, No. 1 (2013), pp. 22-25. ISBN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/294.

[20] PAVLÍK, M. - KOLCUNOVÁ, I. - DOLNÍK, B. - KURIMSKÝ, J. - MÉSZÁROS, A. - KOLCUN, M. - MEDVEĎ, D. - ZBOJOVSKÝ, J.: Meranie účinnosti tienenia elektromagnetického poľa v závislosti na vlhkosti v oblasti od 1 GHz

do 5 GHz / - 2013. In: Elektroenergetika. Vol. 6, No. 2 (2013), pp. 22-25. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/296/273.

[21] ČONKA, Zs. - KMEC, M. - KOLCUN, M. - NOVÁK, M.: Vplyv UPFC na dynamickú stabilitu sústavy / - 2013. In: Elektroenergetika. Vol. 6, No. 2 (2013),pp.13-15. ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/300/270.

[22] ČONKA, Zs. - KOLCUN, M.: Utilizing SVC for transient stability enhancement / - 2013. In: Elektroenergetika. Vol. 6, No. 2 (2013), pp. 16-18. ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/301/271.

[23] JAKUBČÁK, R. - BEŇA, Ľ. - TUZIKOVA, V.: Využitie statického synchrónneho kompenzátora na znižovanie činných strát v elektrizačných sústavách / - 2013. In: Elektroenergetika. Vol. 6, No. 2 (2013), pp. 5-8. - ISSN 1337-6756

[24] KAPRAĽ, T. - KOLCUNOVÁ, I. - PAVLÍK, M. - OROSI, Ľ.: Mapovanie elektrosmogu v počítačovej učebni / - 2013. In: Elektroenergetika. Vol. 6, No. 2 (2013), pp. 26-30. - ISSN 1337-6756

[25] KMEC, M. - DZIAK, Jozef - BEŇA, Ľ. - ČONKA, Zs.: Zlepšenie prenosovej schopnosti vedení využitím TCSC / - 2013. In: Elektroenergetika. Vol. 6, No. 2 (2013), pp. 9-12. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen.

[26] KMEC, M. - BEŇA, Ľ. - LISOŇ, L.: Testovanie ochranných funkcií inteligentného elektronického zariadenia REF 543 / - 2013. In: Elektroenergetika. Vol. 6, No. 2 (2013), pp. 31-34. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen.

[27] GERMAN-SOBEK, M. - CIMBALA, R. - KIRÁLY, J.: Influence of ageing and water treeing to degradation of XLPE insulation / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 2 (2013), pp. 26-30. - ISSN 1337-0103, http://jeen.fei.tuke.sk/jeen2/index.php/JSES/article/view/291/277.

[28] KIRÁLY, J. - CIMBALA, R. - GERMAN-SOBEK, M.: Bridging Phenomenon in Insulating Liquids / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 2 (2013), pp. 21-25. - ISSN 1337-0103, http://jeen.fei.tuke.sk/jeen2/index.php/JSES/article/view/289/276.

[29] KURIMSKÝ, J. - ŠEVEC, Š.: Zmeny elektrických parametrov varistorov vplyvom impulzného namáhania / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 2 (2013), pp. 31-33. - ISSN 1337-0103, http://jeen.fei.tuke.sk/jeen2/index.php/JSES/article/view/307.

[30] DOLNÍK, B. - MIHÁČ, Maroš: Účinok zvýšeného teplotného poľa na spekanú ZnO keramiku / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 2 (2013), pp. 34-35. Spôsob prístupu: http://jeen.fei.tuke.sk/index.php/JSES/article/download/308/280.

[31] ČONKA, Zs. - KOLCUN, M.: Impact of TCSC on the Transient Stability / - 2013. In: Acta Electrotechnica et Informatica. Vol. 13, No. 2 (2013), pp. 50-54. - ISSN 1335-8243, www.versita.com/aei.

[32] KOLCUN, M. - HOCKO, P. - NOVÁK, M.: Influence of the RES on Long Term Dynamics in Power System / - 2013. In: Acta Electrotechnica et Informatica. Vol. 13, No. 2 (2013), pp. 13-17. - ISSN 1338-3957, http://www.degruyter.com/view/j/aeei.2013.13.issue-2/aeei-2013-0024/aeei-2013-0024.xml?format=INT.

[33] JAKUBČÁK, R. - KMEC, M. - BEŇA, Ľ.: Optimalizácia v distribučných sieťach s využitím PSO pomocou SVC / - 2013. In: Elektroenergetika. Vol. 6, No. 3 (2013), pp. 14-17. - ISSN 1337-6756

[34] MÉSZÁROS, A.: Modelovanie riadenia toku výkonu s využitím PST transformátora / - 2013. In: Elektroenergetika. Vol. 6, No. 1 (2013), pp. 5-11. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/281/262.

[35] TKÁČ, J. - HVIZDOŠ, M.: Utilization of the Fresnel principle for the concentration of solar radiation / - 2013. In: Elektroenergetika. Vol. 6, No. 3 (2013), pp. 18-20. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/download/311/288.

[36] HVIZDOŠ, M. - TKÁČ, J.: Vertical axis turbines of wind power plants / - 2013. In: Elektroenergetika. Vol. 6, No. 3 (2013), pp. 21-24. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/download/312/287.

[37] KANÁLIK, M.: Vplyv parametrov distribučných transformátorov 220,4 kV na potrebu kompenzácie činných strát vplyvom ich prúdu naprázdno / - 2013. In: Elektroenergetika. Vol. 6, No. 3 (2013), pp. 5-9. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/305.

[38] MEDVEĎ, D. - MIŠENČÍK, L.: Design of Dry Transformer Cooling / - 2013. In: Elektroenergetika. Vol. 6, No. 3 (2013), pp. 28-31. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/314/291.

[39] MEDVEĎ, D. - BELUŠČÁK, M.: Influence of oil transformer cooling on its lifetime / - 2013. In: Elektroenergetika. Vol. 6, No. 3 (2013), pp. 25-27. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/313/290.

[40] KOLCUNOVÁ, I. - ŠIPOŠ, M. - HRINKO, M.: Meranie korónových výbojov v UV spektre / - 2013. In: Starnutie elektroizolačných systémov. Vol. 8, No. 2 (2013), pp. 36-38. - ISSN 1337-0103, http://jeen.fei.tuke.sk/jeen2/index.php/JSES/article/view/310/282.

[41] TKÁČ, J. - BEŇA, Ľ.: Slnečné žiarenie a jeho spektrálne zloženie / - 2013. In: Elektroenergetika. Vol. 6, No. 1 (2013), pp. 12-14. - ISSN 1337-6756, http://jeen.fei.tuke.sk/index.php/jeen/article/view/283/263.

9.2 Textbooks

[1] KURIMSKÝ, J.: Linux for electrical power engineering - Volume 1 Study e-book for course TSEA-KEE-OS-LX1: LINUX I / - 1st ed. - Košice: TU - 2013. - 449 pp. ISBN 978-80-553-1334-4, http://web.tuke.sk/fei-kee/web/index.php?pg=linux-i&hl=sk.

[2] KURIMSKÝ, J.: Linux for electrical power engineering - Volume 2 Study e-book for course TSEA-KEE-OS-LX1: LINUX I / - 1st ed. - Košice: TU - 2013. - 388 pp. ISBN 978-80-553-1335-1, http://web.tuke.sk/fei-kee/web/index.php?pg=linux-i&hl=sk.

[3] PAVLÍK, M.: Návrh osvetlenia použitím programu Dialux / - 1st ed. - Košice: TU - 2013. - 149 pp. - ISBN 978-80-553-1458-7.

[4] HVIZDOŠ, M. - KMEC, M.: Skúšanie digitálnych ochrán pomocou testovacieho zariadenia CMC / 1st ed. - Košice: TU - 2013. - 98 pp. [CD-ROM]. - ISBN 978-80-553-1507-2.

[5] MÉSZÁROS, A.: Ekonomika elektroenergetiky Učebné texty pre študentov bakalárskeho štúdia/ - 1st ed. - Košice: TU - 2013. - 206 pp. [CD-ROM]. - ISBN 978-80-553-1512-6.

[6] HVIZDOŠ, M.: Inteligentné elektronické zariadenia ABB série 615 / - 1st ed. - Košice: TU - 2013. - 70 pp. - ISBN 978-80-553-1515-7.

[7] HVIZDOŠ, M.: Multifunkčný ochranný a ovládací terminál MiCOM P139 / - 1st ed. - Košice: TU - 2013. - 70 pp. - ISBN 978-80-553-1516-4.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	11	56	28

EXPERT'S ACTIVITY FOR PRACTICE

of Department of Electric Power Engineering

Diagnostic of High Voltage Power Devices

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

Special Measurement in Electric Power Engineering

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

Expertise and judge activity in electric power engineering focused on:

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

DEPARTMENT OF ELECTRONICS AND MULTIMEDIA COMMUNICATIONS

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

Head of Department:
prof. Ing. Jozef Juhár, CSc.
E-mail: jozef.juhár@tuke.sk

1 DEPARTMENT'S PROFILE

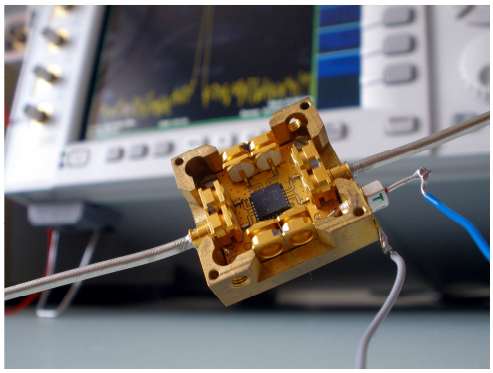
The Department of Electronics and Multimedia Communications was founded in 1969. The original name of department was Department of Electronics. The Department offers three types of full-time courses:

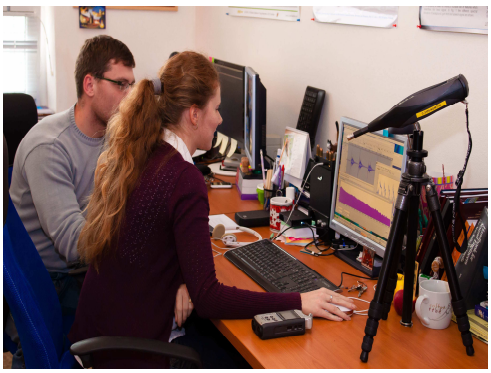
Bachelor's Degree course lasts in normal way 3 years and is leading to degree Bc. The graduates get more-or-less practical skills in mastering

- 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.

Teaching and research activities of the department are focused on advanced technologies of electronics, telecommunications and smart measuring systems. In addition to the theoretical and practical basics, the teaching is more concentrated on mobile and satellite technologies and services, automotive electronics, digital processing and transmission of multimedia signals (image, video, speech), cryptography and security in telecommunication networks, optoelectronics and optical communication, sensor systems, interactive telecommunications systems and services.

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.	
	prof. Ing. Ján Šaliga, 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.	
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.
	Mgr. Jana Fortes, PhD.	Ing. Ján Staš, PhD.
	Ing. Daniel Hládek, PhD.	Ing. Michal Varchola, PhD.
	Ing. Zita Klenovičová, CSc.	Ing. Peter Viszlay PhD.
	Ing. Martin Lojka, PhD.	Ing. Matej Žiga
	Ing. Eva Kiktová, PhD.	
Support staff:	Ing. Zuzana Ciulisová	Viera Šumáková
	Božena Marchevská	

Ph.D. students:

Internal form:
Ing. Martin Broda
Ing. Denis Dupák
Ing. Patrik Gallo
Ing. Marek Godla
Ing. Tomáš Harasthy
Ing. Peter Kažimír
Ing. Ondrej Kováč
Ing. Ján Krekáň
Ing. Jozef Lipták
Ing. Lenka Macková
Ing. Daniel Novák
Ing. Ján Pastirčák
Ing. Martin Petrvalský
Ing. Ján Ružbarský
Ing. Lukáš Sendrei
Ing. Ján Schneider
Ing. Martin Sulír
Ing. Matúš Tatarko
Ing. Ján Tóth
Ing. Ján Valiska
Ing. Jozef Vavrek
Ing. Daniel Zlacký

External form:
Ing. Martin Kmec
Ing. Matúš Kozák
Ing. František Rakoci
Ing. Peter Strnisko
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	Michaeli
Circuit theory	3rd	3/2	Kocur
Digital electronics	3rd	3/3	Galajda
Signals and systems	3rd	3/2	Mihalík
Microelectronic circuits	4th	3/2	Michaeli
Electronic measurement systems	4th	2/2	Šaliga
Digital electronic systems	4th	2/2	Galajda
CAD in electronics	5th	2/2	Galajda
Automotive electronics	5th	2/2	Gamec
Automotive embedded systems	6th	3/2	Drutarovský
Active and passive safety systems	6th	3/2	Gamec
Networks technology	6th	3/2	Čižmár

4.2 Undergraduate Study (Bc.) – Electronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Basics of electronics	2nd	3/2	Micheali
Digital electronics	3rd	3/3	Galajda
Circuit theory	3rd	3/2	Kocur
Signals and systems	3rd	3/2	Mihalík, Gladišová
High frequency and microwave technology	3rd	2/2	Gamec
Electronic measurement systems	4th	2/2	Šaliga
Digital electronic systems	4th	2/2	Galajda
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
Programming environments for electronics and communications	4th	1/2	Varchola, Šaliga
Videocommunications	5th	2/2	Mihalík
Networks architecture	5th	3/2	Čižmár
Bachelor thesis I.	5th	0/6	Turán
CAD in electronics	5th	2/2	Galajda
Automotive electronics	5th	2/2	Gamec
Microprocessor technology	5th	2/2	Drutarovský
Bachelor thesis II.	6th	0/9	Turán
Optoelectronic systems	6th	2/2	Turán
Smart measurement systems	6th	2/2	Šaliga
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	Michaeli
Digital electronics	3rd	3/3	Levický
Circuit theory	3rd	3/2	Kocur
Signals and systems	3rd	3/2	Mihalík, Gladišová
High frequency and microwave technology	3rd	2/2	Gamec
Electronic measurement systems	4th	2/2	Šaliga
Introduction to telecommunication	4th	3/2	Levický
Networks technology	4th	2/2	Čižmár
Electromagnetic waves and antennas	4th	2/2	Ovseník
Electroacoustics	4th	2/2	Juhár

Digital electronic systems	4th	2/2	Galajda
Programming environments for electronics and communications	4th	1/2	Varchola, Šaliga
Bachelor thesis I.	5th	0/6	Kocur
Switching technology	5th	3/2	Marchevský
Networks architecture	5th	3/2	Čižmár
Videocommunications	5th	2/2	Mihalík
Access networks	5th	3/2	Marchevský, Maceková
Microprocessor technology	5th	2/2	Drutarovský
Bachelor thesis II.	6th	0/9	Kocur
FPGA circuits	5th	2/2	Galajda
Satellite technology and services	6th	3/2	Marchevský
Mobile networks and services	6th	3/2	Doboš
Smart measurement systems	6th	2/2	Šaliga
Optoelectronic systems	6th	2/2	Turán

4.4 Graduate Study (Ing.) – Infoelectronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Digital signal processing	1th	3/2	Mihalík, Zavacký
Optoelectronics	1th	2/2	Turán
Programmable logic devices	1th	2/2	Varchola, Drutarovský
Signal processors	1th	3/2	Drutarovský
Electronic measurement	1th	3/2	Šaliga
Digital image processing and coding	2nd	3/2	Mihalík
Semestral projects	2nd	0/4	Mihalík
Processing and transmission of speech and audio	2nd	3/2	Juhár
Applied cryptography	2nd	3/2	Levický
Digital filters	2nd	2/2	Kocur
Microwave circuits and systems	2nd	3/2	Gamec
Optical communication systems	2nd	3/2	Turán
Master thesis I.	3rd	0/6	Mihalík
Database systems – SQL Oracle	3rd	2/2	Juhár
Digital television	3rd	3/2	Marchevský
Photonics	3rd	3/2	Turán
Medical electronics	3rd	3/2	Michaeli
Multimedia technologies	3rd	3/2	Levický
Mobile communications	3rd	3/2	Doboš
UWB sensor networks	3rd	2/2	Kocur, Rovňáková
Interactive telecommunications systems and services	3rd	3/2	Juhár
Master thesis II.	4th	0/18	Mihalík
Project management	4th	0/2	Marchevský

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
Spread-spectrum communication systems	1th	3/2	Kocur
Communication channel modelling	1th	2/2	Kocur
Signal processors	1th	3/2	Drutarovský
Processing and transmission of speech and audio	2nd	3/2	Juhár
Telecommunications systems theory	2nd	3/2	Čižmár
Optical communication systems	2nd	3/2	Turán
Semestral projects	2nd	0/4	Čižmár
Digital image processing and coding	2nd	3/2	Mihalík
Digital filters	2nd	2/2	Kocur
Applied cryptography	2nd	3/2	Levický
Master thesis I.	3rd	0/6	Čižmár
Database systems – SQL Oracle	3rd	2/2	Juhár
Mobile communications	3rd	3/2	Doboš
UWB sensor networks	3rd	2/2	Kocur, Rovňáková
Photonics	3rd	3/2	Turán
Digital television	3rd	3/2	Marchevský
Multimedia technologies	3rd	3/2	Levický
Interactive telecommunications systems and services	3rd	3/2	Juhár
Master thesis II.	4th	0/18	Čižmár
Project management	4th	0/2	Marchevský

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

- 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)
- Wireless Power Transmission for Sustainable Electronics (COST Action IC1301)
- 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)
- Technological Transfer Network (544197-TEMPUS-1-2013-1-IT-TEMPUS-JPHES)
- Wireless Sensor Network for Water Quality Monitoring (Hungary-Slovakia Cross-border Co-operation HUSK/1101/1.2.1/0091)
- Complex Modular Robotic System of Middle Category with Increased Intelligence (Ministry of Education of Slovak Republic Project, No. Req-00169-0001)
- 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)
- Laboratory Workplace for Electronic Course Controlled by IT Technology (E-Lab) (Ministry of Education of Slovak Republic KEGA Project, No. 029TUKE-4/2012)
- The Use of Remote Controlled Optical Fibre Refractometer in Teaching (Ministry of Education of Slovak Republic KEGA Project, No. 063TUKE-4/2013)
- Through-Wall Localisation of People by Means of Portable Ultra-Wideband Sensors (Project supported by DAAD and MŠVVaŠ)
- 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)
- Mitigation of Stochastic Effect in High-Bitrate All Optical Networks (Project of Agency for Science and Research, No. APVV-0025-12)
- Persons Localization in 3D Under Emergency Event based on UWB Radar System (Project of Agency for Science and Research, No. APVV-0404-12)
- The Research of Coexistence between Broadband LTE Networks and Digital Terrestrial TV Broadcasting DVB-T/DVB-T2 (Project of Agency for Science and Research, No. APVV-0696-12)
- 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)
- Short-Range UWB Sensor Networks for Detection, Localization and Tracking of Moving Persons (Scientific Grant Agency Project VEGA, No. 1/0563/13)
- Development of the Center of Information and Communication Technologies for Knowledge Systems (Operational Program Research and Development, No. ITMS-26220120030)
- Centre of Excellence of the Integrated Research & Exploitation the Advanced Materials and Technologies in the Automotive Electronics (Operational Program Research and Development, No. ITMS-26220120055)
- Competency Centre for Knowledge Technologies applied at Innovation of Production Systems in Industry and Services (Operational Program Research and Development, No. ITMS-26220220155)

- Research of Modules for Intelligent Robotic Systems (Operational Program Research and Development, No. ITMS-26220220141)
- University Scientific Park TECHNICOM for Innovative Application with Support of Knowledge Technologies (Operational Program Research and Development, No. ITMS-26220220182)

6 CO-OPERATION

6.1 Co-operation in Slovakia

- Elcom s.r.o., Prešov
- Slovak Academy of Science
- Slovak Telekom, a.s.
- VUS - Výskumný ústav spojov, n.o., Banská Bystrica
- ZŤS výskumno-vývojový ústav Košice, a.s.

6.1.2. Visitors to the Department

- Delegation led by prof. Xiaofei Wang, Wuhan Technological Institute, Wuhan, China, July 25-27, 2013

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
- Instituto Superior Técnico (IST), Lisbon, Portugal
- Statens Räddningsverk, Sweden
- ŠkodaAuto Mladá Boleslav, Czech Republic
- Wuhan Technological Institute, Wuhan, China
- 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
- Technische Universiteit Delft, Netherlands
- Universitat Ramon Llull, Barcelona, Spain
- Universitat Politecnica de Catalunya Barcelona Tech (UPC), Barcelona, Spain
- Technical University Budapest, Hungary
- Technical University of Ljubljana, Slovenia
- Technical University of Cluj-Napoca, Romania
- University of Firenza, Italy
- University of Gent, Belgium
- University of Maribor, Slovenia
- University of Sannio, Benevento, Italy
- University of Reggio Di Calabria, Italy
- University of Gävle, Sweeden

6.2.1. Visit of Staff Members to Foreign Institutions

- Broda,M., University of Pardubice, Czech Republic April 15-19, 2013
- Bugár,G., University of Zadar, Croatia September 23-29, 2013
- Bánoci,V., University of Zadar, Croatia September 23-29, 2013
- Cipov,V., TU Debrecen, Hungary May 06-17, 2013
- Cipov,V., AGH University of Science and Technology Krakow, Poland June 05-07, 2013
- Doboš,Ľ., TU Debrecen, Hungary May 06-10, 2013
- Doboš,Ľ., University of Pardubice, Czech Republic May 20-23, 2013
- Doboš,Ľ., TU Ilmenau, Germany May 28-31, 2013
- Doboš, Ľ., AGH University of Science and Technology Krakow, Poland June 05-07, 2013
- Doboš, Ľ., Janov, Italy Aug. 31 – Sept. 11, 2013
- Doboš, Ľ., Malaga, Spain October 09-12, 2013
- Drutarovský,M., Bonn, Germany April 01-04, 2013
- Drutarovský,M., TU Ilmenau, Germany April 06-13, 2013
- Drutarovský,M., VUT Brno, Czech Republic June 10-12, 2013
- Drutarovský,M., Avignon, France May 29 – June 01, 2013
- Drutarovský,M., Fréjus, France June 22-27, 2013
- Drutarovský,M., BUTE Budapest, Hungary Sep. 30 – Oct. 01, 2013
- Drutarovský,M., University of Freiburg, Germany December 11-13, 2013
- Dupák,D., University of Pardubice, Czech Republic April 15-19, 2013
- Fortes,J TU Ilmenau, Germany April 06-13, 2013
- Fortes,J., Tel Aviv, Israel October 20-25, 2013
- Galajda,P., TU Ilmenau, Germany April 06-13, 2013
- Galajda,P., VUT Brno, Czech Republic June 17-18, 2013
- Galajda,P., TU Ilmenau, Germany June 18-28, 2013
- Galajda,P., BUTE Budapest, Hungary Sep. 30 – Oct. 01, 2013
- Galajda,P., EC, Brussels, Belgium October 23-25, 2013
- Galajda,P., VUT Brno, Czech Republic October 28-29, 2013
- Gallo,P., Leuven, Belgium September 10-18, 2013
- Gazda,J., BUTE Budapest, Hungary February 07, 2013
- Gazda,J., BUTE Budapest, Hungary September 30, 2013
- Gamcová,M., TU Ilmenau, Germany November 25-26, 2013
- Gamcová,M., TU Dresden, Germany November 27-28, 2013
- Gamec,J., TU Ilmenau, Germany November 25-26, 2013
- Gamec,J., TU Dresden, Germany November 27-28, 2013
- Gladišová,I., TU Ilmenau, Germany November 25-26, 2013
- Gladišová,I., TU Dresden, Germany November 27-28, 2013
- Godla,M., BUTE Budapest, Hungary Sep. 30 – Oct. 01, 2013
- Hládek,D., Hradec nad Moravici, Czech Republic September 04-06, 2013
- Juhár,J., EC, Brussels, Belgium March 13-15, 2013
- Juhár,J., Avignon, France May 29 – June 01, 2013
- Juhár,J., EC, Brussels, Belgium September 11-14, 2013
- Juhár,J., TU Plzeň, Czech Republic October 15-16, 2013
- Kažimír,P., BUTE Budapest, Hungary December 09-12, 2013
- Kažimír,P., TU Ilmenau, Germany Aug. 31 – Sept. 13, 2013
- Kiktová,E., TU Debrecen, Hungary May 05-17, 2013

- Kiktová,E., AGH University of Science and Technology Krakow, Poland June 05-07, 2013
- Kocur,D., TU Ilmenau, Germany April 06-13, 2013
- Kocur,D., VUT Brno, Czech Republic June 10-12, 2013
- Kocur,D., TU Ilmenau, Germany June 18-28, 2013
- Kocur,D., Funchal, Portugal Septemer 14-21, 2013
- Kocur,D., BUTE Budapest, Hungary Sep. 30 – Oct. 01, 2013
- Kocur,D., VUT Brno, Czech Republic October 10-11, 2013
- Kocur,D., EC, Brussels, Belgium October 23-25, 2013
- Lipták,J., BUTE Budapest, Hungary December 10-13, 2013
- Lojka,M., Gdansk, Poland February 03-07, 2013
- Lojka,M., AGH University of Science and Technology Krakow, Poland June 05-07, 2013
- Lojka,M., University of Zadar, Croatia September 24-27, 2013
- Marchevský,S., BUTE Budapest, Hungary Sep. 30 – Oct. 01, 2013
- Michaeli,L., Cosenza Rende, Italy Jan.28 – Feb. 01, 2013
- Michaeli,L., Barcelona, Spain July 13-22, 2013
- Michaeli,L., VUT Brno, Czech Republic June 09-11, 2013
- Michaeli,L., BUTE Budapest, Hungary Sep. 30 – Oct. 01, 2013
- Novák,D., TU Ilmenau, Germany Oct. 12 – Dec. 05, 2013
- Ondáš,S., TU Debrecen, Hungary May 06-10, 2013
- Papaj,J., Gdansk, Poland February 03-07, 2013
- Papaj,J., TU Ilmenau, Germany May 28-31, 2013
- Pastirčák,J., BUTE Budapest, Hungary September 30, 2013
- Pastirčák,J., Biel, Switzerland November 25-28, 2013
- Petrvalský,M., University of Pardubice, Czech Republic April 15-19, 2013
- Pleva,M., Gdansk, Poland February 03-07, 2013
- Pleva,M., Lisbon, Portugal April 03-06, 2013
- Pleva,M., AGH University of Science and Technology Krakow, Poland June 05-07, 2013
- Pleva,M., TU Bucharest, Romania June 06-09, 2013
- Pleva,M., Gdansk, Poland September 25-27, 2013
- Pleva,M., Nijmegen, Nederland October 13-15, 2013
- Pleva,M., Vilnius, Latvia November 05-08, 2013
- Staš,J., Hradec nad Moravici, Czech Republic September 04-06, 2013
- Staš,J., TU Ostrava, Czech Republic October 13-15, 2013
- Šaliga,J., Cosenza Rende, Italy Jan.28 – Feb. 01, 2013
- Šaliga,J., Barcelona, Spain July 09-22, 2013
- Šaliga,J., BUTE Budapest, Hungary Sep. 30 – Oct. 01, 2013
- Varchola,M., Cancún, Mexico December 05-14, 2013
- Vavrek,J., TU Debrecen, Hungary May 05-17, 2013
- Vavrek,J., Roma, Italy July 01--06, 2013
- Vavrek,J., Barcelona, Spain October 17-21, 2013
- Viszlay,P., TU Debrecen, Hungary May 05-17, 2013
- Viszlay,P., Bucharest, Romania June 06-09, 2013

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 the editorial board of the journal "Radioengineering".
- 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.
- Juhár, J.: Member of the editorial board of the journal "Slaboproudý obzor".
- 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".
- Šaliga, J.: Member of the editorial board of the journal "Radioengineering".
- 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 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".
- Šaliga, J.: Scientific Grant Agency of Slovak Republic.
- Šaliga, J.: Member of scientific board of Slovak Institute of Metrology.
- Šaliga, J.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Turán, J.: Member of the Slovak Technical Standardization Committee No.53 for Cables, Conductors and Isolating Materials.
- Turán, J.: Member of the Slovak Technical Standardization Committee No.43 for Terminology.
- Turán, J.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".

6.5 Contracts, International Scientific Projects

- 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)
- Wireless Power Transmission for Sustainable Electronics (COST Action IC1301)
- 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)
- Technological Transfer Network (544197-TEMPUS-1-2013-1-IT-TEMPUS-JPHES)
- Wireless Sensor Network for Water Quality Monitoring (Hungary-Slovakia Cross-border Co-operation HUSK/1101/1.2.1/0091)

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	57	53	6

8 PUBLICATIONS

8.1 Books

[1] GAMEC,J.-GAMCOVÁ,.: Filtrácia zašumených vektorov pohybu In: Košice: TU, Slovakia, 2013, 78 pp.

[2] GLADIŠOVÁ,I.-MIHALÍK,J.: Geometrické vektorové kvantizátory. In: Košice: TU, Slovakia, 2013, 97 pp.

[3] MACEKOVÁ,Ľ.-MARCHEVSKÝ,S.: Vybrané problémy číslicovej filtrácie poškodených obrazových sekvencií a vyhodnocovania ich kvality. In: Košice: TU, Slovakia, 2013, 90 pp.

[4] MIHALÍK,J.: Efektívne kódovanie obrazov. In: Košice: TU, Slovakia, 2013, 66 pp.

[5] MIHALÍK,J.: Metódy a algoritmy optimalizácie vektorových kvantizátorov. In: Košice: TU, Slovakia, 2013, 63 pp.

[6] MIHALÍK,J.-ZAVACKÝ,J.: Diskrétne signály. In: Košice: TU, Slovakia, 2013, 75 pp.

[7] MIHALÍK,J.-GLADIŠOVÁ,I.: Číslicová filtrácia signálov (Návody na cvičenia). In: Košice: TU, Slovakia, 2013, 81 pp.

[8] ŠALIGA,J.: Testovanie AD prevodníkov. In: Košice: TU, Slovakia, 2013, 113 pp.

[9] ZAVACKÝ,J.-MIHALÍK,J.-GLADIŠOVÁ,I.: Periodické a kváziperiodické signály (Návody na cvičenia). In: Košice: TU, Slovakia, 2013, 70 pp.

8.2 Textbooks

[1] KOCUR,D.-FORTES,J.: Short-Range Tracking of Moving Targets by Handheld UWB Radar System. In: Microwave and Milimeter Wave Circuits and Systems: Emerging Design, Technologies and Applications, Chichester: JohnWiley & Sons, Ltd, 2013, pp. 209-225.

8.3 Journals

[1] CIPOV,V.-DOBOŠ,Ľ.-PAPAJ,J.: Performance Analysis of the Anchor-free Localization Algorithm with Low-Complexity Method for Node Distance Estimation Enhancement Using ToA. In: Journal of Electrical and Electronics Engineering, Vol. 6, no. 1 (2013), pp. 9-12.

[2] FORTES,J.-KOCUR,D.: UWB Radar Signal Processing for Positioning of Persons Changing Their Motion Activity. In: Acta Polytechnica Hungarica, Vol. 10, no. 3 (2013), pp. 165-184.

[3] FORTES,J.-KOCUR,D.-KAŽIMÍR,P.: Investigation of Localization Accuracy for UWB Radar Operating In Complex Environment. In: Acta Polytechnica Hungarica, Vol. 10, no. 5 (2013), pp. 203-219.

[4] GAMEC,J.-JANIČ,R.-KOCUR,D.-GAMCOVÁ,M.: Zobrazovanie statických objektov lokalizovaných za stenou pomocou UWB radaru so syntetickou apertúrou. In: Posterus.sk, Vol. 6, no. 9 (2013), pp. 1-14.

[5] GLADIŠOVÁ,I.-MIHALÍK,J.: Algoritmy DCT vizuálneho objektu. In: Slaboproudý obzor, Vol. 69, no. 1 (2013), pp. 1-6.

[6] GLADIŠOVÁ,I.-VIRÁG,L.: Prenosové systémy využívajúce princíp diverzity. In: Posterus.sk, Vol. 6, no. 3 (2013), pp. 1-7.

[7] HARASTHY,T.-OVSENÍK,Ľ.-TURÁN,J.: Detector of Traffic Signs with using HSV Color Model. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 6, no. 2 (2013), pp. 21-25.

[8] KOCUR,D.-ŠVECOVÁ,M.-FORTES,J.: Through-the-wall Localization of a Moving Target by Two Independent Ultra Wideband (UWB) Radar Systems. In: Sensors, Vol. 13, no. 9 (2013), pp. 11969-11997.

[9] KOKOŠKA,R.-VALISKA,J.: Analýza QoS strímu pre MHP služby v IP sieťach v simulačnom prostredí Opnet. In: Posterus.sk, Vol. 6, no. 9 (2013), pp. 1-8.

[10] KOKOŠKA,R.-VALISKA,J.: Sieťove softvérové simulátory pre IPTV kvalitu služieb. In: Posterus.sk, Vol. 6, no. 9 (2013), pp. 1-7.

[11] KOKOŠKA,R.-VALISKA,J.: Maskovanie stratených paketov 3D videotokov metódou in painting. In: Posterus.sk, Vol. 6, no. 10 (2013), pp. 1-8

[12] KOLLAR,Z.-GAZDA,J.-HORVÁTH,P.-VARGA,L.-KOCUR,D.: Iterative Signal Reconstruction of Deliberately Clipped SMT Signals. In: Science China Information Sciences, 2013, pp. 1-13.

[13] KOVÁČ,O.-MIHALÍK,J.: Spájanie obrazov s vyhladzovaním prechodu pomocou Laplaceovej pyramídy. In: Elektrorevue, Vol. 15, no. 3 (2013), pp. 212-215.

[14] KREKÁŇ,J.-PLEVA,M.-DOBOŠ,Ľ.: Security Audit of WLAN Networks Using Statistical Models of Specified Language Group. In: Journal of Electrical and Electronics Engineering, Vol. 6, no. 1 (2013), pp. 47-50.

[15] MACEKOVÁ,Ľ.-KORENKO,P.: CMOS integrovaný širokopásmový LNA zosilňovač s jedným vstupom - teoretické aspekty a simulačná fáza návrhu - 1.časť. In: Posterus.sk, Vol. 6, no. 7 (2013), pp. 1-13.

[16] MACEKOVÁ,Ľ.-KORENKO,P.: CMOS integrovaný širokopásmový LNA zosilňovač s jedným vstupom - teoretické aspekty a simulačná fáza návrhu - 2.časť. In: Posterus.sk, Vol. 6, no. 8 (2013), pp. 1-8.

[17] ONDÁŠ,S.-JUHÁR,J.-PLEVA,M.-ČIŽMÁR,A.-HOLCER,R.: Service Robot SCORPIO with Robust Speech Interface. In: International Journal of Advanced Robotic Systems,Vol. 10, no. 3 (2013), pp. 1-11.

[18] ONDÁŠ,S.-PLEVA,M.-LOJKA,M.-SULÍR,M.-JUHÁR,J.: Server-based Speech Technologies for Mobile Robotic Applications. In: Journal of Electrical and Electronics Engineering, Vol. 6, no. 1 (2013), pp. 95-98.

[19] ONDÁŠ,S.-JUHÁR,J.-PLEVA,M.-LOJKA,M.-KIKTOVÁ,E.-SULÍR,M.-ČIŽMÁR,A.-HOLCER,R.: Speech Technologies for Advanced Applications in Service Robotics. In: Acta Polytechnica Hungarica, Vol. 10, no. 5 (2013), pp. 45-61.

[20] PAPAJ,J.-DOBOŠ,Ľ.-ČIŽMÁR,A.: Enhanced DSR Routing Protocol for the Short Time Disconnected MANET. In: Journal of Electrical and Electronics Engineering, Vol. 6, no. 1 (2013), pp. 99-102.

[21] PAPAJ,J.-DOBOŠ,Ľ.-ČIŽMÁR,A.: Performance Analysis of the Enhanced DSR Routing Protocol for the Short Time Disconnected MANET to the OPNET Modeler. In: Journal of Electrical and Electronics Engineering, Vol. 6, no. 1 (2013), pp. 103-106.

[22] PAPAJ,J.-DOBOŠ,Ľ.-ČIŽMÁR,A.: Functionality Validation of the New QoS and Security Integration Model for MANET. In: Communications, Vol. 15, no. 2A (2013), pp. 134-138.

[23] PLEVA,M.-JUHÁR,J.: Building of Broadcast News Database for Evaluation of the Automated Subtitling Service. In: Communications, Vol. 15, no. 2A (2013), pp. 124-128.

[24] RIDZOŇ,R.-LEVICKÝ,D.: Content Protection in Grayscale and Color Images based on Robust Digital Watermarking. In: Telecommunication Systems, Vol. 52, no. 3 (2013), pp. 1617-1631.

[25] RUŽBARSKÝ,J.-OVSENÍK,Ľ.-TURÁN,J.: Traffic Signs Inventory System. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 6, no. 1 (2013), pp. 44-49.

[26] SENDREI,L.-VALISKA,J.-MARCHEVSKÝ,S.: H.264 Video Transmission over WLAN in OPNET Modeller. In: Journal of Electrical Engineering. Vol. 64, no. 2 (2013), pp. 112-117.

[27] SVETLÍKOVÁ,D.-KOVÁČ,O.: Aplikácia DPCM a rovnomerného kódovania pri kompresii zvuku. In: Posterus.sk, Vol. 6, no. 6 (2013), pp. 1-6.

[28] ŠALIGA,J.-KOLLAR,I.- MICHARLI,L. et al.: A Comparison of Least Squares and Maximum Likelihood Methods Using Sine Fitting in ADC Testing. In: MEASUREMENT, Vol. 46, no. 10 (2013), pp. 4362-4368.

[29] ŠALIGA,J.-AGREŽ,D.: Introduction to the ACTA IMEKO Issue Dedicated to Selected Papers Presented in TC4 at the 20th IMEKO World Congress. In: Acta Imeko, Vol. 2, no. 1 (2013), pp. 3-4.

[30] TATARKO,M.-OVSENÍK,Ľ.-TURÁN,J.: Software Package for Analyze FSO Links. In: Infocommunications Journal, no. 1 (2013), pp. 1-9.

[31] TATARKO,M.-OVSENÍK,Ľ.-TURÁN,J.: Using Multiple Input Multiple Output as Hybrid Free Space Optics/Radio Frequency Links. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 6, no. 1 (2013), pp. 68-72.

[32] TATARKO,M.-HARASTHY,T.: Spájanie optických vlákien. In: Posterus.sk, Vol. 6, no. 3 (2013), pp. 1-10.

[33] TÓTH,J.-OVSENÍK,Ľ.-TURÁN,J.: The New Statistical Model for FSO Systems. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 6, no. 2 (2013), pp. 42-45.

[34] VALISKA,J.-KOKOŠKA,R.: Sledovanie farebných objektov vo videu s využitím časticového filtra. In: Posterus.sk, Vol. 6, no. 10 (2013), pp. 1-8.

[35] ZAVACKÝ,J.-MIHALÍK,J.: Banky filtrov pre mnohokanálové diskrétne sústavy. In: Slaboproudý obzor, Vol. 69, no. 2 (2013), pp. P1-P12.

[36] ZAVACKÝ,J.-MIHALÍK,J.: Converting of Sampling Frequency with a Non Integer Factor. In: Abidance of scientific evolution, Vol. 2, no. 2 (2013), pp. 4-20.

[37] ZLACKÝ,D.-STAŠ,J.-JUHÁR,J.-ČIŽMÁR,A.: Slovak Text Document Clustering. In: Acta Electrotechnica et Informatica, Vol. 13, no. 2 (2013), pp. 3-7.

[38] ZLACKÝ,D.-STAŠ,J.-JUHÁR,J.-ČIŽMÁR,A.: Term Weighting Schemes for Slovak Text Document Clustering . In: Journal of Electrical and Electronics Engineering, Vol. 6, no. 1 (2013), pp. 163-166.

8.4 Other publications

Publication Type	Conferences		Other
	Foreign	Home	
Number	29	68	6

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
prof. Ing. Daniela Perduková, PhD.
E-mail: Daniela.Perdukova@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. Daniela Perduková, PhD. 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. Jaroslava Žilková, PhD.
Assistant Professors:	Ing. Peter Bober, PhD. Ing. Peter Girovský, PhD. Ing. Ján Kaňuch, PhD. Ing. Milan Lacko, PhD. Ing. Karol Kyslan, PhD.
Senior Scientists:	Bc. Peter Hajsák Ing.Michal Pajkoš
Technical Staff:	Ing. Gabriela Brečková Zuzana Olexová doc. Ing. Michal Kostelný, PhD. prof. Ing. Jaroslav Timko, CSc.

Full time Ph.D. Students:

Ing. Ján Bačík	Ing. Radoslav Sivý
Ing. Mišel Batmed	Ing.Viktor Šlapák
Ing. Godem Ali M. Ismeal	Ing. Marek Vacek
Ing. Marek Pástor	

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 Automotive Mechatronics
- Laboratory of Pneumatic and Hydraulic Drives
- 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 (until August 2013)

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Electrical Engineering Fundamentals	1st	2/2	Kaňuch
Industrial Electronics	2nd	2/2	Záskalický
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 (until August 2013)

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Electrical Engineering Fundamentals	1st	2/2	Kaňuch
Microcontroller Techniques	3th	2/2	Lacko
Computer Applications	3th	2/2	Perduková
Electrical Machines	3rd	2/2	Záskalický
Electrotechnics in Vehicles	3th	2/2	Ďurovský
Linux I.	3th	2/2	Keusch
Electrical Actuators and Drives	4th	2/2	Žilková
ManMachine Interface	4th	2/2	Peduková
CAD Programs in Mechatronics	4th	2/2	Fedák
Industrial Electronics	4th	2/2	Záskalický
Bachelor Thesis I.	5th	0/8	Supervisor
Industrial Control Systems	5th	2/2	Fedor
Sensors and Measurement of Non-electrical Variables	4th	2/2	Girovský
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
Projecting of Electrical Systems	6th	2/2	Ferková
Technical Practice	6th	0/6	Perduková

4.3 Undergraduate Study (Bc.) - Industrial Engineering (until August 2013)

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Electrical Machines	3rd	2/2	Záskalický
Human Resource Management	3th	2/2	Girman
Pneumatic and Hydraulics Drives	3th	2/2	Bober
Computer Applications	3th	2/2	Perduková

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Linux I.	3th	2/2	Keusch
Electrical Actuators and Drives	4th	2/2	Žilková
Simulation of Production Systems	4th	2/2	Bober
Man-Machine Interface	4th	2/2	Perduková
Industrial Electronics	4th	2/2	Záskalický
Sensors and Measurement of Non-electrical Variables	4th	2/2	Girovský
Automation of Industrial Systems	5th	2/2	Fedor
Microprocessor Technique	5th	2/2	Lacko
Computer Suport of Management	5th	2/2	Fedák
Projecting 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 Undergraduate Study (Bc.) - Control of Electromechanical Systems (since September 2013)

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Electrical Engineering Fundamentals	1st	2/2	Kaňuch
Computer Applications	3th	2/2	Perduková
Electrical Machines	3rd	2/2	Záskalický
Electrotechnics in Vehicles	3th	2/2	Ďurovský
Linux I.	3th	2/2	Perduková
Industrial Electronics	3th	2/2	Záskalický
Electrical Drives	4th	2/2	Žilková
CAD Programs in Electrical Engineering	4th	2/2	Fedák
Power Semiconductor Converters and Sources	4th	2/2	Dudrik
Sensors and Measurement of Nonelectrical Variables	4th	2/2	Girovský
Industrial Control Systems	4th	2/2	Fedor
Bachelor Thesis I.	5th	0/8	Supervisor
Simulation of Production Systems	5th	2/2	Bober
Controlled Electrical Drives	5th	2/2	Ďurovský
Microprocessor Technique	5th	2/2	Lacko
ManMachine Interface	5th	2/2	Peduková
Bachelor Thesis II.	6th	0/8	Perduková
Modeling of Electromechanical Systems	6th	2/2	Fedák
Projecting of Electrical Systems	6th	2/2	Ferková
Pneumatic and Hydraulics Drives	6th	2/2	Bober

4.5 Graduate Study (Ing.) - Electrical Engineering (until August 2013)

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Power Semiconductor Systems	7th	2/2	Dudrik
Applied Electronics	7th	2/2	Kaňuch
Technology of Production in Electronics	7th	2/2	Slosarčík
Industrial Electronics	7th	2/2	Záskalický
Electrical Machines for Automatisation	7th	2/2	Ferková
Databases Systems	7th	2/2	Perduková
Servosystems	7th	2/2	Ďurovský
Control Management	8th	2/2	Girman
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	Bober
Semester Project	8th	0/4	Supervisor
Control Intelligent Control in El. Systems	9th	2/2	Žilková
3D Modelling and Simulation	9th	2/2	Ferková
Signal Processors	9th	2/2	Lacko
Enterprise Control Management	9th	2/2	Girman
Power Electrical Systems	9th	2/2	Kolcun
Technology of Production in Electrotechnics	9th	2/2	Girman
Diploma Thesis	9th	0/12	Supervisor

4.6 Graduate Study (Ing.) - Automation of Mechatronic Systems (until August 2013)

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

4.7 Graduate Study (Ing.) - Electrical Engineering (since September 2013)

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Power Semiconductor Systems	7th	2/2	Dudrik
Non-linear Mechatronic Systems	7th	2/2	Fedor
Servosystems	7th	2/2	Ďurovský
Dynamic Phenomena of Electrical Machines	7th	2/2	Záskalický
Electrical Machines for Automatisation	7th	2/2	Ferková
Technology of Production in Electronics	7th	2/2	Slosarčík

Vehicle Mechatronics	8th	2/2	Ďurovský
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	Bober
Semester Project	8th	0/4	Supervisor
Robotika	8th	2/2	Žilková
Diploma Thesis	9th	0/6	Supervisor
Mechatronic Production Systems	9th	2/2	Ďurovský
Control Intelligent Control in El. Systems	9th	2/2	Žilková
Three-Dimensional Modelling and Simulation	9th	2/2	Ferková
Signal Processors	9th	2/2	Lacko
Technology of Production in Electrotechnics	9th	2/2	Girman
Diploma Thesis	10th	0/12	Supervisor

4.8 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

4.9 Postgraduate Study (PhD.) - Mechatronic Systems

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

Scientific Activity	4th	0/8	Supervisor
Ph.D. Project IV	5th	0/2	Supervisor
Scientific Activity	5th	0/8	Supervisor
Ph.D. Thesis	5th	0/9	Supervisor

5 RESEARCH PROJECTS

- *Research of 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, KYSLAN, K.:EDPE 2013, Dubrovník, Croatia, 2-4 October 2013
- ĎUROVSKÝ, F.: Workshop at EUROMEC, Clusterland OÖ GmbH, Linz, (AT) 5-7 March 2013.
- ĎUROVSKÝ, F.: Johannes Kepler University, Linz, (AT), 7 March 2013.
- ĎUROVSKÝ, F.: Internationales Forum Mechatronik 2013, Winterthur (CH), 30-31 October 2013.
- ĎUROVSKÝ, F.: Department of Production Machines and Equipment, CVUT Prague, 28-29 November 2013.
- FERKOVÁ,Ž.: ISEM 2013, ČVUT Praha (CZ), 10-12 September 2013,
- FERKOVÁ,Ž: EDPE 2013,University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia
- FERKOVÁ,Ž.: TechSoft Praha, TU Liberec(CZ), 24.-27. April 2013.
- KAŇUCH, J., FERKOVÁ, Ž.: ZČU Plzeň (ČR), 21-25 Januar 2013.
- KAŇUCH, J., FERKOVÁ, Ž.: Akademia morska, Gdynia (PL), 16-19 June 2013.
- KAŇUCH, J.: Univerzita Pardubice, Pardubice (ČR), 10-12 September 2013.
- KYSLAN, K.; LACKO, M; ŠLAPÁK, V.: 33.konferencia o elektrických pohonech, Pilsen (CZ), 10.-14. June, 2013.
- KYSLAN, K.; PAJKOŠ, M.: SPS/IPC Drives 2013, Nürnberg (D), 25.-29. November 2013.
- PERDUKOVÁ, D.: SOCO 2013, Salamanca, Spain.11–13 September 2013
- ZÁSKALICKÝ, P., KAŇUCH, J.; KOMEL Katowice, Rytro (PL), 22-24 May 2013.

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
- FEDÁK, V.: EDPE 2013, Dubrovnik. Conference Co-chairman.
- FEDÁK, V.: IEEE ICETA 2013, Starý Smokovec. Program Chairman
- FERKOVÁ, Ž: member of Steering Committee ISEM **(**INTERNATIONAL SYMPOSIUM ON ELECTRIC MACHINERY) ČVUT Praha.
- FEDÁK, V: EDPE 2013, Dubrovnik, Co-chairman.
- FEDOR, P.: member of Programme Committee: 8th International Conference on Soft Computing Models in Industrial and Environmental Applications – SOCO 2013, Salamanca, Spain.
- PERDUKOVÁ, D.: member of Programme Committee: 8th International Conference on Soft Computing Models in Industrial and Environmental Applications – SOCO 2013, Salamanca, Spain.
- ZÁSKALICKÝ, P.: member of Programme Committee: 17th International Conference Electronics 2013, Palanga, Lituanie.
- ZÁSKALICKÝ, P.: member of Programme Committee: 49th International Conference SME 2013, Gdynia, Poland.

- ŽILKOVÁ, J.: member of Programme Committee: 8th International Conference on Soft Computing Models in Industrial and Environmental Applications – SOCO 2013, Salamanca, Spain.

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) - by September 2013
- 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
- PERDUKOVÁ, D.: member of Accreditation Commission working group for research in Electrical and Power Engineering
- 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.
- E-MLAB a set of original laboratory workstations to support and extend research and teaching laboratories in the field of Mechatronics. KEGA 011TUKE-4/2013. Coordinator: PERDUKOVÁ, D.

6.6 Editorial Boards

- BOBER, P. Editorial board for journal “Quality, Innovation, Prosperity” (Kvalita, Inovácia, Prosperita), ISSN 1335-1745 (print), ISSN 1338-984X (online).
- DUDRIK, J. – Member of the Series Editorial Board of Annals of the Academy of Romanian Scientists.

- DUDRIK, J.: Editorial board of Transactions on electrical engineering, Czech Republic, ISSN 1805-3386
- FEDÁK, V.: Editorial board of Scientific Works of the Institute of Electrical Machines Drives and Measurement (Wroclaw Univ. of Technology), ISSN 0033-2097
- FEDOR, P: Editorial board of Acta Electrotechnica et Informatica – AEI. Journal of the Faculty of Electrical Engineering and Informatics. ISSN 1335-8243.
- PERDUKOVÁ, D.: Editorial board of Elektroenergetika journal, ISSN 1337-6756.
- ZÁSKALICKÝ, P.: Editorial board of Acta Technica CSAV. Journal of Academy of Sience of the Czech republic, Praha. ISSN 0001-7043.
- ZÁSKALICKÝ, P.: Editorial board of KOMEL, Branzowy osrodek badavczo-rozwojovy Maszyn elektrycznych, Katowice, Poland. ISSN 0239-3646.

7 THESES

7.1 Defened Ph.D. Theses

- JUŠKO, Š.: Nonlinear control of dual axis mechanical system. Supervisor: Fedor, P.

Thesis type	Bachelor	Master	Doctoral
Number	37	45	1

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences

- EDPE 2013. 17th International Conference on Electrical Drives and Power Electronics (and 6th Joint Croatia-Slovakia Conference), Dubrovnik, 2 - 4 October 2013. Conference Co-organisers.

8.2 Projects for Industry

- Methodology of Main Winders Drive Optimization on Hot Roll Mill. For U.S.Steel Košice. P-104-0012/13, Co-ordinator: ĎUROVSKÝ, F.

8.3 Student Competitions and Rewards

- BAČIK Ján: Week of Science and Technology in Slovakia 2013, (18 November 2013). 1st place for the best doctoral thesis

8.4 Compositions for Dissertation Examinations

- VACEK, M.: Optical robotic workplace safety system. Supervisor: Žilková, J.
- GODEM, A.M.I.: System identification and PID controller Optimization using Soft Computing Methods, Supervisor: Fedák, V.

9 PUBLICATIONS

9.1 Books

9.2 Textbooks

[1] BOBER, Peter: Simulácia výrobných systémov. TU Košice. 2013. 73 p. ISBN 978-80-553-1486-0.

9.3 Scientific Journals

Current Journals

[1] KAŇUCHOVÁ, Mária - MAJOROS, Milan - KAŇUCH, Ján - DING, Y - SUSNER, Michael - SUMPTION, Michael - COLLINGS, Edward ADC003 LiFeAs Pnictide Superconductor-A Simple Electrochemical Method of Preparation. In: IEEE Transactions on Applied Superconductivity. Vol. 23, no. 3 (2013), p. 1-4. - ISSN 1051-8223. *http://apps.webofknowledge.com/full_record.do?product=UA&search_mode=GeneralSearch&qid=2&SID=U16K8Jd45ef@8HfNcOI&page=1&doc=1*.

[2] BALARA, Dušan - TIMKO, Jaroslav - ŽILKOVÁ, Jaroslava: Application of neural network model for parameters identification of non-linear dynamic system. In: Neural network world. Vol. 23, no. 2 (2013), p. 103-116. ISSN 1210-0552.

Forreign Journals

[1] PERDUKOVÁ, Daniela - FEDOR, Pavol: Virtual Laboratory for the Study of Technological Process Automation. In: International Journal of Engineering Education. Vol. 29, no. 1 (2013), p. 230-238. - ISSN 0949-149X.

[2] ZÁSKALICKÝ, Pavel - KAŇUCH, Ján: Complex Fourier series mathematical model of a universal motor supplied by a triac. In: Maszyny elektriczne: Zeszyty problemove. Vol. 99, no. 2 (2013), p. 159-162. - ISSN 0239-3646.

[3] KAŇUCH, Ján - VIŠNYI, Peter: Control of two-phase induction motor using a conventional three-phase bridge inverter. In: Zeszyty Problemove: Maszyny Elektryczne. Vol. 100, no. 4 (2013), p. 171-174. - ISSN 0239-3646.

[4] FERKOVÁ, Želmíra - KAŇUCH, Ján: Two-Phase Asynchronous Motor - Simulation and Measurement. In: Zeszyty Problemove : Maszyny Elektryczne. Vol. 100, no. 4 (2013), p. 25-30. - ISSN 0239-3646.

[5] ZÁSKALICKÝ, Pavel: Calculation of a torque ripple a two-phase asynchronous motor supplied by a PWM controlled inverter. In: Maszyny elektryczne: Zeszyty problemowe. Vol.99, no.2 (2013), p.163-166. ISSN 0239-3646.

[6] ZÁSKALICKÝ, Pavel: Analytical method of a calculation of a torque ripple of a two-phase asynchronous motor supplied by a PWM controlled inverter. In: Zeszyty Problemove: Maszyny Elektryczne. Vol.100, no.4 (2013), p.131-136. ISSN 0239-3646.

[7] BOBER, Peter: **Simulátor regulačných diagramov pre výučbu štatistického riadenia procesov.** In: Q-magazín. No. September (2013), p. 1-7. ISSN 1213-0451. *http://katedry.fmmi.vsb.cz/639/st15-cz.pdf*.

Foreign Journals indexed in Web of Science or Scopus databases

[1] FEDÁK, Viliam - BAČÍK, Ján ml.: Hardware Design for State Vector Identification of a Small Helicopter Model. In: Applied Mechanics and Materials. Vol. 282 (2013), p. 107-115. ISSN 1660-9336.

[2] FEDOR, Pavol - PERDUKOVÁ, Daniela - FERKOVÁ, Želmíra: Optimal Input Vector Based Fuzzy Controller Rules Design. In: Advances in Intelligent Systems and Computing. Vol. 189 (2013), p. 371-380. ISSN 2194-5357.

[3] FEDOR, Pavol - PERDUKOVÁ, Daniela: Energy Optimization of a Dynamic System Controller. In: Advances in Intelligent Systems and Computing. Vol. 189 (2013), p. 361-369. - ISSN 2194-5357.

[4] ZÁSKALICKÝ, Pavel: Steady State Analysis of a Two-phase PMSM Supplied by a PWM Controlled Inverter. In: Acta Technica. Vol. 58, no. 1 (2013), p. 83-93. - ISSN 0001-7043. *http://journal.it.cas.cz*.

[5] KAŇUCH, Ján - FERKOVÁ, Želmíra: Design and simulation of disk stepper motor with permanent magnets. In: Archives of Electrical Engineering. Vol. 62, no. 2 (2013), p. 281-288. - ISSN 1427-4221. *http://www.degruyter.com/view/j/aee.2013.62.issue-2/aee-2013-0022/aee-2013-0022.xml?format=INT*.

[6] PÁSTOR, Marek - DUDRIK, Jaroslav: Predictive Current Control of Grid-tied Cascade H-bridge Inverter. In: Automatika: Journal for Control, Measurement, Electronics, Computing and Communications. Vol. 54, no. 3 (2013), p. 308-315. - ISSN 1848-3380. *https://automatika.korema.hr/index.php/automatika/article/view/186/256*.

[7] PÁSTOR, Marek - DUDRIK, Jaroslav: Design of Output LCL Filter for 15-level Cascade Inverter. In: Electronics and Electrical Engineering. Vol. 19, no. 8 (2013), p. 45-48. - ISSN 1392-1215.

[8] KYSLAN, Karol - ĎUROVSKÝ, František: Dynamic Emulation of Mechanical Loads - An Approach Based on Industrial Drives' Features. In: Automatika: Journal for Control, Measurement, Electronics, Computing and Communications. Vol. 54, no. 3 (2013), p. 356-363. ISSN 1848-3380. prístupu: *https://automatika.korema.hr/index.php/automatika/article/view/184*

National Journals indexed in Web of Science of Scopus databases

[1] FEDÁK, Viliam – GELVANIČ, Zolán: Learning Vibration Phenomena of Rotating Systems by Experimentation on Virtual Model. 11th IEEE Int. Conference on Emerging eLearning Technologies and Applications (ICETA 2013), Starý Smokovec, Oct. 24-25, 2013, pp. 101-106.

[2] GIROVSKÝ, P., ŽILKOVÁ, J., TIMKO, J., GIROVSKÝ, J.: An adaptive neurocontroller for induction motors In: Communications. Roč.15, č.3 (2013), s.68-72. ISSN 1335-4205

[3] ZÁSKALICKÝ, Pavel - SCHREIER, Luděk: Using Fourier analysis for Torque estimation of two-phase induction motor supplied by a half-bridge inverter with PWM control. In: Communications. Roč.15, č.3 (2013), s.73-78. ISSN 1335-4205.

[4] ZGODAVOVÁ, Kristína - BOBER, Peter: An innovative approach to the integrated management system development: SIMPRO-IMS web based environment. In: Kvalita Inovácia Prosperita. Roč. 16, č. 2 (2012), s. 59-70. - ISSN 1335-1745.

National Journals

[1] MAGURA, Daniel - FEDÁK, Viliam: Využitie systému Arduino pre riadenie procesov. In: ATP Journal. Č. 12 (2012), s. 22-24. - ISSN 1335-2237.
[2] KAŇUCH, Ján - ZÁSKALICKÝ, Pavel: Univerzálny motor napájaný triakom - matematický model s využitím komplexých Fourierových radov.In: Posterus.sk. Roč. 6, č. 3 (2013), s. 1-9. - ISSN 1338-0087 Spôsob prístupu: *http://www.posterus.sk/?p=15535*.
[3] FEDÁK, Viliam - BAČÍK, Ján ml.: Využitie vývojového grafického prostredia LabView pre efektívny návrh algoritmov senzorického subsystému malej bezpilotnej helikoptéry. In: ATP Journal plus. č.1 (2013), s.38-41. ISSN 1336-5010.
[4] KAŇUCH, Ján - FERKOVÁ, Želmíra: Návrh a simulácia krokového motora s diskovým rotorom s permanentnými magnetmi. In: Posterus.sk, roč.6, č.3 (2013), s.1-11. ISSN 1338-0087.*http://www.posterus.sk/?p=15620*.
[5] GIROVSKÝ, Peter: Neurocontroller for Induction Motor. In: Elektroenergetika. Roč. 6, č. 1 (2013), s. 15-18. ISSN 1337-6756.
[6] GIROVSKÝ, Peter: HIL simulácia neurónových sietí. In: Elektroenergetika. Roč. 6, č. 1 (2013), s. 19-21. ISSN 1337-6756.
[7] KAĽAVSKÝ, Michal - FERKOVÁ, Želmíra: Harmonické potenciálové polia - plánovanie cesty robota. .In: Posterus.sk. Roč. 6, č. 6 (2013), s. 1-6. ISSN 1338-0087. *http://www.posterus.sk/?p=15804*.
[8] ZÁSKALICKÝ, Pavel: Dvojfázový striedač v uzlovom zapojení so ŠIM výstupného napätia. In: Strojárstvo. Roč. 17, č. 5 (2013), s. 149-151. ISSN 1335-2938.
[9] ZÁSKALICKÝ, Pavel - SCHREIER, Luděk: Using Fourier analysis for Torque estimation of two-phase induction motor supplied by a half-bridge inverter with PWM control. In: Communications. Roč.15, č.3 (2013), s.73-78. ISSN 1335-4205.
[10] PERDUKOVÁ, Daniela: Návrh fuzzy regulátora jednosmerného pohonu na báze jeho fuzzy modelu. In: Strojárstvo. Roč. 17, č. 7-8 (2013), s. 84-85. ISSN 1335-2938.
[11] KAŇUCH, Ján - FERKOVÁ, Želmíra: Krokový motor s axiálnym magnetickým tokom a diskovým rotorom s permanentnými magnetmi. In: Strojárstvo. Roč. 17, č. 11 (2013), s. 104-106. ISSN 1335-2938.
[12] DUDRIK, Jaroslav - LACKO, Milan - BÉREŠ, Tomáš: Regulácia obojsmerného DCDC meniča v hybridnej batérii. In: EE časopis. Roč. 19, č. 6 (2013), s. 16-18. - ISSN 1335-2547.

9.4 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	26	26	0

DEPARTMENT OF PHYSICS

http://web.tuke.sk/feikf/index.html
Tel.: ++421 55 602 2833, Fax: ++421 55 633 0115

Head of Department
doc. RNDr. Dušan Olčák, CSc.
E-mail: Dusan.Olcak@tuke.sk

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. The laboratory is a part of the Slovak National NMR Centre and 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.

Recently the Laboratory for modification and testing of properties of advanced materials has been established at the department within the project "Centre of Excellence for Integrated Research & Exploitation of Advanced Materials and Technologies in Automotive Electronics" (2010-2013). The laboratory is equipped with apparatus for the study of thermal and mechanical properties of materials and a desk top electron 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. Anton Baran, PhD. (since 1.8.)
RNDr. Oľga Fričová, PhD.
RNDr. Zuzana Gibová, PhD.
RNDr. Viktor Hronský, CSc.
RNDr. Ľubomír Mucha
RNDr. Mária Hutníková, PhD.
RNDr. Ján Kecer, PhD.
RNDr. Mária Kladivová, PhD.
RNDr. Jozef Kravčák, PhD.
RNDr. Cyril Hospodár (till 31.5.)
Ing. RNDr. Jozef Onufer, PhD.
RNDr. Ladislav Ševčovič, PhD.
RNDr. Peter Vrábel, PhD.

PhD. Students:

Mgr. Peter Duranka
Mgr. Lukáš Hubač
Ing. Viktória Šuhajová
Mgr. Magdaléna Uhrínová

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 for magnetic measurements
- Laboratory of physics of macromolecular systems
- Laboratory of advanced materials

3.2 Special Measuring Instruments

- Multinuclear solid state NMR spectrometer Varian 400 MHz
- 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
- Rotational highly sensitive viscometer of the Couette type Viscodens
- Vibrational viscosimeter SV – 10
- Rotational modular compact rheometer (MCR 502)
- Capillary automated micro viscometer (AMVn)
- DMA 4500 M density meter

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	Lisý
Physics (FBERG)	2nd	2/2	Lisý
Physics (FBERG)) – external study	2nd	2/0	Lisý
Physics I (FBERG)) – external study	2nd	2/0	Lisý
Physics I (SjF)	2nd	3/3	Novák
Physics (SjF)	2nd	3/3	Novák
Applied Physics (SjF)	2nd	0/3	Kecer
Physics II (SjF)	2nd	2/2	Novák
Physics (SjF) – external study	2nd	2/0	Kecer
Physics (SvF) – external study	2nd	3/0	Kovaľaková

Physics (SvF, in English)	2nd	2/2	Kovaľaková
Physics (SvF)	2nd	2/2	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	Hospodár
Physics II (FEI)	2nd	3/2	Hlaváčová Fričová, Olčák, Gibová
Physics II (FEI, in English)	2nd	3/2	Hlaváčová
Structure and Properties of Materials (FEI)	4th	3/2	Kravčák
Physics II (FBERG)	1st	2/2	Tóthová
Physics I (FEI)	1st	2/2	Hlaváčová Fričová, Olčák
Physics (FEI)	1st	2/2	Gibová
Physics Seminar I(FEI)	1st	0/2	Hlaváčová
Physics Seminar (FEI)	1st	0/2	Kecer
Physics I (FEI) – external study	1st	2/0	Baran
Physics (FEI) – external study	1st	2/0	Gibová
Physics I (FEI, in English)	1st	2/2	Hlaváčová
Basic Physics of Magnetic materials (FEI)	5th	2/2	Novák
Experimental methods for materials study (FEI)	5th	3/3	Kravčák, Fričová, Kladivová, Ziman, Tóthová, Olčák
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	4/3	Ziman
Physics (HF)) – external study	1st	2/0	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
Modern magnetic materials	1st	2/2	Novák

5 RESEARCH PROJECTS

- ***Study of biodegradable polymeric materials using NMR spectroscopy*** S.G.A. project No. 1/0492/13, Principal investigator: doc. RNDr. Dušan Olčák, CSc.
- ***Transformation of the outcomes of research projects into educational process oriented to physical engineering of materials,*** Project KEGA No. 048TUKE-4/2013. Principal investigator: doc. RNDr. Dušan Olčák, CSc., Collaborators: J. Ziman, L. Novák, V. Lisý, V. Hronský, O. Fričová, Z.Gibová, M. Hutníková, M. Kladivová, M. Kovaľaková, J. Kravčák, J. Onufer, P. Duranka, V. Šuhajová, M. Uhrínová
- ***Anomalous Brownian motion***, S.G.A. project No. 1/0370/12, Principal investigator: prof. RNDr. V. Lisý, DrSc.
- ***Modification of structure and selected magnetic properties of amorphous ferromagnetic materials***, S.G.A. project, No. 1/0778/12. Principal investigator: doc. RNDr. J. Ziman, CSc.
- **Structure and physical properties of non-ordered and quasi-ordered metallic alloys.** S.G.A. project No. 1/0148/12. Principal investigator: prof. RNDr. Pavol Sovák, CSc., Collaborator: doc. RNDr. L. Novák, CSc.
- ***Domain wall dynamics in thin ferromagnetic wires,*** APVV project, No. APVV-0027-11. Principal investigator: doc. RNDr. R. Varga, PhD., Faculty of Science, Pavol Jozef Šafárik University in Košice, co-operating organisation: Technical University of Košice, collaborators: J. Ziman, M. Kladivová, J.Onufer, J. Kravčák, V. Šuhajová
- ***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
- ***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
- ***Educational Centre for Investigation and Development of Complex Nanosystems,*** Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, project No. 21102300061, Principal investigator: doc. RNDr. Peter Kopčanský, CSc. (Institute of Experimental Physics, SAS Košice), collaborators: J. Tóthová, V. Lisý
- ***International Virtual Laboratory of the Physics of Progressive Materials,*** Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for the Structural Funds of EU, project No. 26110230097, Principal investigator: doc. RNDr. Peter Kopčanský, CSc.

(Institute of Experimental Physics, SAS Košice), collaborators: J. Tóthová, V. Lisý

- ***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

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

- 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 THESES

7.1 PhD. Theses

- ONUFER, Jozef: Magnetization reversal in amorphous ferromagnetic microwires. Košice: TU - 2013. - 81 s.

7.2 Habilitation Theses

[1] KOVAĽAKOVÁ, Mária: Microporous Materials Studied Using Solid-State Nuclear Magnetic Resonance Spectroscopy.

[2] TÓTHOVÁ, Jana: Dynamical properties of the polymer systems with memory.

8 PUBLICATIONS

8.1 Books

[1] NOVÁK, Ladislav: Rýchlochladené amorfné feromagnetiká pod vplyvom vodíka / Ladislav Novák - 1. ed. - Košice : TU - 2013. - 95 s.. - ISBN 978-88-553-1494-5.

8.2 Journal Papers

[1] TÓTHOVÁ, Jana - GLOD, Lukáš - LISÝ, Vladimír: Thermal Noise and Hydrodynamic Memory Effects on Force Measurements at Microscales**.** In: International Journal of Thermophysics. Vol. 34, no. 4 (2013), p. 701-709. - ISSN 0195-928X
http://link.springer.com/article/10.1007%2Fs10765-012-1379-6#.

[2] PÁLKOVÁ, Helena - HRONSKÝ, Viktor - JANKOVIČ, Ľuboš - MADEJOVÁ, Jana: The effect of acid treatment on the structure and surface acidity of tetraalkylammonium-montmorillonites. In: Journal of Colloid and Interface Science. Vol. 395 (2013), p. 166-175. - ISSN 0021-9797 *http://www.sciencedirect.com/science/article/pii/S0021979712014099*.

[3] OLČÁK, Dušan - HRONSKÝ, Viktor - FRIČOVÁ, Oľga - KOVAĽAKOVÁ, Mária - DURANKA, Peter - CHODÁK, Ivan: Solid and melt-state H-1 NMR studies of relaxation processes in isotactic polypropylenes. In: Journal of Polymer Research. Vol. 20, no. 4 (2013), p. 1-9. - ISSN 1022-9760 *http://apps.webofknowledge.com/full_record.do?product=UA&search_mode=GeneralSearch&qid=1&SID=Z2H41pLEn5LIB6nEGpe&page=1&doc=1*.

[4] HUTNÍKOVÁ, Mária: On the range of Stockwell transform**.** In: Applied Mathematics and Computation. Vol. 219, no. 17 (2013), p. 8904 - 8909. - ISSN 0096-3003
http://www.sciencedirect.com/science/article/pii/S0096300313002816.

[5] ONUFER, Jozef - ZIMAN, Ján - KLADIVOVÁ, Mária: Dynamics of closure domain structure in bistable ferromagnetic microwire. In: Journal of Magnetism and Magnetic Materials. No. 344 (2013), p. 148–151. - ISSN 0304-8853
http://www.sciencedirect.com/science/article/pii/S0304885313003624.

[6] RAJŇAK, M. - KURIMSKÝ, Juraj - DOLNÍK, Bystrík - MARTON, Karol - TOMČO, Ladislav - TACULESCU, A. - VEKAS, L. - KOVAC, J. - VAVRA, I. - TÓTHOVÁ, Jana - KOPČANSKÝ, P. - TIMKO, M.: Dielectric response of transformer oil based ferrofluid in low frequency range. In: Journal of Applied Physics. Vol. 114, no. 3 (2013), p. 34313-1-34313-6. - ISSN 0021-8979

[7] LISÝ, Vladimír - TÓTHOVÁ, Jana: Comment on “Spherical particle Brownian motion in viscous medium as non-Markovian random process”. In: Physics Letters A. Vol. 377, no. 34-36 (2013), p. 2251 - 2252. - ISSN 0375-9601

[8] TÓTHOVÁ, Jana - LISÝ, Vladimír: Intrinsic viscosity of PVP polymers in extremely diluted solutions. In: e-Polymers. Vol. 13, no. 1 (2013), p. 1-6. - ISSN 1618-7229
http://www.degruyter.com/view/j/epoly.2013.13.issue-1/epoly.2013.13.1.243/epoly.2013.13.1.243.xml?rskey=cTd9wK&result=4.

[9] LISÝ, Vladimír - TÓTHOVÁ, Jana - GLOD, Lukáš ADM001 [136875] Diffusion in a Medium with Nonlinear Friction / Vladimír Lisý, Jana Tóthová, Lukáš Glod - 2013.In: International Journal of Thermophysics. Online first (2013), p. 1-10. - ISSN 1572-9567
http://link.springer.com/article/10.1007/s10765-013-1501-4.

[10] KOVAĽAKOVÁ, Mária - FRIČOVÁ, Oľga - HRONSKÝ, Viktor - OLČÁK, Dušan - MANDULA, Ján - SALAIOVÁ, Brigita: Characterisation of crumb rubber modifier using solid-state nuclear magnetic resonance spectroscopy. In: Road Materials and Pavement Design, Vol. 14, no. 4 (2013), p. 946-958. ISSN 1468-0629 *http://www.tandfonline.com/doi/full/10.1080/14680629.2013.837835#.UupeA_13vcs*

[11] FRIČOVÁ, Oľga - KOVAĽAKOVÁ, Mária ADE001 [136323] Solid-State 13C CP MAS NMR Spectroscopy as a Tool for Detection of (1→3, 1→6)-ß-D-Glucan in

Products Prepared from Pleurotus ostreatus. In: ISRN Analytical Chemistry. Vol. 2013 (2013), art. no. 248164, p. 1-4. - ISSN 2090-732X *http://www.hindawi.com/isrn/ac/2013/248164/*.

[12] TÓTHOVÁ, Jana - LISÝ, Vladimír: Inertial and Memory Effects in the Hydrodynamic Brownian Motion of Rouse and Zimm Polymer Coils. In: Basic Principles of Diffusion Theory, Experiment and Application. Vol. 19 (2013), p. 1-9. - ISSN 1862-4138 *http://www.uni-leipzig.de/diffusion/pdf/volume19/diff_fund_19%282013%292.pdf*.

[13] FRIČOVÁ, Oľga - KOVAĽAKOVÁ, Mária - UHRÍNOVÁ, Magdaléna: Štúdium fyzikálneho starnutia polypropylénových fólií pomocou jadrovej magnetickej rezonancie. In: Posterus.sk. Roč. 6, č. 5 (2013), s. 1-6. - ISSN 1338-0087 *http://www.posterus.sk/?p=15704&output=pdf*.

[14] GIBOVÁ, Zuzana: Aplikácie teoretických poznatkov o trení na príklady zo života vo vyučovaní fyziky. In: Posterus.sk. Roč. 6, č. 5 (2013), s. 1-6. - ISSN 1338-0087 *http://www.posterus.sk/?p=15691&output=pdf*.

[15] KLADIVOVÁ, Mária - KRAVČÁK, Jozef: Analýza termodynamických vlastností a štruktúry amorfných feromagnetických zliatin FeZrB. In: Posterus. Roč. 6, č. 5(2013), s. 1-8. - ISSN 1338-0087 *http://www.posterus.sk/?p=15733*.

[16] HRONSKÝ, Viktor: Measurement of Sample Temperatures and Temperature Gradients in Magic-Angle Spinning NMR. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 95–98. - ISSN 1338-3957 *DOI: 10.2478/aeei-2013-0021 www.versita.com/aei*.

[17] KRAVČÁK, Jozef: Relation between Helical Anisotropy and Asymmetric Gmi Effect. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 53–55. - ISSN 1335-8243

[18] ZIMAN, Ján - KLADIVOVÁ, Mária: Domain Wall Depinning Process in Bistable Glass-Coated Microwire. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 56-60. - ISSN 1335-8243 *www.versita.com/aei*.

[19] KLADIVOVÁ, Mária - ZIMAN, Ján - NOVÁK, Ladislav - KOVAĽAKOVÁ, Mária: Hydrogen Diffusion and Strain Distribution in Amorphous Fe-Based Ribbons. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 65-69. - ISSN 1335-8243 *www.versita.com/aei*.

[20] KOVAĽAKOVÁ, Mária - FRIČOVÁ, Oľga - HRONSKÝ, Viktor - OLČÁK, Dušan: Characterization of road bitumens using solid state nuclear magnetic resonance spectroscopy. In: Pozemné komunikácie a dráhy. Roč. 9, č. 1 (2013), s. 71-82. - ISSN 1336-7501

[21] LISÝ, Vladimír - TÓTHOVÁ, Jana: Preface. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 3-5. - ISSN 1335-8243

[22] LOVAS, Antal - NOVÁK, Ladislav: Metastable Phases and Transformations in the Engineering Materials. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 7-11. - ISSN 1338-3957 *www.versita.com/aei*.

[23] KOVÁČ, Jozef - NOVÁK, Ladislav: Study of the Magnetization Processes in FeB-Based Amorphous Ribbons. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 61–64. - ISSN 1338-3957 *www.versita.com/aei*.

[24] SZABÓ, Attila - NOVÁK, Ladislav - LOVAS, Antal: Compositional and Stress State Charakterization of Technical Alloys Using Thermopower and Coercitivity Measurements. In: Acta Electrotechnica et Informatica. Roč. 13, č. 1 (2013), s. 70-73. - ISSN 1335-8243 *www.versita.com/aei*.

[25] KRAVČÁK, Jozef: Analýza štruktúry povrchu a atómového zloženia tenkých vláken pomocou SEMEDS. In: Posterus. Roč. 6, č. 10 (2013), s. 1-6. - ISSN 1338-0087 *http://www.posterus.sk/?p=16451*.

[26] KECER, Ján ADF014 [139607] Vybrané magnetické vlastnosti rýchlochladenej amorfnej zliatiny Fe85B15 vo vzťahu k štruktúre / Ján Kecer - 2013.In: Posterus.sk. Roč. 6, č. 10 (2013), s. 1-7. - ISSN 1338-0087 *http://www.posterus.sk/?p=16341*.

8.3 Other publications

Publication Type	Articles on Internet	Conference Papers		Conference Abstracts		Textbooks
		Foreign	Home	Foreign	Home	3
Number	1	1	11	3	4	

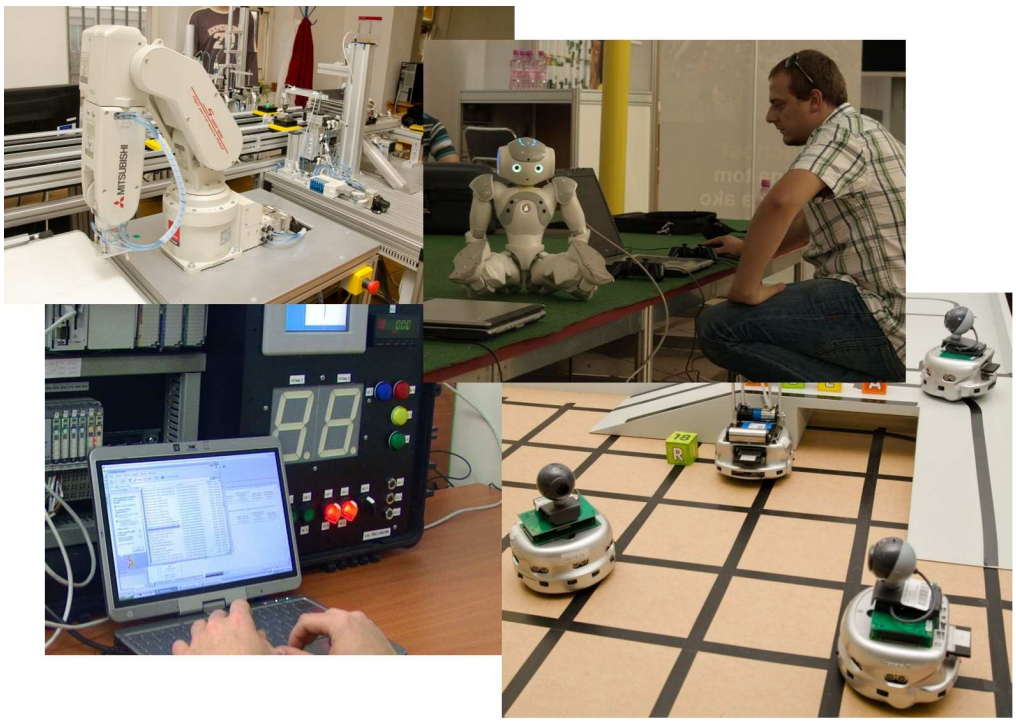
DEPARTMENT OF CYBERNETICS AND ARTIFICIAL INTELLIGENCE

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

Head of Department
prof. Ing. Peter Sinčák, CSc.
E-mail: peter.sincak@tuke.sk

1 DEPARTMENT'S PROFILE

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

The predecessor of the Department was founded in 1964. Department of Cybernetics and Artificial Intelligence was adapted in 1989. Currently it has 26 staff members, 26 internal and 11 external Ph.D. students. There are 3 research centers within the department: Center of Intelligent Technologies, Center of Applied Cybernetics and Center of Business Informatics (http://web.tuke.sk/kkui/en/vyskumne-skupiny-a-projekty). The Department is involved in a number of research and educational projects.

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. Marián Mach, CSc.
doc. Ing. Kristína Machová, CSc.

Assistant Professors:
Ing. František Babič, PhD.
Ing. Peter Butka, 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. Marek Bundzel, PhD.
Ing. Jozef Wagner, PhD.
Ing. Gabriel Tutoky, PhD.

Technical Staff:
Tatiana Baňasová
Jakub Šterbák

Ph.D. Students:

1st.	**Internal**	**External**
	Ing. Tomáš Cádrik	Ing. Miloš Ľos
	Ing. Michal Kopčík	
	Ing. Tomáš Lojka	
	Ing. Gergely Magyar	
	Ing. Ladislav Nyulászi	
	Ing. Michal Puheim	
	Ing. Eva Turňová	
2nd.	**Internal**	**External**
	Ing. Radoslav Bielek	Ing. Ján Adamčák
	Ing. Jakub Čerkala	Ing. Ladislav Miženko
	Ing. Cecília Havrilová	Ing. Matúš Molčányi
	Ing. Pavol Liščinský	
	Ing. Daniel Lorenčík	
	Ing. Peter Michalik	
	Ing. Martina Tarhaničová	
3rd.	**Internal**	
	Ing. Vladimír Gašpar	Ing. Mousa Younes Alfitorey
	Ing. Slávka Jadlovská	Ing. Róbert Fónod
	Ing. Alexandra Lukáčová	Ing. Jan Liguš
	Ing. Martin Paľa	Ing. Peter Szabó
	Ing. Peter Papcun	
	Ing. Vladimír Serbák	
	Ing. Ján Štofa	
4th.	**Internal**	**External**
	Ing. Matej Čopík	
	Ing. Pavol Jasem	
	Ing. Mgr. Peter Koncz	
	Ing. Roman Mihaľ	
	Ing. Mária Virčíková	
5th.		**External**
		RNDr. Marcel Kudláč
		Ing. Stanislav Dvorščák
		Ing. Peter Kubičko

3 LABORATORIES

- CyberEduCentre - http://cybereducentre.fei.tuke.sk/cybereducentre/index.html
- CyberVirtLab - http://cybervirtlab.fei.tuke.sk/CyberVirtLab/
- Laboratory of Intelligent Control Network and Software Systems for Control (L-509b), http://cybereducentre.fei.tuke.sk/L509/
- Laboratory of Cybernetics (L-513) http://web.tuke.sk/kybernetika/labaky/L513/

- Laboratory of Distributed Control Systems - ROCKWELL AUTOMATION LABORATORY (L-536), http://lara.fei.tuke.sk/en/
- Center for Intelligent Technologies: Laboratory of Autonomous Systems (LAS-CIT), Laboratory of Humanoid Robots (LHR-CIT) http://www.ai-cit.sk
- Research Center of Modern Control Techniques and Industrial Informatics – CMCT_II (http://kyb/fei.tuke.sk)
- Laboratory of Production Lines and Image Recognition (V147 - CMCT_II) http://kyb.fei.tuke.sk/laben/miest/V147.php
- Laboratory of Process Control (V144 - CMCT_II) http://kyb.fei.tuke.sk/Laboratoria/miest/V144.php
- Laboratory of Mechatronics Systems (V142 - CMCT_II) http://kyb.fei.tuke.sk/Laboratoria/miest/V142.php
- Laboratory of Robotics (V134 - CMCT_II) http://kyb.fei.tuke.sk/Laboratoria/miest/V134.php
- Laboratory of Knowledge Technologies (V-101a)
- Laboratory of Computer Control Systems Design (V101b - CMCT_II), http://kyb.fei.tuke.sk/laben/miest/V101b.php
- Laboratory of intelligent control systems of aircraft engines (in cooperation with Faculty of Aeronautics) http://lirslm.fei.tuke.sk
- Laboratory of Business processes (B11)

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	1/2	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
XML Technologies	1st	1/2	Mach
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
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	4th	2/2	Sarnovský, J.

Cybernetics and AI			
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, Peter Karch, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Štefan Jajčišin and Michal Kopčík. 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.
- **Digital control of complex systems with two degrees of freedom**, Scientific Grant Agency project No. 1/0298/12, duration: 2012 – 2014,

members: Ladislav Madarász (project leader), František Adamčík (project vice leader), Rudolf Andoga (project vice leader), Ladislav Főző, Tobiáš Lazar, Jozef Považan, Marián Hocko, Ján Kabát, Jozef Judičák, Ján Kolesár, Milan Seman, Vladimír Gašpar, Vratislav Hladký, Ján Labun, Peter Malatin, Michal Puheim, Ladislav Nyulászi, Maroš Komjáty, Marek Češkovič and Róbert Bréda. Activities: The proposed project is aimed on research of progressive methods of control for complex systems with orientation at the complex systems with several degrees of freedom. In the area of design, the main aim will be the research of situational control methods with the use artificial intelligence (neural networks, fuzzy inference systems, expert systems). The particular methodological contribution of the project will be the expected integration of the proposed control algorithms with modern approaches in modeling of complex systems, intelligent diagnostics and digital measurement - action elements. The proposed methods and their generalization will be tested in laboratory conditions in the area of aircraft turbo-compressor engines on the particular object of a small turbojet engine MPM-20. The scientific goals of the project can be decomposed into three thematic areas: modeling of complex systems, control of complex systems and diagnostics of complex systems. The real object for application of the proposed methods will be a small turbojet engine MPM-20 as a complex multi-parametric system with two control inputs and several outputs.

- ***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, Eva Turňová. 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.

- ***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), Anna Jadlovská, Eva Ocelíková, Ján Jadlovský, Ján Sarnovský, 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.

- ***Progressive methods of education in the area of control and modeling of complex systems object oriented on aircraft turbo-compressor engines,*** Cultural and Education Grant Agency Project No. 018TUKE-4/2012, duration 2012 – 2014, members: : Ladislav Madarász (project leader), Rudolf Andoga (project vice leader), František Adamčík, Ladislav Főző, Tobiáš Lazar, Jozef Považan, Marián Hocko, Ján Kabát, Jozef Judičák, Ján Kolesár, Milan Seman, Vladimír Gašpar, Ján Labun, Peter Malatin, Michal Puheim, Ladislav Nyulászi, Maroš Komjáty, Marek Češkovič and Róbert Bréda. The project is aimed on use of the small turbojet engine MPM-20 in the area of education in connection with the concluded project KEGA 001-010TUKE-4/2010, "The use of intelligent methods of control and modeling of aircraft engines in educational process". The global aim of the project is to create grounds for an e-learning application and education by use of virtualization of the „Laboratory of Intelligent Control Systems of Aviation Engines" and its multiplatform distance use. The upgrade of physical system of sensors, action elements and constructional enhancement of the object MPM-20 will allow students to Access modern Technologies used in control of large scale systems together with realization of a multimedia classroom. The studied area can be directly applied in subjects of university studies dealing with diagnostics, modeling and control of complex systems with perspective use in real-world practice.

- ***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, Eva Turňová. 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 were designed and implemented electronic 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.
- ***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.
- **Center for Nondestructive Diagnostics of Technological Processes Using Standard Software for Control and Communication**, project No. 26220220182 supported by Research and Development Operational Programme funded by the ERDF, duration: 2013-2015, members: Ján Jadlovský (deputy principal investigator of Activity 3.1), Anna Jadlovská, Ján Sarnovský, Iveta Zolotová, Matej Čopík, Štefan Jajčišin, Sl.ávka Jadlovská, Peter Papcun, Jakub Čerkala, Radoslav Bielek, Michal Kopčík. Project is focused on nondestructive, contactless diagnostics of technological processes. It relies on image recognition systems where images are

scanned by grayscale, color or thermovision cameras or by other means of contact-free scanning, such as systems based on eddy currents, ultrasonic devices, laser devices etc. This equipment is integrated into the control systems of technological processes and is interconnected with the mechatronic parts of production lines which include servo systems, manipulator, robots and a variety of actuators such as pneumatic and hydraulic drives. Such systems are supported by a wide range of hardware computing means (microcontrollers, programmable logical controllers, servers) with network connection and software support on all levels. The whole system has been built based on the five-level pyramid scheme (http://kyb.fei.tuke.sk/laben/infdsr.php).

- ***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 analyzed current learning processes and best practices on a set of 15 different courses from mathematics and computer science. Based on the analysis, crucial processes have been identified, modeled and will be supported by various electronic services – existing ones, which have been 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 modeled 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 (http://alicematters.web.cern.ch/?q=TUKE_associate) published an article about our University. Members of the Research Center of Modern Control Techniques and Industrial Informatics at the Dpt. of Cybernetics and Artificial Intelligence, TUKE (Ján Jadlovský, Anna Jadlovská, Ján Sarnovský, Štefan Jajčišin, Matej Čopík, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Radoslav Bielek, Michal Kopčík) participate in implementing tasks related to the project, (http://kyb.fei.tuke.sk/laboratoria/cern/cern.php). They started to work on the modernization of the Detector Control System (DCS), focusing on the optimization of the data exchange interface between online and offline databases AMANDA SERVER 3.

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
- Faculty of informatics and information technologies, Slovak University of Technology in 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
- US Steel Košice

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
- Dept. of Computer Science and Engineering, Faculty of Applied Sciences, University of West Bohemia, Plzeň
- 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
- 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, Jana Ligušová.

- 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
- OI-Net, European Academic Network for Open Innovation, Reference number: 542203-LLP-1-2013-1-FI-ERASMUS-ENW- Iveta Zolotová

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	106	134	6

8 OTHER ACTIVITIES

- SAMI 2013 (IEEE 11th International Symposium on Applied Machine Intelligence and Informatics) has been held January 31 - February 2, 2013 in Herl'any, Slovakia
- SYMPOSIUM ON EMERGENT TRENDS IN ARTIFICIAL INTELLIGENCE & ROBOTICS has been organized in Kosice, September 15-17, 2013 with special workshop on Japanese robotics and Buddy Paddy competition.
- WIKT 2013 - 8th Workshop on Intelligent and Knowledge oriented Technologies 2013 co-organized by our department has been held November 21. - 22. in Herľany.
- Znalosti (Knowledge) 2013, a member of our department was co-chairing the program committee of this Czech-Slovak scientific conference, organized in Ostrava, Czech republic, October 13-15, 2013
- Following the decision of the NOVOFER association trustees, foreign degree of Dennis Gabor Nobel Prize winner was awarded to Dr.h.c. prof. Ing. Ladislav Madarász, PhD., on 19th December 2013, during the 25th annual International Dennis Gabor Award ceremony in the Hungarian Parliament in the presence of Speaker of the National Assembly of Hungary Dr. László Kövér, government representatives, scientific institutions, industry and academia, for his achievements in research into methods of management of complex, hierarchical systems, their modelling, diagnosis and design, namely the development of the theory of situational management, design and development of a global strategy or control algorithm, application-specific methodology of situation management in various industries and other areas.
  Dr.h.c. prof. Ing. Ladislav Madarász, PhD is the first citizen of the Slovak Republic and the former Czechoslovakia to receive this award.

- Prof. Dr. Peter Sinčák was awarded with the title Honorary Professor of Óbuda University for his outstanding and long-term contribution to the scientific activities of Óbuda University on May 31, 2013.
- Mária Virčíková, MSc. was selected the top student personality of the year 2012/2013 and was awarded the Prize of the President of Slovak Republic in the category Informatics, mathematics and physics for her work in the field of artificial intelligence: Human-robot interaction in social robotics.

9 PUBLICATIONS

9.1. Books

[1] ŽIVČÁK, Jozef - MADARÁSZ, Ladislav - HUDÁK, Radovan - RUDAS, Imre J.: Methodology, Models and Algorithms in Thermographic Diagnosis Topics in Intelligent Engineering and Informatics 5/ - [1. vyd.] - Berlin Heidelberg : Springer-Verlag - 2013. - 218 p.. - ISBN 978-3-642-38378-6.
[2] REPKA, Martin - PARALIČ, Ján: Company Networks Analysis Neso-level structural analysis/ - [1. vyd.] - Saabrücken : LAP Lamber Academic Publishing - 2013. - 139 p.. - ISBN 978-3-659-44207-0.
[3] LAZAR, Tobiáš - MADARÁSZ, Ladislav - GAŠPAR, Vladimír: Procesná analýza odhadu efektívnosti identifikácie MPM s inteligentným riadením / - 1. vyd - Košice : Elfa - 2013. - 160 s.. - ISBN 978-80-8086-200-8.
[4] MACH, Marián: Evolučné algoritmy riešenie úloh/ - 1. vyd - Košice : FEI TU - 2013. - 135 s.. - ISBN 978-80-553-1445-7.
[5] MACHOVÁ, Kristína: Od adaptívneho k sémantickému webu / - 1. vyd - Košice : TU - 2013. - 124 s.. - ISBN 978-80-553-1489-1.
[6] POPOVIČ, Ľuboš - SARNOVSKÝ, Ján: Princíp nevyhnutnej variety v systémoch riadenia / - 1. vyd. - Košice : TU - 2013. - 132 s.. - ISBN 978-80-553-1518-8.
[7] JAJČIŠIN, Štefan - JADLOVSKÁ, Anna: Návrh algoritmov prediktívneho riadenia s využitím nelineárnych modelov fyzikálnych systémov / - 1. vyd - Košice : elfa - 2013. - 139 s.. - ISBN 978-80-8086-229-9.
[8] JADLOVSKÁ, Anna - JADLOVSKÁ, Slávka: Moderné metódy modelovania a riadenia nelineárnych systémov / - 1. vyd - Košice : elfa - 2013. - 257 s.. - ISBN 978-80-8086-228-2.
[9] OCELÍKOVÁ, Eva - LIGUŠOVÁ, Jana - TAKÁČ, Ladislav: Databázové systémy a jazyk SQL / - 1. vyd - Košice : FEI TU - 2013. - 165 s.. - ISBN 978-80-553-1266-8.
[10] PIĽA, Ján - NEŠTRÁK, Dušan - ADAMČÍK, František - LABUN, Ján - BRÉDA, Róbert - ANDOGA, Rudolf: Helicopter aerodynamics, structures and systems Vysokoškolská učebnica/ - 1. vyd. - Košice : TU - 2013. - 410 s. [CD-ROM]. - ISBN 978-80-553-1241-5
[11] BUNDZEL, Marek - ZOLOTOVÁ, Iveta: Počítačové videnie v praxi / - 1. vyd - Košice : elfa - 2013. - 90 s.. - ISBN 978-80-8086-225-1.
[12] JADLOVSKÝ, Ján - ČOPÍK, Matej - PAPCUN, Peter: Distribuované systémy riadenia / - 1. vyd - Košice : elfa - 2013. - 215 s.. - ISBN 978-80-8086-227-5.
[13] LIGUŠ, Ján - LIGUŠOVÁ, Jana: Inteligentné riadiace siete / - 1. vyd - Košice : elfa - 2013. - 199 s.. - ISBN 978-80-8086-226-8.
[14] SARNOVSKÝ, Ján - HLADKÝ, Vratislav - JADLOVSKÁ, Anna: Riadenie zložitých systémov / - 2. dopl. vyd - Košice : Elfa - 2013. - 132 s.. - ISBN 978-80-8086-224-4.

9.2. Book chapters

[1] REYES, Napoleon H. - SUSNJAK, Teo - BARCZAK, Andre L.C. - SINČÁK, Peter - VAŠČÁK, Ján: Real-time fuzzy logic-based hybrid robot path-planning strategies for a dynamic environment / - 2013. In: Efficiency and Scalability Methods for Computational Intellect. - Hershey: IGI Global, 2013 P. 115-141. - ISBN 978-1-4666-3942-3

[2] ANDOGA, Rudolf - MADARÁSZ, Ladislav - KAROĽ, Tomáš - FŐZŐ, Ladislav - GAŠPAR, Vladimír: Intelligent Supervisory System for Small Turbojet Engines / - 2013. In: Aspects of Computational Intelligence: Theory and Applications. - Berlin Heidelberg: Springer-Verlag, 2013 P. 85-104. - ISBN 978-3-642-30667-9

[3] ADAMČÍK, František - ANDOGA, Rudolf - MADARÁSZ, Ladislav - KRAJŇAK, Peter: Elimination of Dynamic Errors of Thermocouples in Aircraft Engines Using Neural Networks / - 2013. In: Aspects of Computational Intelligence: Theory and Applications. - Berlin Heidelberg: Springer-Verlag, 2013 P. 185-194. - ISBN 978-3-642-30667-9

[4] TUTOKY, Gabriel - PARALIČ, Ján: Weights Aging in Social Networks / - 2013. In: Aspects of Computational Intelligence: Theory and Applications: Revised and Selected Papers of the 15th IEEE International Conference on Intelligent Engineering Systems 2011, INES 2011. - Berlin: Springer-Verlag, 2013 P. 207-218. - ISBN 978-3-642-30667-9 - ISSN 2193-9411

[5] VAŠČÁK, Ján: Prostředky umělé inteligence v humanoidní robotice / - 2013. In: Sborník studijních materiálů ke kurzu Aplikace umělé inteligence: recenzovaný sborník. - Hradec Králové

[6] SINČÁK, Peter - VIRČÍKOVÁ, Mária: Ako dávať inteligenciu reálnym a virtuálnym robotom / - 2013. In: Sborník studijných materiálů ke kurzu teoretické aspekty umělé inteligence. - Hradec Králové: Gaudeamus, Univerzita Hradec Králové, 2013 P. 50-65. - ISBN 978-80-7435-315-4

[7] VIRČÍKOVÁ, Mária - SINČÁK, Peter: Umelé emócie / - 2013. In: Sborník studijných materiálů ke kurzu teoretické aspekty umělé inteligence. - Hradec Králové : Gaudeamus, Univerzita Hradec Králové, 2013 P. 66-78. - ISBN 978-80-7435-315-4

[8] VAŠČÁK, Ján - REYES, Napoleon H.: Use and Perspectives of Fuzzy Cognitive Maps in Robotics / - 2013. In: Fuzzy Cognitive Maps for Applied Sciences and Engineering: From Fundamentals to Extensions and Learning Algorithms. - Berlin: Springer, 2014 P. 253-266. - ISBN 978-3-642-39738-7

9.1 Journals

[1] BUTKA, Peter - PÓCS, Jozef: Generalization of one-sided concept lattices / - 2013. In: Computing and Informatics. Roč. 32, č. 2 (2013), s. 355-370. - ISSN 1335-9150

[2] ZOLOTOVÁ, Iveta - MIHAĽ, Roman - HOŠÁK, Rastislav: Objects for Visualization of Process Data in Supervisory Control / - 2013. In: Aspects of Computational Intelligence: Theory and Applications. - Berlin Heidelberg: Springer-Verlag, 2013 P. 51-61. - ISBN 978-3-642-30667-9

[3] HOŠÁK, Rastislav - ZOLOTOVÁ, Iveta: EPCics Diagram for Designing of Information Control Systems / - 2013. In: International Journal of Mechanic Systems Engineering. Vol. 3, no. 1 (2013), p. 36-42. - ISSN 2226-6461

[4] ŠUSTER, Peter - JADLOVSKÁ, Anna: Application Results Identification Based on Genetic Algorithm in Nonlinear Control Design of Magnetic Levitation

System / - 2013. In: ElectroScope. Vol. 2013, no. 1 (2013), p. 1-10. - ISSN 1802-4564
[5] REPKA, Martin - PARALIČ, Ján: Advanced Analysis of Local Structures in Company Network / - 2013. In: Journal of Convergence Information Technology. Vol. 8, no. 11 (2013), p. 645-654. - ISSN 1975-9320
[6] BABIČ, František - HAVRILOVÁ, Cecília - PARALIČ, Ján: Knowledge Discovery Methods for Bankruptcy Prediction / - 2013. In: Lecture Notes in Business Information Processing: Business Information Systems. Vol. 157 (2013), p. 151-162. - ISBN 978-3-642-38365-6 - ISSN 1865-1348
[7] KONCZ, Peter - PARALIČ, Ján: Active Learning Enhanced Document Annotation for Sentiment Analysis / - 2013. In: Lecture Notes in Computer Science: Availability, Reliability, and Security in Information Systems and HCI: Proceedings: IFIP WG 8.4, 8.9, TC 5 International Cross-Domain Conference, CD-ARES 2013, Regensburg, Germany, September 2-6, 2013. - Heildelberg: Springer, 2013 Vol. 8127 (2013), p. 345-353. - ISBN 978-3-642-40510-5 - ISSN 0302-9743
[8] SARNOVSKÝ, Martin: Application of ontologies and semantic web in it service management according to ITIL framework / - 2013. In: International Journal of Research in Information Technology. Vol. 1, no. 9 (2013), p. 281-287. - ISSN 2001-5569
[9] ŠTOFA, Ján - MICHALIK, Peter - ZOLOTOVÁ, Iveta: Enterprise utilizing social web / - 2013. In: Lecture Notes in Business Information Processing. Vol. 158 (2013), p. 290-297. - ISSN 1865-1348
[10] KUBIČKO, Peter - LANDRYOVÁ, Lenka - MIHAĽ, Roman - ZOLOTOVÁ, Iveta: Measurement, Classification and Evaluation of the Innovation Process and the Identification of Indicators in Relation to the Performance Assessment of Company's Innovation Zones / - 2013. In: Advances in Production Management Systems: Competitive Manufacturing for Innovative Products and Services : Part 1. - Heidelberg: Springer, 2013 P. 661-668. - ISSN 1868-4238
[11] FURDÍK, Karol - LUKÁČ, Gabriel - SABOL, Tomáš - KOSTELNÍK, Peter: The Network Architecture Designed for an Adaptable IoT-based Smart Office Solution / - 2013. In: International Journal of Computer Networks and Communications Security. No. 1 (2013), p. 216-224. - ISSN 2308-9830
[12] FILASOVÁ, Anna - KROKAVEC, Dušan: H∞ control of pairwise distributable large-scale TS fuzzy systems / - 2013. In: Mathematical Problems in Engineering. Vol. 2013 (2013), p. 1-18. - ISSN 1024-123X
[13] PAĽA, Martin - VIRČÍKOVÁ, Mária - SINČÁK, Peter: Od priemyselných robotov k servisným a spoločenským robotom / - 2013. In: ATP Journal. Č. 8 (2013), s. 46-47. - ISSN 1335-2237
[14] BUTKA, Peter - BEDNÁR, Peter - MACH, Marián - FURDÍK, Karol - SMATANA, Peter: Integrované softvérové prostredie pre kolaboratívne modelovanie politík / - 2013. In: Transfer inovácií. Č. 26 (2013), s. 176-181. - ISSN 1337-7094
[15] MADARÁSZ, Ladislav - LAZAR, Tobiáš - GAŠPAR, Vladimír - ANDOGA, Rudolf: Komplexný výskum efektívnosti a inovácia technológie skúšok malého prúdového motora (1) / - 2013. In: ATP Journal. Č. 9 (2013), s. 58-62. - ISSN 1335-2237
[16] SARNOVSKÝ, Ján: Autonómnosť a invariantnosť / - 2013. In: ATP Journal. Roč. 19, č. 2 (2013), s. 11. - ISSN 1335-2237
[17] SARNOVSKÝ, Ján: Teória riadenia- nové oblasti / - 2013. In: ATP Journal. Č. 5 (2013), s. 11-11. - ISSN 1335-2237
[18] SARNOVSKÝ, Ján: História teórie regulácie: Aurel Stodola / - 2013. In: ATP

Journal. Č. 8 (2013), s. 9-9. - ISSN 1335-2237
[19] PAĽA, Martin - VIRČÍKOVÁ, Mária - SINČÁK, Peter: Od priemyselných robotov k servisným a spoločenským robotom (2) / - 2013. In: ATP Journal. Č. 9 (2013), s. 46-48. - ISSN 1335-2237
[20] HLADKÝ, Vratislav - LIŠČINSKÝ, Pavol: Control of Laboratory Model Ball and Plate / - 2013. In: Transfer inovácií. Č. 26 (2013), s. 209-214. - ISSN 1337-7094
[21] MADARÁSZ, Ladislav - LAZAR, Tobiáš - ANDOGA, Rudolf - FŐZŐ, Ladislav - GAŠPAR, Vladimír: Komplexný výskum efektívnosti a inovácia technológie skúšok malého prúdového motora (2) / - 2013. In: ATP Journal. Roč. 20, č. 10 (2013), s. 58-61. - ISSN 1335-2237
[22] SKOKAN, Marek - KOSTELNÍK, Peter - SABOL, Tomáš - MACH, Marián: Inteligentná rozvodná sieť, projekt INERTIA - riešenie a príklad použitia / - 2013. In: ATP Journal. Roč. 20, č. 10 (2013), s. 47-50. - ISSN 1335-2237
[23] PAĽA, Martin - VIRČÍKOVÁ, Mária - SINČÁK, Peter - GAMEC, Ján: Od priemyselných robotov k servisným a spoločenským robotom (3) / - 2013. In: ATP Journal. Roč. 20, č. 10 (2013), s. 54-55. - ISSN 1335-2237
[24] MADARÁSZ, Ladislav - LAZAR, Tobiáš - ANDOGA, Rudolf - FŐZŐ, Ladislav - JUDIČÁK, Jozef - GAŠPAR, Vladimír: Komplexný výskum efektívnosti a inovácia technológie skúšok malého prúdového motora (3) / - 2013. In: ATP Journal. Č. 11 (2013), s. 58-61. - ISSN 1335-2237
[25] MADARÁSZ, Ladislav - GAŠPAR, Vladimír - RUDAS, Imre - ANDOGA, Rudolf - GAŠPAR, Ľuboš: Proposal of Dissemination and Broadcasting of Laboratory Data within Small Time Latencies / - 2013. In: Acta Mechanica Slovaca. Roč. (17), č. 3 (2013), s. 26-32. - ISSN 1335-2393
[26] KROKAVEC, Dušan - FILASOVÁ, Anna: Stabilizing fuzzy output control for a class of nonlinear systems / - 2013. In: Advances in Fuzzy Systems. Vol. 2013, ID 294971 (2013), p. 1-9. - ISSN 1687-711X
[27] BUTKA, Peter - PÓCS, Jozef - PÓCSOVÁ, Jana - SARNOVSKÝ, Martin: Multiple Data Tables Processing via One-Sided Concept Lattices / - 2013. In: Advances in Intelligent Systems and Computing. - Berlin: Springer-Verlag Berlin Heidelberg, 2013 Vol. 183 (2013), p. 89-98. - ISSN 2194-5357
[28] BEDNÁR, Peter - BUTKA, Peter - MACH, Marián - FURDÍK, Karol - SABOL, Tomáš - SMATANA, Peter: Integrated Platform for Processing and Traceability of Information within Collaborative Policy Modelling Process in OCOPOMO / - 2013. In: International Journal of Digital Content Technology and its Applications. Vol. 7, no. 8 (2013), p. 865-873. - ISSN 2233-
[29] VIRČÍKOVÁ, Mária - SINČÁK, Peter: Experience with the Children-Humanoid Interaction in Rehabilitation Therapy for Spinal Disorders / - 2013. In: Advances in Intelligent Systems and Computing. Vol. 208 (2013), p. 347-357. - ISSN 2194-5357
[30] VIRČÍKOVÁ, Mária - SINČÁK, Peter - HWA KIM, Dong: Personalized Emotional Expressions to Improve Natural Human-Humanoid Interaction / - 2013. In: Advances in Intelligent Systems and Computing. Vol. 208 (2013), p. 691-702. - ISSN 2194-5357
[31] SINČÁK, Peter - PETER, Smolár - VIRČÍKOVÁ, Mária - PAĽA, Martin: Distributed and Incremental Visual Object Categorization for Humanoid Platform NAO / - 2013. In: Advances in Intelligent Systems and Computing. Vol. 208 (2013), p. 723-731. - ISBN 978-3-642-37373-2 - ISSN 2194-5357
[32] JADLOVSKÁ, Slávka - SARNOVSKÝ, Ján: A complex overview of modeling and control of the rotary single inverted pendulum system / - 2013. In: Advances in Electrical and Electronic Engineering. Vol. 11, no. 2 (2013), p. 73-

85. - ISSN 1336-1376
[33] MACHOVÁ, Kristína - MARHEFKA, Lukáš: Opinion Mining in Conversational Content within Web Discussions and Commentaries / - 2013. In: Availability, Reliability, and Security in Information Systems and HCI: IFIP WG 8.4, 8.9, TC 5 International Cross-Domain Conference, CD-ARES 2013: Regensburg, Germany, September 2-6, 2013 : Proceedings : LNCS 8127. - Berlin-Heidelberg: Springer, 2013 P. 149-161. - ISBN 978-3-642-40510-5 - ISSN 0302-9743
[34] ANDOGA, Rudolf - FŐZŐ, Ladislav - MADARÁSZ, Ladislav - KAROĽ, Tomáš: A Digital Diagnostic System for a Small Turbojet Engine / - 2013. In: Acta Polytechnica Hungarica. Vol. 10, no. 4 (2013), p. 45-58. - ISSN 1785-8860
[35] PARALIČ, Ján - BABIČ, František - PARALIČ, Marek: Process-driven Approaches to Knowledge Transformation / - 2013. In: Acta Polytechnica Hungarica. Vol. 10, no. 5 (2013), p. 125-143. - ISSN 1785-8860
[36] FILASOVÁ, Anna - GONTKOVIČ, Daniel - KROKAVEC, Dušan: Observer-based fault estimation for linear systems with distributed time delay / - 2013. In: Archives of Control Sciences. Vol. 23, no. 2 (2013), p. 169-186. - ISSN 1230-2384
[37] BRÉDA, Róbert - LAZAR, Tobiáš - ANDOGA, Rudolf - MADARÁSZ, Ladislav: Robust controller in the structure of lateral control of maneuvering aircraf / - 2013. In: Acta Polytechnica Hungarica. Vol. 10, no. 5 (2013), p. 101-124. - ISSN 1785-8860
[38] ANDOGA, Rudolf - MADARÁSZ, Ladislav - FŐZŐ, Ladislav - LAZAR, Tobiáš - GAŠPAR, Vladimír: Innovative approaches in modeling, control and diagnostics of small turbojet engines / - 2013. In: Acta Polytechnica Hungarica. Vol. 10, no. 5 (2013), p. 81-99. - ISSN 1785-8860
[39] JADLOVSKÁ, Slávka - SARNOVSKÝ, Ján: Modelling of Classical and Rotary Inverted Pendulum Systems - a Generalized Approach / - 2013. In: Journal of Electrical Engineering. Roč. 64, č. 1 (2013), s. 12-19. - ISSN 1335-3632
[40] MICHALIK, Peter - ŠTOFA, Ján - ZOLOTOVÁ, Iveta: The Use of Bpmn for Modelling the Mes Level in Information and Control Systems / - 2013. In: Quality Innovation Prosperity. Roč. 17, č. 1 (2013), s. 39-47. - ISSN 1335-1745

9.2 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	40	93	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
doc. RNDr. Marián Klešč, PhD.
E-mail: marian.klesc@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. Helena Myšková, PhD.
doc. RNDr. Viktor Pirč, CSc.

Assistant Professors: RNDr. Štefan Berežný, PhD.
RNDr. Ján Buša, CSc.
Mgr. Ján Buša Jr., PhD.
RNDr. Ivan Daňo, PhD.
RNDr. Emília Draženská, PhD.
RNDr. Anna Grinčová, PhD.
RNDr. Daniela Kravecová, PhD.
RNDr. Monika Molnárová, 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:

- Mathematics Section
- Section of Theoretical Informatics

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	Baculíková, Kravecová, Daňo
Mathematics I	1st	4/3	Molnárová
Mathematics I (English)	1st	3/3	Berežný
Continuous Optimization Methods	2nd	3/3	Buša
Numerical Methods	2nd	2/0	Berežný
Mathematical Logic	2nd	3/2	Draženská, Myšková
Mathematics II	2rd	3/3	Pribiš, Klešč, Daňo
Mathematics II	2rd	2/2	Grinčová
Mathematics II (English)	2rd	3/3	Plavka
Numerical Methods, Probability	3rd	3/2	Buša Jr., Klešč,

and Statictic			Pribiš, Grinčová Ostertagová, Draženská
Mathematics I	3rd	3/3	Staš
Mathematics III (English)	3rd	3/2	Berežný
Discrete Mathematics	3nd	3/3	Schrötter
Theory of Coding	3rd	2/2	Plavka
Discrete Mathematics and Logic	3rd	2/0	Schrötter
Applications of Differential Equations	4nd	2/2	Baculíková
Operation Analysis	4th	2/2	Kravecová
Linux I.	4th	2/2	Buša Jr.
Numerical Methods, Probability and Statictic	5th	3/3	Myšková
Computer-aided Mathematical Modelling	5th	3/2	Džurina
Typographical System TEX	5th	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
Theory of Coding	7th	2/2	Plavka
Optimalization Methods	7th	2/2	Buša
Physical Processes Modelling	7th	2/2	Buša
Mathematical Methods for Neural Networks and Time Series	7th	2/2	Daňo
Applied Mathematics	8th	2/2	Džurina
Applied Statistics	8th	2/2	Ostertagová
Applied Statistics (English)	8th	2/2	Berežný
Discrete Dynamic Systems	8th	2/2	Molnárová
Discrete Dynamic Systems (English)	8th	2/2	Molnárová
Linux II	8th	2/2	Buša Jr.
Linear and Quadratic Programing	8th	2/2	Staš
Graph Algorithms and Discrete optimization	9th	2/2	Klešč
Mathematical Methods for Neural Networks and Time Series (English)	9th	2/2	Daňo
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.
- ***Knowledge transfer into education via subjects Discrete Dynamic Systems and Graph Algorithms and Discrete Optimization*.** KEGA Slovak Grant Agency No.032TUKE-4/2013, duration 2013-2015, co-ordinator: Ján Plavka.

6 CO-OPERATION

6.1 Co-operation in Slovakia

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

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

6.1.1. Visitors to the Department

- Dr. Edik Hayryan, Joint Institute for Nuclear Research, Dubna, Russia
- Dr. Alexander Ayriyan, Joint Institute for Nuclear Research, Dubna, Russia
- Prof. Marie Demlová, Czech Technical University in Prague, Czech Republic
- Prof. Martin Gavalec, University of Hradec Kralove, Czech Republic
- Prof. Nicolae Pop, Technical university of Cluj-Napoca, North University Center at Baia Mare, Romania
- Assoc.Prof. Yuliya Chaparova, University of 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
- Carolina Medina, University of San Luis Potosi, Mexico

6.2 International Co-operation

- Technical University in Graz, Austria
- Charles University in Prague, Czech Republic
- Czech Technical University in Prague, Czech Republic
- University of Birmingham, United Kingdom
- UHK in Hradec Králové, Czech Republic
- Texas Univeresity, Kingsville, USA
- Veszprem University, Hungary
- Technical university of Cluj-Napoca, North University at Baia Mare, Romania
- JINR Dubna, Russia
- University of Miskolc, Hungaria
- Institute of Physics, Academia Sinica, Taiwan

6.2.1. Visits of Staff Members to Foreign Institutions

Summer School: Computational Methods in Mathematical Modelling, Period 16-31, August 2013, Technical university of Cluj-Napoca, North University at Baia Mare, Romania:

- Berežný, Š.

- Buša, J.
- Draženská, E.
- Džurina, J.
- Klešč. M.
- Kravecová, D.
- Staš, M.

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
- Plávka, J.: International Linear Algebra 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
- Buša Jr., J.: Slovak Mathematical Society
- 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-0028-06-1213 - Active Methods in Teaching and Learning Mathematics and Informatics

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	6	7	0

8 OTHER ACTIVITIES

8.1 Workshops:

- Buša, J. – Schrötter, Š.: 14-th Conference of Košice Mathematicians, April 2013, Herľany, Co-organisers

- Molnárová, M.: 14th Conference of Košice Mathematicians, April 2013, Herľany, Invited lectur

8.2 Study tours:

- Berežný, Š.: Czech Technical University in Prague, Czech Republic
- Berežný, Š.: North University Center at Baia Mare, Romania
- Buša, J.: JINR Dubna, Russia
- Ostertagová, E.: Czech Technical University in Prague, Czech Republic
- Pribiš, J.: JINR Dubna, Russia

9 PUBLICATIONS

9.1 Books

[1] BACULÍKOVÁ Blanka – GRINČOVÁ Anna: Matematika 1. Vzorové a neriešené úlohy. 1. vyd., TU Košice, 2013, 147 s. [CD-ROM]. ISBN 978-80-553-1501-0.
[2] BEREŽNÝ Štefan – HAJDUOVÁ Zuzana – KRAVECOVÁ Daniela: Úvod do lineárneho programovania. 1. vyd., Humanitas University Sosnowiec, Poland, 2013, 125 s., ISBN 978-83-61991-74-8.
[3] BUŠA Ján – Schrötter Štefan: Stredoškolská matematika. 1. vyd., TU Košice, 2013, 174 s., ISBN 978-80-553-1472-3.
[4] DAŇO Ivan: Neurónové siete ako matematické systemy. 1. vyd., TU Košice, 2013, 73 s., ISBN 978-80-553-1511-9.
[5] DAŇO Ivan: Vybrané kapitoly z numerických metód v príkladoch. 1. vyd., TU Košice, 2013, 80 s., ISBN 978-80-553-1510-2.
[6] DRAŽENSKÁ Emília: Aplikovaná matematika. 2. rozšírené vyd., TU Košice, 2013, 86 s., ISBN 978-80-553-1509-6.
[7] MOLNÁROVÁ Monika: Diskrétne dynamické systémy. Úvod do problematiky. 1. vyd., TU Košice, 2013, 89 s., ISBN 978-80-553-1499-0.
[8] OSTERTAGOVÁ Eva: Aplikovaná štatistika. 2. doplnené vyd., Košice, Equilibria, 2013, 217 s., ISBN 978-80-8143-067-1.

9.2 Journals

[1] BACULÍKOVÁ Blanka – DŽURINA Jozef: On certain inequalities and their applications in the oscillation theory. Advances in Difference Equations. (2013), p. 1-8. ISSN 1687-1847.
[2] BACULÍKOVÁ Blanka – DŽURINA Jozef: Some properties of third order differential equations with mixed arguments. Journal of Mathematics. Vol. 2013 (2013), p. 1-5. ISSN 2314-4785.
[3] BACULÍKOVÁ Blanka – DŽURINA Jozef: Asymptotic Properties of Third-Order Nonlinear Differential Equations. Tatra Mountains. Vol. 54 (2013), p. 19-29. ISSN 1338-9750.
[4] BACULÍKOVÁ Blanka – LI Tonxing – DŽURINA Jozef: Oscillation theorems for second-order superlinear neutral differential equations. Mathematica Slovaca. Vol. 63, no. 1 (2013), p. 1-11. ISSN 0139-9918.
[5] DAŇO Ivan – CEJKOVSKÝ Igor: The artificial intelligent system. Transfer inovácií. No. 26 (2013), p. 226-229. ISSN 1337-7094.
[6] DŽURINA Jozef – BACULÍKOVÁ Blanka: Property (B) and Oscillation of Third-Order Differential Equations with Mixed Arguments. Journal of Applied

Analysis. Vol. 19, no. 1 (2013), p. 55-68. ISSN 1869-6082.
[7] KLEŠČ Marián – PETRILLOVÁ Jana – VALO Matúš: Minimal number of crossings in strong product of graphs. Carpathian Journal of Mathematics. Vol. 29, no. 1 (2013), p. 27-32. ISSN 1584-2851.
[8] KLEŠČ Marián – PETRILLOVÁ Jana: The crossing numbers of products of path with graphs of order six. Discussiones Mathematicae Graph Theory. Vol. 33, no. 3 (2013), p. 571–582. ISSN 1234-3099.
[9] KLEŠČ Marián – SCHRÖTTER Štefan: On the crossing numbers of Cartesian products of stars and graphs of order six. Discussiones Mathematicae Graph Theory. Vol. 33, no. 3 (2013), p. 583-597. ISSN 1234-3099.
[10] MOLNÁROVÁ Monika – MYŠKOVÁ Helena – PLAVKA Ján: The robustness of interval fuzzy matrices. Linear Algebra and its Applications. Vol. 438, no. 8 (2013), p. 3350-3364. ISSN 0024-3795.
[11] MYŠKOVÁ Helena: Robustness of interval Toeplitz matrices in fuzzy algebra. Acta Electrotechnica et Informatica. No. 4 (2012), p. 56-60. ISSN 1338-3957.
[12] MYŠKOVÁ Helena – PLAVKA Ján: X-robustness of interval circulant matrices in fuzzy algebra. Linear Algebra and its Applications. Vol. 438, no. 6 (2013), p. 2757-2769. ISSN 0024-3795.
[13] OSTERTAGOVÁ Eva – OSTERTAG Oskar: Methodology and Application of One-way ANOVA. American Journal of Mechanical Engineering. Vol. 1, no. 7 (2013), p. 256-261. ISSN 2328-4110.
[14] OSTERTAGOVÁ Eva: Aplikácia jednofaktorovej analýzy rozptylu. Transfer inovácií. No. 26 (2013), p. 94-96. ISSN 1337-7094.
[15] OSTERTAGOVÁ Eva: ANOVA a testy homogenity rozptylov. Transfer inovácií. No. 26 (2013), p. 97-99. ISSN 1337-7094.
[16] PLAVKA Ján: On the weak robustness of fuzzy matrices. Kybernetika. Vol. 49, no. 1(2013), p. 128-140. ISSN 0023-5954.
[17] ŠEBO Dušan – BUŠA Ján – DEMEČ Peter – SVETLÍK Jozef: Optimal replacement time estimation for machines and equipment based on cost function. Metalurgija. Vol. 52, no. 1 (2013), p. 119-122. ISSN 0543-5846.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	8	6	2

DEPARTMENT OF COMPUTERS AND INFORMATICS

http://kpi.fei.tuke.sk/
Tel.: ++421 55 633 5313
Fax: ++421 55 602 2746

Head of Department
doc. Ing. Jaroslav Porubän, PhD.
E-mail: jaroslav.poruban@tuke.sk

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 Feciľak, PhD.
Ing. Katarína Feciľaková,PhD.
Ing. František Hrozek, PhD.
Ing. Sergej Chodarev, PhD.
Ing. Eva Chovancová, PhD.
Ing. Štefan Korečko, PhD.
Ing. Branislav Madoš, PhD.
Ing. Daniel Mihályi, PhD.
Ing. Miroslav Michalko, PhD.
Ing. Marek Paralič, PhD.
Ing. William Steingartner, PhD.
Ing. Csaba Szabó, PhD.
Ing. Slavomír Šimoňák, PhD.
Ing. Henrieta Telepovská, PhD.
Ing. Peter Václavík, PhD.

Senior Scientists:

Ing. Norbert Ádám, PhD.
Ing. Branislav Madoš, PhD.

Technical Staff:

Ivana Macková
Ing. Mária Halászová
Jozef Šefčík
Helena Švarcová

Ph.D. Students:
Internal form:

Ing. Michal Augustín
Ing. Michaela Bačíková
Ing. Martina Benčková
Ing. Marek Blanár
Ing. Dávid Cymbalák
Ing. Marek Čajkovský
Ing. Marek Čopjak
Ing. Emília Demeterová
Ing. Marek Domiter
Ing. Zuzana Dudláková
Ing. Michal Ennert
Ing. Peter Fanfara
Mgr.Martin Grekšo
Ing. Ivan Halupka
Ing. Miroslav Hartinger
Ing. Ján Hurtuk
Ing. Peter Ivančák
Ing. Ondrej Kainz
Ing. Martin Kapa
Ing. Ivan Klimek
Ing. Michal Kovalčík
Ing. Dominik Lakatoš
Ing. Jakub Livovský
Ing. Martina Ľaľová
Ing. Jaroslav Lámer
Ing. Pavol Macko
Ing. Milan Nosáľ
Ing. Marek Novák
Ing. Adrián Pekár
Ing. Emília Pietriková
Ing. Veronika Szabóová
Ing. Lukáš Štefanský
Ing. Martin Varga
Ing. Milan Vrábeľ
Ing. Wasim Zahra
Ing. Jana Petrillová

External form:

Ing. Jozef Doboš
Ing. Martin Droppa
Ing. Ľuboš Dúbravec
Ing.Marek Dufala
Ing. Dušan Janovský
Ing. Marián Jenčík
Ing. Milan Krendželák
Ing. Lukáš Mikula
Ing. Marcel Mojžiš
Ing. Matej Lakatoš
Ing. Ivan Peťko
Ing. Igor Petz
Ing. Róbert Peťka
Ing. Ján Polák
Ing. Peter Prazňák
Ing. Ján Radušovský
Ing. Štefan Sinčák
Ing. Maroš Ščišlák
Ing. Kristián Šesták
Ing. Matúš Valo
Ing. Juraj Vízi

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
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
Assembler	4th	2/2	Šimoňák
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	Michalko
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	2/2	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
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	Feciľak
Technologies of Software Projects-II	3rd	0/2	Szabó
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: 2010-2014, coordinator: doc. Ing. Zdeněk Havlice, CSc.
- **Virtlab - „Virtual Reality Laboratory for Factory of the Future“,** Hungary Slovakia Cross-Border Co-operation Programme, European Regional Development Fund, HUSK/1101/1.2.1/0039**,** duration: 2012-2014, coordinator: doc. Ing. Branislav Sobota, PhD.
- **Modelling, Simulation and Development of High Throughput Network Security Tools with GPGPU Support,** Slovak Research and Development Agency No. APVV-0008–10, duration: 2011–2014, coordinator: prof. Ing. Liberios Vokorokos, PhD.
- **Dictionary of Multiword Terms**, Slovak Research and Development Agency No. APVV-0342–11, duration: 2012–2015, TUKE coordinator: doc. Ing. Ján Genči, PhD.
- **Principles and Methods of Automated Abstraction of Computer Languages and Software Development Based on the Semantic Enrichment Caused by Communication,** Research Grant Agency VEGA No. 1/0341/13, duration: 2013-2015, coordinator: prof. Ing. Ján Kollár, CSc.
- **Co-evolution of the Artifacts Written in Domain-specific Languages Driven by Language Evolution**, Research Grant Agency VEGA No. 1/0305/11, duration: 2011-2013, coordinator: doc. Ing. Jaroslav Porubän, PhD.
- **Comprehensive Processing of Contemporary Slovak Language**, Research Grant Agency VEGA No. 1/0255/12, duration: 2012–2015, TUKE coordinator: doc. Ing. Ján Genči, PhD.
- **Adaptive Personalized Learning Environments**, Slovak Research and Development Agency No. SK-SRB-0032-11, MVTS-SRB, duration: 2012-2013, coordinator: doc. Ing. Ladislav Samuelis, CSc. (doc. Ing. Jaroslav Porubän, PhD.)
- **Advanced Software Engineering Education – Methods and Tools,** Slovak Research and Development Agency No. SK-AT-0024-12, duration: 2013-2014, coordinator: doc. Ing. Ladislav Samuelis, CSc. (Ing. Csaba Szabó, PhD.)
- **The Platform for Integration of Learning Materials and Tools Used in the Learning Process**, Cultural and Educational Grant Agency 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**, Cultural and Educational Grant Agency KEGA No. 050TUKE-4/2012, duration: 2012-2014, coordinator: Ing. Štefan Korečko, PhD.
- **Computer Security E-learning Course**, Cultural and Educational Grant Agency KEGA No. 026UKF-4/2012, duration: 2012-2014, coordinator: doc. Ing. Ján Genči, PhD.
- **Renewal of the Practices of Operating System Course,** Cultural and Educational Grant Agency KEGA No. 062TUKE-4/2013, duration: 2013-2014, coordinator: doc. Ing. Ján Genči, PhD.
- **Integration of Software Engineering Processes Quality in the Curriculum of Computer Science Programs at Technical Universities**,

Cultural and Educational Grant Agency KEGA 050TUKE-4/2013, duration: 2013-2014, coordinator: Ing. Csaba Szabó, PhD.

- **The Application of Virtual Veality Technologies in the Teaching of Handicapped Persons,** Cultural and Educational Grant Agency KEGA 054TUKE-4/2013, duration: 2013-2014, coordinator: doc. Ing. Branislav Sobota, PhD.
- **Microlearning Environment for Training of Professionals in the Field of Information Security**, Cultural and Educational Grant Agency KEGA No. 008TUKE-4/2013, duration: 2013–2015, coordinator: prof. Ing. Liberios Vokorokos, PhD.
- **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)

6 CO-OPERATION

6.1 Co-operation in Slovakia

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

6.1.1 Visitors to the Department

- doc. Ing. Valentino Vranić, PhD., 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
- Ing. Katarína Jelemenská, 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
- 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
- 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
- doc. RNDr. Gabriela Andrejková, CSc., Pavol Jozef Šafarik University in Košice, Slovakia
- doc. RNDr. Petr Šaloun, PhD., VŠB-Technical University of Ostrava, Czech Republic
- doc. Ing. Jarmila Škrinárová, PhD., Matej Bel University in Banská Bystrica, Slovakia
- Ing. Dana Horváthová, PhD., Matej Bel University in Banská Bystrica, Slovakia
- Mgr. PaedDr. Vladimír Siládi, PhD., Matej Bel University in Banská Bystrica, Slovakia
- Akademik prof. Ing. Ivan Plander, DrSc., Alexander Dubček University of Trenčín, Slovakia
- doc. 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
- prof. Ing. Mikuláš Alexík, PhD., Faculty of Management Science and Informatics, University of Žilina, Slovakia
- Assoc. Prof. Andreas Bollin, Alps Adriatic University of Klagenfurt, Austria
- Gordana Rakić, University of Novi Sad, Serbia
- Boban Vesin, University of Novi Sad, Serbia
- Ivan Pribela, University of Novi Sad, Serbia
- Assoc. Prof. PhD. Simona Motogna, Babes Bolyai, University of Cluj-Napoca, Romania
- Davorka Radaković, University of Novi Sad, Serbia
- Jernej Hubert, University of Maribor, Slovenia
- Kerekes Tünde Klára, Babes Bolyai, University of Cluj-Napoca, Romania
- Michal Kocifaj, University of Žilina, Slovakia
- Ing. Lucia Lacko-Batrošová, Slovak Academy of Sciences, Slovakia
- RNDr. Mária Šimaľová, Pavol Jozef Safarik University, Košice, Slovakia
- RNDr. Pavol Sokol, Pavol Jozef Safarik University, Košice, Slovakia
- Ing. Tomáš Páleník, PhD., Slovak University of technology, Bratislava, Slovakia
- Mgr. Libor Olajec, Silesian University in Opava, Czech Republic

- Mgr. Zuzana Prišč áková, Mendel University in Brno, Czech Republic
- Ing. Martin Hlosta, Brno University of Technology, Czech Republic
- Ing. Michal Šebek, Brno University of Technology, Czech Republic
- Ing. Jaroslav Rozman, Brno University of Technology, Czech Republic
- Ing. Radim Luža, Brno University of Technology, Czech Republic
- Ing. Róbert Kalmár, Brno University of Technology, Czech Republic
- Ing. Jiří Král, Brno University of Technology, Czech Republic
- Ing. Ján Zelený, Brno University of Technology, Czech Republic
- Ing. Lukáš Ďurfina, Brno University of Technology, Czech Republic
- RNDr. Petr Bujok, Ph.D., University of Ostrava, Czech Republic
- Pawel Kossecki, The Polish National Film, Television and Theatre School, Poland
- Zbigniew Domański, Czestochowa Universiy of Technology, Poland
- Andrzej Grzybowski, Czestochowa Universiy of Technology, Poland
- Bogusława Ziółkowska, Czestochowa Universiy of Technology, Poland
- Anna Brzozowska, Czestochowa Universiy of Technology, Poland
- Anna Korombel, Czestochowa Universiy of Technology, Poland
- Tomasz Lis, Czestochowa Universiy of Technology, Poland
- Maria Nowicka-Skowron, Politechnika Czestochowska, Poland
- Wojciech Kempa, Silesian University of Technology, Poland
- Łukasz Apiecionek, Casimir te Great University, Poland
- Melinda Simon, Eötvös Lorand University, Budapest, Hungary
- Zalán Szűgyi, Eötvös Lorand University, Budapest, Hungary
- Gábor Horváth, Eötvös Lorand University, Budapest, Hungary
- Tamás Matuszka, Eötvös Lorand University, Budapest, Hungary
- Zsigmond Mariás, Eötvös Lorand University, Budapest, Hungary
- Gábor Sági, Hungarian Academy of Sciences, Hungary
- Zoltán Fűlőp, University of Szeged, Hungary
- Imre Gábor, Budapest University of Technology and Economics, Budapest, Hungary
- Stefan Friese, University of Duisburg-Essen, Germany
- Radu D. Gaceanu, Babes-Bolyai University, Cluj-Napoca, Romania
- Inna Motronenko, Sergey Esenin`s State budget Educational Institution Secondary General School No. 641, Moscow, Russia
- Dmitriy Buy, Taras Shevcenko National University of Kyiv, Ukraine
- Sergey Kompan, Taras Shevcenko National University of Kyiv, Ukraine
- Andrii Kryvolap, Taras Shevcenko National University of Kyiv, Ukraine
- Boja Furlan, University of Belgrade, Serbia
- Sonja Ristić, University of Novi Sad, Serbia
- Slavko Žitnik, University of Ljubljana, Slovenia

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

- Alpen-Adria-Universität Klagenfurt, Austria
- Carinthia University of Applied Sciences, Klagenfurt, Austria
- Universita della Svizzera Italiana, Lugano, Switzerland
- 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., IT Conference, Brussels, Belgium
- doc. Ing. František Jakab, PhD., NetAcad Conference, Brno, Czech Republic
- doc. Ing. František Jakab, PhD., INES 2013, University of San Jose, Costa Rica
- doc. Ing. František Jakab, PhD., NetAcad meeting, London, United Kingdom
- doc. Ing. František Jakab, PhD, EMINENT 2013, Helsinki, Sweden
- doc. Ing. František Jakab, PhD., European eSkills conference, Brussels, Belgium
- doc. Ing. František Jakab, PhD., NetAcad International Conference, Berlin, Germany
- doc. Ing. Ján Genči, PhD., TEMPUS INARM project meeting, Maria Curie-Skłodowska University, Lublin, Poland
- doc. Ing. Ján Genči, PhD., TEMPUS INARM project meeting, Khmelnitsky National University, Ukraine
- doc. Ing. Ján Genči, PhD., TEMPUS INARM project meeting, Yerevan, Armenia
- doc. Ing. Ján Genči, PhD., DATAKON 2013, Ostrava, Czech Republic
- doc. Ing. Branislav Sobota, PhD., DATAKON 2013, Ostrava, Czech

Republic
- doc. Ing. Branislav Sobota, PhD., HUSK project meeting, Bay Zoltan Nonprofit Ltd., Miskolc, Hungary
- Ing. František Hrozek, PhD., HUSK project, University of Miskolc, Hungary
- Ing. Štefan Korečko, PhD., HUSK project, University of Miskolc, Hungary
- prof. Ing. Štefan Hudák, DrSc., Brno University of Technology, Czech Republic
- prof. Ing. Ján Kollár, CSc., Brno University of Technology, Czech Republic
- Ing. Martin Varga, Integrated Systens Europe, Amsterdam, Holland
- doc. Ing. Ladislav Samuelis, CSc., EIT ICT Labs Master School, Budapest, Hungary
- doc. Ing. Ladislav Samuelis, CSc., International Conference ISCE 2013, San Francisco, USA
- doc. Ing. Ladislav Samuelis, CSc., CEEPUS, University of Lubljana, Slovenia
- doc. Ing. Jaroslav Porubän, PhD., SLATE 2013, University of Porto, Portugal
- prof. Ing. Ján Kollár, CSc., SLATE 2013, University of Porto, Portugal
- Ing. Sergej Chodarev, PhD., SLATE 2013, University of Porto, Portugal
- Ing. Emília Pietriková, SLATE 2013, University of Porto, Portugal
- Ing. Milan Nosáľ, SLATE 2013, University of Porto, Portugal
- Ing. Ivan Halupka, SLATE 2013, University of Porto, Portugal
- Ing. Michaela Bačíková, SLATE 2013, University of Porto, Portugal
- Ing. Dominik Lakatoš, SLATE 2013, University of Porto, Portugal
- doc. Ing. Jaroslav Porubän, DSL Summer School, Babes Bolyai, University of Cluj-Napoca, Romania
- Ing. Sergej Chodarev, PhD., DSL Summer School, Babes Bolyai, University of Cluj-Napoca, Romania
- doc. Ing. Jaroslav Porubän, PhD., FedCIS 2013, University of Krakow, Poland
- Ing. Dominik Lakatoš, FedCIS 2013, University of Krakow, Poland
- Ing. Ivan Halupka, FedCIS 2013, University of Krakow, Poland
- doc. Ing. Jaroslav Porubän, PhD., APVV project meeting, University of Novi Sad, Serbia
- Ing. Milan Nosáľ, APVV project meeting, University of Novi Sad, Serbia
- Ing. Dominik Lakatoš, APVV project meeting, University of Novi Sad, Serbia
- Ing. Štefan Korečko, PhD., CINTI 2013, Budapest, Hungary
- Ing. Veronika Szabóová, APVV project meeting Alps Adriatic University of Klagenfurt, Austria
- Ing. Csaba Szabó, PhD., APVV project meeting, Alps Adriatic University of Klagenfurt, Austria
- Ing. William Szeingartner, PhD., CECIIS 2013, Varazdin, Croatia
- Ing. William Steingartner, PhD., University of Szeged, Hungary
- Ing. Peter Feciľak, PhD., NetAcad International Conference, Berlin, Germany
- Ing. Katarína Feciľaková, PhD., NetAcad International Conference, Berlin, Germany
- Ing. Katarína Feciľaková, PhD., NetAcad Conference, Brno, Czech Republic
- Ing. Peter Feciľak, PhD., NetAcad Conference, Brno, Czech Republic
- Ing. Peter Feciľak, PhD., NetAcad meeting, London, United Kingdom

- Ing. Katarína Feciľaková, PhD., NetAcad meeting, London, United Kingdom
- Ing. Dávid Cymbalák, International Conference "Poster 2013", Prague, Czech Republic
- Ing. Martin Varga, International Conference "Poster 2013", Prague, Czech Republic
- Ing. Zuzana Dudláková, International Conference "Poster 2013", Prague, Czech Republic
- Ing. Milan Nosáľ, International Conference "Poster 2013", Prague, Czech Republic
- Ing.Michaela Bačíková, International Conference "Poster 2013", Prague, Czech Republic
- Ing.Dominik Lakatoš, International Conference "Poster 2013", Prague, Czech Republic
- Ing. Ivan Halupka, International Conference "Poster 2013", Prague, Czech Republic
- Ing. Emília Pietriková, International Conference "Poster 2013", Prague, Czech Republic
- Ign. Michaela Bačíková, HIS 2013, Gdansk University of Technology, Poland

6.3 Membership in International Organizations and Societies

- Bača, J., Genči, J., Havlice, Z., Hrozek, F., Hudák, Š., Kollár, J., Korečko, Š., Novitzká, V., Porubän, J., Samuelis, L., Sobota, B., Szabó, Cs., 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

6.4 Membership in Slovak Organizations and Societies

- Bača, J., Biňas, M., Genči, J., Havlice, Z., Hudák, Š., Kollár, J., Korečko, Š., Mihályi, D., Novitzká, V., Paralič, M., Porubän, J., Samuelis, L., Steingartner W., Sobota, B., Szabó, Cs., Šimoňák, S., Šujanský, M., Telepovská, H., Tomášek, 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)
- Ádám, N.: External member of the Hungarian Academy of Sciences (MTA).
- 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“
- Novitzká, V.: Member of the Board of the SSAKI - „Slovak Society for Applied Cybernetics and Informatics”
- 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.: Contact for Oracle Academy
- 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
- IT Valley Košice

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	211	164	6

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences, Seminars

- INFORMATICS'2013 – 12th International Scientific Conference on Informatics, November 5 – 7, 2013 in Spišská Nová Ves, Slovakia
- SAMI 2013 – 11th International Symposium on Applied Machine Intelligence and Informatics, January 31 - February 2, 2013 in Herl'any, Slovakia
- ICETA 2013 – 11th International Conference on Emerging eLearning Technologies and Applications, October 24 – 25, 2013, The High Tatras, Slovakia (DCI co-operation)

8.2 Study tours

- Ing.Adrián Pekár, JKU Linz, Austria (ERASMUS)
- Ing. Veronika Szabóová, Aplen-Adria Universität Klagenfurt, Austria (APVV)
- Ing. Ivan Halupka, Babes Bolyai University, Cluj Napoca, Romania (ERASMUS)
- Ing. Michaela Bačíková, Babes Bolyai University, Cluj Napoca, Romania (ERASMUS)
- Ing. Milan Nosáľ, Babes Bolyai University, Cluj Napoca, Romania (ERASMUS)
- Ing. Peter Ivančák, University of Maribor, Slovenia (CEEPUS)
- Ing. Milan Nosáľ, University of Novi Sad, Serbia (APVV)
- Ing. Dominik Lakatoš, University of Novi Sad, Serbia, (APVV)
- Ing. Veronika Szabóová, JKU Linz, Austria (CEEPUS)

9 PUBLICATIONS

9.1 Books

[1] SAMUELIS, Ladislav - FRÜHAUF, Karol - LUDEWIG, Jochen - SANDMAYR, Helmut - SZABÓ, Csaba: Software Testing Fundamentals - Introduction to Software Verification Theory - Košice : TU - 2013. - 148 p. - ISBN 978-80-553-1282-8.
[2] SOBOTA, Branislav - HROZEK, František: Virtual Reality Technologies - Košice : TU - 2013. - 158 p. - ISBN 978-80-553-1500-3.

9.2 Journals

[1] VOKOROKOS, Liberios - PEKÁR, Adrián - ÁDÁM, Norbert - DARÁNYI, Peter: Yet Another Attempt in User Authentication. In: Acta Polytechnica Hungarica. Vol. 10, no. 3 (2013), p. 37-50. - ISSN 1785-8860
[2] FANFARA, Peter - CHOVANEC, Martin: Effect of sophisticated hybrid honeypot architecture on the efficiency of intrusion detection system in distributed computer systems. In: Acta Informatica Pragensia. Vol. 2, no. 1 (2013), p. 39-56. - ISSN 1805-4951
[3] SZABÓ, Csaba - SZABÓOVÁ, Veronika: On Information System Architecture Supporting Acceptance Testing. In: Egyptian Computer Science Journal. Vol. 37, no. 4 (2013), p. 14-21. - ISSN 1110-2586
[4] HAVLICE, Zdeněk - VÍZI, Juraj - SZABÓOVÁ, Veronika: Comparing Embedded Systems Development Methods. In: Egyptian Computer Science Journal. Vol. 37, no. 4 (2013), p. 56 - 63. - ISSN 1110-2586
[5] BAČÍKOVÁ, Michaela - PORUBÄN, Jaroslav: Evaluating Domain Usability with DEAL: a Case Study. In: Journal of Computer Science and Control Systems. Vol. 6, no. 1 (2013), p. 5-9. - ISSN 1844-6043
[6] PIETRIKOVÁ, Emília - KOLLÁR, Ján - CHODAREV, Sergej: PATACA: PATtern Analyzing and Collecting Algorithm. In: Journal of Computer Science and Control Systems. Vol. 6, no. 1 (2013), p. 75-80. - ISSN 1844-6043
[7] CHODAREV, Sergej: DSL Development based on the Generic Syntax. In: Journal of Computer Science and Control Systems. Vol. 6, no. 1 (2013), p. 20 - 25. - ISSN 1844-6043
[8] VOKOROKOS, Liberios - CHOVANCOVÁ, Eva: Multicore architecture for accelerating the computations. In: Acta Informatica Pragensia. Vol. 2, no. 1 (2013), p. 79-90. - ISSN 1805-4951
[9] PORUBÄN, Jaroslav - NOSÁĽ, Milan: Generating case studies from annotated sources codes. In: Journal of Computer Science and Control Systems. Vol. 6, no. 1 (2013), p. 81-86. - ISSN 1844-6043
[10] JAKAB, František - PEKÁR, Adrián - FECIĽAK, Peter - MICHALKO, Miroslav: Optimization of network traffic monitoring. In: Acta Informatica Pragensia. Vol. 2, no. 1 (2013), p. 101-121. - ISSN 1805-4951
[11] HALUPKA, Ivan - KOLLÁR, Ján: Formal Specification of Grammar Refactoring Patterns. In: Journal of Computer Science and Control Systems. Vol. 6, no. 1 (2013), p. 38-43. - ISSN 1844-6043
[12] LAKATOŠ, Dominik - PORUBÄN, Jaroslav: Patterns for Composition of Domain-Specific Languages. In: Journal of Computer Science and Control Systems. Vol. 6, no. 1 (2013), p. 62-66. - ISSN 1844-6043
[13] FANFARA, Peter - DUFALA, Marek - RADUŠOVSKÝ, Ján: Autonomous Hybrid Honeypot as the Future of Distributed Computer Systems Security.

In: Acta Polytechnica Hungarica. Vol. 10, no. 6 (2013), p. 25-42. - ISSN 1785-8860
[14] STEINGARTNER, William - GALINEC, Darko: The Rôle of Categorical Structures in Infinitesimal Calculus. In: Journal of Applied Mathematics and Computational Mechanics. Vol. 12, no. 1 (2013), p. 107-119. - ISSN 2299-9965
[15] KOLLÁR, Ján: From XSL Transformation to Automated Software Evolution. In: Journal of Computer Science and Control Systems. Vol. 6, no. 1 (2013), p. 52-57. - ISSN 1844-6043
[16] VOKOROKOS, Liberios - CHOVANCOVÁ, Eva - RADUŠOVSKÝ, Ján - CHOVANEC, Martin: A Multicore Architecture Focused on Accelerating Computer Vision Computations. In: Acta Polytechnica Hungarica. Vol. 10, no. 5 (2013), p. 29-43. - ISSN 1785-8860
[17] KOREČKO, Štefan - HUDÁK, Štefan - DOBOŠ, Jozef - ŠIMOŇÁK, Slavomír: Decompositional Mw automaton-based reachability algorithm. In: Egyptian Computer Science Journal. Vol. 37, no. 6 (2013), p. 19-32. - ISSN 1110-2586
[18] VOKOROKOS, Liberios - MADOŠ, Branislav - ÁDÁM, Norbert - BALÁŽ, Anton: Innovative Operating Memory Architecture for Computers using the Data Driven Computation Model. In: Acta Polytechnica Hungarica Vol. 10, no. 5 (2013), p. 63-79. - ISSN 1785-8860
[19] NOVÁK, Marek - JAKAB, František - LAIN, Luis: Anomaly Detection in User Daily Patterns in Smart-Home Environment. In: Cyber Journals: Multidisciplinary Journals in Science and Technology. Vol. 3, no. 6 (2013), p. 1-11. - ISSN 1925-2676
[20] HROZEK, František: 3D interfaces of systems. In: Information Sciences and Technologies Bulletin of the ACM Slovakia. Vol. 5, no. 2 (2013), p. 17-24. - ISSN 1338-1237
[21] ŠIMOŇÁK, Slavomír: Algorithm Visualization Using the VizAlgo Platform. In: Acta Electrotechnica et Informatica. Vol. 13, no. 2 (2013), p. 54-64. - ISSN 1335-8243
[22] GALINEC, Darko - STEINGARTNER, William: A look at observe, orient, decide and act feedback loop, pattern-based strategy and network enabled capability for organizations adapting to change. In: Acta Electrotechnica et Informatica. Vol. 13, no. 2 (2013), p. 39-49. - ISSN 1335-8243
[23] MIHÁLYI, Daniel - NOVITZKÁ, Valerie: What about linear logic in computer science? In: Acta Polytechnica Hungarica. Vol. 10, no. 4 (2013), p. 147-160. - ISSN 1785-8860
[24] PARALIČ, Ján - BABIČ, František - PARALIČ, Marek: Process-driven Approaches to Knowledge Transformation. In: Acta Polytechnica Hungarica. Vol. 10, no. 5 (2013), p. 125-143. - ISSN 1785-8860
[25] HAVLICE, Zdeněk: Auto-Reflexive Software Architecture with Layer of Knowledge Based on UML Models. In: International Review on Computers and Software (IRECOS). Vol. 8, no. 8 (2013), p. 1814-1821. - ISSN 1828-6003.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	40	53	31

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

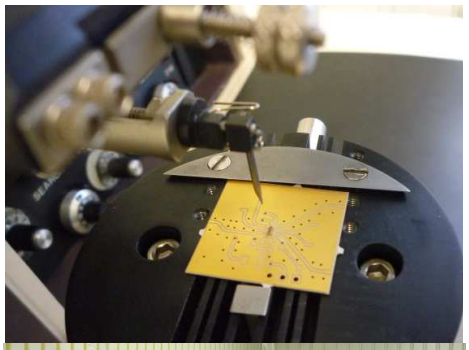
1 DEPARTMENT'S PROFILE

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. Ing. Michal Jurčišin, PhD.
Research staff:	Igor Vehec
Secretary:	Mgr. Alena Focková
Internal Ph.D. Student:	Ing. Michal Jurčišin, PhD. – defended PhD thesis in summer 2013 Ing. Dominik Demeter Ing. Kornel Ruman Ing. Tibor Rovenský Ing. Peter Lukács

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 Proceses in Electronics	3rd	2/3	Pietriková
Production and Properties of Pasive Components	4th	2/2	Kardoš
Measurement of Electronics Structures	4th	2/2	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
Automated Measuring Systems	6th	2/0	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
Design Systems in Electronic	1st	2/3	Livovský
Semestral Project	2nd	0/3	Pietriková
Physical Principles and Design of Microsystems	2nd	3/2	Somora
Production Processes in Electronics II	2nd	2/4	Slosarčík
Quality and Reliability Management	2nd	2/2	Pietriková
Diploma Thesis I.	3rd	0/5	Pietriková
Production Technologies, Structure, Properties and Applications of Sensors	3rd	2/3	Banský
Design Systems in Electronic	3rd	2/3	Livovský
Materials for Electrotechnical Applications	3rd	2/1	Pietriková
Microprocessors in Automotive Electronics	3rd	2/2	Livovský
Diploma Thesis II.	4th	0/18	Slosarčík
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	Pietriková
Scientific research I.	1st	0/2	Pietriková
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	Pietriková
Scientific Research II.	4th	0/2	Supervisors
Scientific Research III.	5th	0/2	Supervisors
PhD Thesis		0/9	Supervisors
PhD Project		0/4	Supervisors

4.5 PhD. Students at the Branch of Electrotechnology and Materials

Name of PhD student	Thesis	Year of study/form	Supervisor
Lukács, P.	Active Circuit Component of UWB Radar Based on LTCC	1 / internal	Pietriková
Rovenský, T.	Analyses of High frequency element´s properties from the various materials and technologies view	2 / internal	Pietriková
Ruman, K.	Contribution to Analyse of Microstrip Filtres for UWB Sensor Systems based on LTCC	3 / internal	Pietriková
Demeter, D.	The Virtual Technology Laboratory for the e-learning Education of the Assembling Technologies in Electronics	4 / internal	Banský
Jurčišin, M.	Contribution to Measurement of Intra-Abdominal Pressure by Noninvasive Method	4 / internal	Slosarčík

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 - 02/2014.

- Participation on the project from structural funds: **Balík prvkov pre skvalitnenie a inováciu vzdelávania na TUKE**. ITMS: 26110230070. Coordinator: prof.Ing. Pavel Raschman, CSc. Duration: 01/01/2013 - 30/09/2015.
- Participation on the project from structural funds: **University Science Park TECHNICOM for Innovation Applications Supported by Knowledge Technology** (Univerzitný vedecký park TECHNICOM pre inovačné aplikácie s podporou znalostných technológií). ITMS: 26220220182. Coordinator: prof. Ing. Stanislav Kmeť, CSc. Duration: 06/2013 - 06/2015.

5.2 Research Projects

- ***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.
- ***Effects of behaviour of multilayer modules based on LTCC in the high frequency environment*** (Efekty správania sa viacvrstvových modulov na báze LTCC v prostredí vysokých frekvencií). Project VEGA 51/0218/13. Coordinator: prof. Ing. Alena Pietriková, CSc. Duration: 2012 - 2015.
- ***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

- doc. Josef Šandera, PhD., CZ 05.02. – 06.02.2013
- Ing. Martin Klíma, CZ 05.02. – 06.02.2013
- Ing. Michal Štekovič, CZ 05.02. – 06.02.2013
- Ing. Karel Dušek, PhD., CZ 27.06. – 27.06.2013

6.2.2. Visits of Staff Members to Foreign Institutions

- Rovenský, T., Germany (Ilmenau) 09.04. – 05.06.2013
- Slosarčík, S., Poland (Rzeszow) 19.04. – 19.04.2013
- Jurčišin, M., Poland (Rzeszow) 10.05. – 10.05.2013
- Pietriková, A., Romania (Alba Iulia) 08.05. – 12.05.2013
- Ruman, K., Romania (Alba Iulia) 08.05. – 12.05.2013
- Pietriková, A., CZ (Plzeň) 01.09. – 05.09.2013
- Rovenský, T., CZ (Plzeň) 01.09. – 05.09.2013
- Slosarčík, S., CZ (Brno) 08.09. – 10.09.2013
- Jurčišin, M., CZ (Brno) 08.09. – 11.09.2013
- Demeter, D., CZ (Brno) 08.09. – 11.09.2013
- Ruman, K., CZ (Plzeň) 09.09. – 13.09.2013
- Pietriková, A., Poland (Wroclaw) 18.09. – 19.09.2013
- Cabúk, P., Poland (Wroclaw) 18.09. – 19.09.2013
- Lukács, P., Poland (Wroclaw) 18.09. – 19.09.2013
- Vehec, I., Poland (Wroclaw) 18.09. – 19.09.2013
- Ďurišin, J., Germany (Hamburg) 10.11. – 13.11.2013
- Slosarčík, S., Poland (Rzeszow) 25.11. – 26.11.2013
- Pietriková, A., Germany (Ilmenau, Dresden) 24.11. – 30.11.2013

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.
- 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	23	11	1

8 OTHER ACTIVITIES

8.1 Student Competitions and Rewards

- ROVENSKÝ, T.: Best PhD. Poster Award for the article: Reliability of various PWB materials in high frequency area / Alena Pietrikova, Tibor Rovenský, Ján Gamec, Kornel Ruman. In: Diagnostika ´13 : Conference on Diagnostics in Electrical Engineereing CDEE 2013 : international conference : Pilsen, September 2-4, 2013. - Pilsen : University of West Bohemia, 2013

9 PUBLICATIONS

9.1 Journals

[1] LIVOVSKÝ, Ľ: Vnorené rezistory v Altium Designeri. In: DPS - Elektronika od A do Z. Vol. 4, no. 3 (2013), p. 28-31. - ISSN 1805-5044
[2] KARDOŠ, S. - SLOSARČÍK, S. - JURČIŠIN, M.: Rehabilitačná pomôcka pre kontrolu zaťaženia dolnej končatiny s bezdrôtovým prenosom informácie. In: EE časopis. Roč. 19, č. mimoriadne č. (2013), s. 47-49. - ISSN 1335-2547
[3] LIVOVSKÝ, Ľ: Regulácia teploty pretavenia na DPS v prostredí nasýtených pár. In: Elektrorevue. Vol. 15, no. 5 (2013), p. 322-325. - ISSN 1213-1539 Spôsob prístupu: http://www.elektrorevue.cz/cz/clanky/kybernetika--automatizace--merici-technika/0/regulacia-teploty-...

[4] VEHEC, I.: Kontaktované spoje a nové trendy v oblasti kontaktovania. In: Posterus.sk. Roč. 6, č. 3 (2013), s. 1 - 6. - ISSN 1338-0087 Spôsob prístupu: http://www.posterus.sk/?p=15578...
[5] MAJZER, J. - CABÚK, P.: Automotive Night Vision systémy. In: Posterus.sk. Roč. 6, č. 3 (2013), s. 1-7. - ISSN 1338-0087 Spôsob prístupu: http://www.posterus.sk/?p=14849#more-14849...
[6] LIVOVSKÝ, Ľ.: Využívanie vnorených rezistorov v návrhu DPS. In: Posterus.sk. Roč. 6, č. 2 (2013), s. 1-6. - ISSN 1338-0087 Spôsob prístupu: http://www.posterus.sk/?p=14755...
[7] BEHUN, P. - KARDOŠ, S.: Elektronické systémy aktívnej bezpečnosti v automobiloch. In: Posterus.sk. Roč. 6, č. 2 (2013), s. 1-16. - ISSN 1338-0087 Spôsob prístupu: http://www.posterus.sk/?p=14714...

9.2 Papers in Citation Database

[1] RUMAN, K. - PIETRIKOVÁ, A. - VEHEC, I. - GALAJDA, P.: Comparison of Different Materials for Manufacturing of Antialiasing LP Filter. In: Applied Electronics: 18th International Conference: Pilsen, 10 - 12 September 2013. - Pilsen: University of West Bohemia, 2013 P. 237-240. - ISBN 978-80-261-0166-6 - ISSN 1803-7232
[2] RUMAN, K. - PIETRIKOVÁ, A. - VEHEC, I. - GALAJDA, P.: Design of microstrip band pass filter based on LTCC for UWB sensor system. In: ISSE 2013: 36th International Spring Seminaron Electronics Technology: Automotive Electronics: Alba Iulia, on May 8th-12th, 2013. - Piscataway: IEEE, 2013 P. 237-241. - ISBN 978-1-4799-0036-7 - ISSN 2161-2528
[3] PIETRIKOVÁ, A. - ROVENSKÝ, T. - GAMEC, J.: Design of narrow-band 2.4 – 2.5 GHz notch filter using various materials. In: ISSE 2013: 36th International Spring Seminaron Electronics Technology: Automotive Electronics: Alba Iulia, on May 8th-12th, 2013. - Piscataway: IEEE, 2013 P. 242-246. - ISBN 978-1-4799-0036-7
[4] KAINZ, O. - JAKAB, F. - KARDOŠ, S.: Virtual Electrotechnologic Factory as a Tool for e-learning. In: ICETA 2013: 11th IEEE International Conference on Emerging eLearning Technologies and Applications: proceedings: October 24-25, 2013, Stary Smokovec, Slovakia. - Danvers: IEEE, 2013 P. 195-200. - ISBN 978-1-4799-2161-4
[5] KAINZ, O.j - JAKAB, F. - KARDOŠ, S.: The computer animation in education. In: ICETA 2013: 11th IEEE International Conference on Emerging eLearning Technologies and Applications: proceedings: October 24-25, 2013, Stary Smokovec. - Danvers: IEEE, 2013 S. 201-206. - ISBN 978-1-4799-2161-4

9.3 Other publications

Publication Type	Conferences		Other
	Abroad	Home	
Number	6	5	12

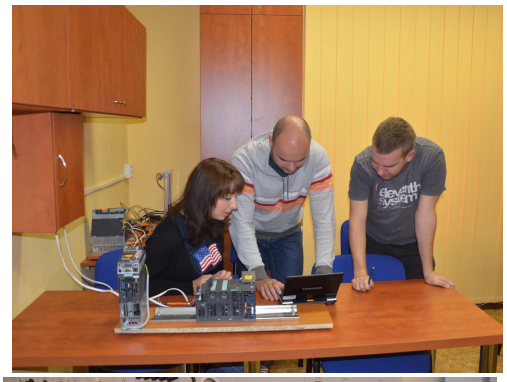
DEPARTMENT OF THEORETICAL ELECTRICAL ENGINEERING AND ELECTRICAL MEASUREMENT

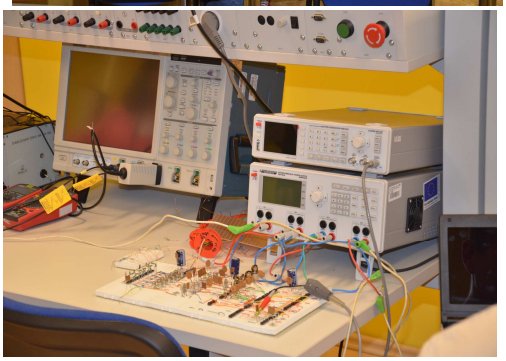
http:/kteem.fei.tuke.sk
Tel./Fax: +421 55 602 2801

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. Ing. Martin Bačko, PhD.
Technical staff:	Jozef Lenárt Danuša Topolčaniová
PhD. Students:	Ing. Ján Perduľak 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, Tomčíková
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.
- ***High speed charger for electro mobiles working on the basis of energy directional transfer via air***. Project of Volkswagen Slovakia found, grant program „Enlarge by technics", project No. 041/13_RT, duration: 2013-2014, co-ordinator: J. Perduľak, members: D. Kováč, M. Ocilka, I. Kováčová, M. Mojžiš, J. Molnár, T. Vince, R. Bučko, M. Bačko, I. Tomčíková.

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	10	6	2

8 OTHER ACTIVITIES

9 PUBLICATIONS

9.1. Journals

[1] KOVÁČ, D. - PERDUĽAK, J.: Six phase Boost Converter with High Efficiency of Energy Conversion. In: *Electrochemical and energy saving systems*, Vol. 19, No. 3 (2012), pp. 497-501, ISSN 2072–2052
[2] VINCE, T.: Usage of artificial neural network in remote DC motor speed regulation. In: *Electromechanical And Energy Saving Systems*, Vol. 19, No. 3 (2012), pp. 518-521, ISSN 2072–2052
[3] MOLNÁR, J. - KOVÁČ, D.: Diagnostic measurement embedded system. In: *Electromechanical and energy saving systems*, Vol. 19, No. 3 (2012), pp. 572-574, ISSN 2072–2052
[4] BAČKO, M. - KOVÁČ, D.: Algorithm for selection of heating device and its alternative sources of energy. In: *Electromechanical and energy saving systems*, Vol. 19, No. 3 (2012), pp. 288-292, ISSN 2072–2052
[5] GUZAN, M.: Boundary Surface of Memory for Smooth I – V Characteristics. In: *Electromechanical and energy saving systems*, Vol. 20, No. 4 (2012), pp. 70-72, ISSN 2072-2052
[6] BUČKO, R. - KOVÁČ, D.: Mechatronic system and voice control. In: *Electromechanical and energy saving systems*, Vol. 19, No. 3 (2012), pp. 448-451, ISSN 2072-2052
[7] OCILKA, M.: Calculation of capacitance of two spiral plates placed on printed circuit board using COMSOL Multiphysics. In: *Electromechanical and energy saving systems*, Vol. 19, No. 3 (2012), pp. 502-504, ISSN 2072-2052
[8] GUZAN, M.: Boundary Surface of 5-Valued Memory. In: *Journal of Engineering*, pp. 1-7, ISSN 2314-4904
[9] KOVÁČ, D. - PERDUĽAK, J.: Efficiency of energy conversion of novel concept of buck-boost converter in comparison with novel concept of multiphase buck-boost converter. In: *Electromechanical and energy saving systems*, Vol. 22, No. 2 (2013), pp. 95-100, ISSN 2072-2052
[10] ŠPALDONOVÁ, D.: Electromagnetic field energy flux in transformer. In: *Electromechanical and energy saving systems*, Vol. 22 (2013), No. 2, pp. 60-66, ISSN 2074-9937
[11] KMEC, M. - DZIAK, J. - BEŇA, Ľ. - ČONKA, Zs.: Zlepšenie prenosovej schopnosti vedení využitím TCSC. In: *Elektroenergetika*, Vol. 6 (2013), No. 2, pp. 9-12, ISSN 1337-6756
[12] PERDUĽAK, J. - KOVÁČ, D. - KOVÁČOVÁ, I. - OCILKA, M. - GLADYR, A. - MAMCHUR, D. - ZACHEPA, I. - VINCE, T. - MOLNÁR, J.: Effective utilization of photovoltaic energy using multiphase boost converter in comparison with single phase boost converter. In: *Communications*, Vol. 15 (2013), No. 3, pp. 32-38, ISSN 1335-4205
[13] OCILKA, M. - KOVÁČ, D. - KOVÁČOVÁ, I. - PERDUĽAK, J. - GLADYR, A. - MAMCHUR, D. - ZACHEPA, I. - VINCE, T. - MOLNÁR, J.: Serial resonant converter and load coil for high frequency heating. In: Communications, Vol. 15 (2013), No. 3, pp. 52 -56, ISSN 1335-4205

9.3. Textbooks

[1] MOJŽIŠ, M.: Metrology of electrical values. *FEI TU Košice*, 2013, 81 p., ISBN

978-80-553-1322-1
[2] DUDÁŠ, J. - MOLNÁR, J.: Analysis of linear electrical circuits. *FEI TU Košice,* 2013, 1. edition, 113 p., ISBN 978-80-553-1415-0
[3] ŠPALDONOVÁ, D.: An energy flux of electromagnetic field in electric circuit. *FEI TU Košice,* 2013, 1. Edition, 104 p., ISBN 978-80-553-1498-3
[4] TOMČÍKOVÁ, I.: Electric circuits with MATLAM 1. *FEI TU Košice,* 2013, 1. Edition, 109 p., ISBN 978-80-553-1478-5
[5] ŠPALDONOVÁ, D.: Elektrotechnics – lecturers. *FEI TU Košice,* 2013, 1. Edition, 209 p., ISBN 978-80-553-1384-9
[6] DUDÁŠ, J.: Electrotechnics Basic circuit analysis - Problems solving. *FEI TU Košice,* 2013, 1. Edition, 134 pp., ISBN 978-80-553-1538-6

9.4. Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	18	11	35