ANNUAL REPORT

FE&I

Technical University of Košice
Slovak republic

FOR YEAR

2014

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. Peter Sinčák, CSc. – E-mail: peter.Sincak@tuke.sk
- Computers and Informatics (abbr. KPI)
  doc.Ing. Jaroslav Porubän, PhD. – E-mail: Jaroslav.poruban@tuke.sk
- Electrical Engineering and Mechatronic (abbr. KEM)
  prof. Ing. Daniela Perduková, PhD. – Daniela.perdukova@tuke.sk
- Mathematics and Theoretical Informatics (abbr. KMTI)
  doc. RNDr. Marián Kleščˇ, PhD. – E-mail: marian.klesc@tuke.sk
- 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. Jozef Juhár, CSc. – E-mail: jozef.juhar@tuke.sk
- 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 and Industrial Electrical Engineering (abbr. KTPE)
  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. 2115 students and 150 teachers and research associates. We have 106 PhD students in our courses. We offer more than 30 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 12 educational and 8 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 215 and among them 30 professors, 35 associate professors, 85 assistant professors, 5 research workers, 60 administrative staff and technicians.
- The number of BSc. students is approximately 1300, number of MSc. students is 800 and number of PhD students approximately 120, every year.

Number of the Bc. students in academic year 2014-2015

Bc. level			
1. year	**2. year**	**3. year**	**Sum**
611	340	309	1260

Number of the Ing. students in academic year 2014-2015

MSc. (Ing.) level		
1. year	**2. year**	**Sum**
348	401	749

Overall number of the students in academic year 2014-2015

Bc. level	MSc. (Ing.) level	PhD. level	Total number
1260	749	106	2115

The student numbers in the academic year 2014/15 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	28	8	36
Electric Power Engineering	110	60	13	183
Informatics	560	265	26	851
Automotive Electronics	33	0	0	33
Electronics	30	0	0	30
Infoelectronics	0	20	11	31
Telecommunications	92	0	10	102
Multimedia telecommunications	0	75	0	75
Cybernetics	104	0	0	104
Cybernetics and info control systems	0	33	11	44
Intelligent Systems	0	0	0	0
Automation of mechatronic systems	0	0	0	0
Industrial Control Engineering	38	21	3	62
Electrical Engineering	0	54	0	54
Computer modeling	35	14	0	49
Industrial Engineering	0	0	0	0
Applied Informatics	15	14	0	39
Business Informatics	183	130	11	324
Physical Engineering of modern materials	7	5	0	12
Artificial Intelligence	0	30	6	36
Control of Electromechanical Systems	53	0	0	53
Mechatronics systems	0	0	3	3
Electrotechnics systems	0	0	6	6
Electrical measuring systems	0	0	1	1
Electrotechnology and materials	0	0	0	0
Total	**1260**	**749**	**109**	**2118**

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 and Industrial Electrical Engineering	KTPE
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.

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 4 years:

- Electric Power Engineering
- Electrical Engineering Systems
- Electronic Measuring Systems
- Infoelectronics
- Informatics
- Business Informatics
- Cybernetics and Information-Control Systems
- Telecommunications
- Artificial Intelligence
- Industrial Electrical Engineering
- 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)	7
7th EU program	1
Slovak – Austrian program	1
Slovak – Czech program	2
CEEPUS	2
Leonardo da Vinci	1
Erasmus program	3
Erasmus MUNDUS	1
TEMPUS program	2
Subtotal	20
National projects supported by VEGA	19
National projects supported by KEGA	21
National projects supported by APVV	6+8
National projects supported by Agency	9+4
Total	**87**

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

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

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

The Faculty has intensive co-operation with industry: the most of results of applied research is realized in industrial enterprises. In 2014 there were accomplished 13 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: Csaba Szabó, department: KPI)

Leonardo da Vinci program

- 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)
- Algorithms, Architectures and Platforms for Enhanced Living environments COST IC 1303 (co-ordinator: Dušan Kocur, department: KEMT)
- Semantic keyword-based search on structured data sources COST IC 1302 (co-ordinator: Peter Butka, department: KKUI)
- Autonomous Control for a Reliable Internet of Services COST IC 1304 (co-ordinator: Peter Bednár, department: KKUI)

Slovak – Austrian program

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

Slovak – Czech program

- Modern informetric methods for the evaluation of scientific research (co-ordinator: Ján Paralič, department: KKUI)
- Multifyzikálne výpočty v elektrických pohonoch (co-ordinator: Želmíra Ferková, department: KEM)

Erasmus projects

- Strategic Alignment of Electrical and Information Engineering in European Higher Education Institutions (contact: Ján Liguš, department: KKUI)
- European Digital Virtual Design Lab (abbr. eDiViDe, contact: Miloš Drutarovský, department: KEMT)
- 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
Dr.h.c. 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, 3 associate professors, 9 assistant professors 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.
Associate Professors:	doc. Ing. Ľubomír Beňa, Ph.D. doc. Ing. Alexander Mészáros, Ph.D. doc. Ing. Juraj Kurimský, Ph.D.
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.
Ing. Dušan Medveď, Ph.D.
Ing. Jaroslav Petráš, Ph.D.
Ing. Ján Tkáč, CSc.

Technical Staff: doc. Ing. Pavel Novák, CSc.
Dagmar Kramolišová
doc. Ing. Ladislav Varga, Ph.D.
Ing. Jana Varnavčinová

Ph.D. Students: Ing. Vieroslava Sklenárová (until Januar 2014)
Ing. Pavol Hocko (until Januar 2014)
Ing. Marián Hrinko (until Januar 2014)
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
Ing. Samuel Bucko
Ing. Michal Kosterec (since 01.09.2014)
Ing. Martin Vojtek (since 01.09.2014)

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	Cimbala
Introduction to programming and networks	1st	0/2	Petráš
Fundamentals of environmental engineering	2nd	2/2	Mészáros
Programming	2nd	0/2	Petráš
Power transmission	3rd	2/2	Varga
Light - technology	3rd	2/2	Beňa
Designing in electric power engineering	3rd	2/2	Ilenin
Database systems - SQL Oracle	4th	2/2	Petráš
Electric Power Plants	4th	2/2	Kolcun
Measurement in electric power engineering	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
Conversion of Electrical Energy	6th	2/2	Medveď
Unconventional energy sources	6th	2/2	Tkáč
Prophylactics of power engineering equipment	6th	2/2	Kolcunová
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

Subject	Semester	Lectures/exercises (Hours per week)	Name of lecturer
Optimisation of Electric Power System Operation	7th	2/3	Kolcun
Electroheat Technology	7th	2/2	Novák
Overvoltages in Electric Networks	7th	2/2	Dolník
Basics of Research Work	7th	1/3	Kurimský
Simulation in Electric Power System	7th	2/3	Medveď
Electrical power network	8th	2/2	Varga
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
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 Meszáros Beňa
Scientific Activity 1 (4)	1st	0/8	(Supervisors)
Electricity supply system analysis	2nd	0/2	Cimbala Kolcun Kolcunová Novák Varga Mészáros Beňa

Subject	Semester	Lectures/exercises (Hours per week)	Name of Lecturer
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 (4)	5th	0/16	(Supervisors)
Scientific Activity 3 (4)	6th	0/16	(Supervisors)
Dissertation thesis (4)	6th	0/16	(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 – 2014
- ***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

- prof. Ing. Stanislav Rusek, CSc. – VŠB Technical University of Ostrava, Czech Republic
- doc. Ing. Radomír Goňo, PhD. – VŠB Technical University of Ostrava, Czech Republic
- Dr. hab.inź. prof.PCz Anna Gawlak – Czestochowa University of Technology, Poland
- Dr. inz. Miroslaw Kornatka – Czestochowa University of Technology, Poland
- Ing. Valentin Gyurov, PhD. – TU Varna, Bulgaria
- Ing. Vladimir Chikov, PhD. – TU Varna, Bulgaria

6.2 International Co-operation

- Moscow Power Engineering Institute, Russia
- Sankt - Petersburg Power Education Institute of Power Engineering, State Department of Russian Federation, Russia
- Graz University of Technology, Austria
- Czestochowa University of Technology, 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

- Čonka, Z.: ÓBUDA University, Budapest, Hungary, 13.1.-30.6.2014

- Kolcun, M.: Czestochowa University of Technology, Lodz University of Technology Poland, 13.-15.1.2014
- Kolcun, M.: UWB Pilsen, Czech Republic, 21.-23.1.2014
- Kolcunová, I.: UWB Pilsen, Czech Republic, 21.-23.1.2014
- Džmura, J.: UWB Pilsen, Czech Republic, 21.-23.1.2014
- Medveď, D.: UWB Pilsen, Czech Republic, 21.-23.1.2014
- Lisoň, L.: UWB Pilsen, Czech Republic, 2.2.-2.5.2014
- Kmec, M.: Czech Technical University in Prague, Czech Republic, 2.2.-2.5.2014
- Kolcunová, I.: UWB Pilsen, Czech Republic, 5.-7.2.2014
- Kolcun, M.: Lodz University of Technology, Poland, 23.-26.3.2014
- Kolcun, M.: Technical University of Riga, Latvia, 25.-30.5.2014
- Kolcunová, I.: Technical University of Riga, Latvia, 25.-30.5.2014
- Balogh, J.: Brno University of Technology, Czech Republic, 12.-14.5.2014
- Dolník, B.: Brno University of Technology, Czech Republic, 12.-14.5.2014
- Zbojovský, J.: Brno University of Technology, Czech Republic, 12.-14.5.2014
- Pavlík, M.: Brno University of Technology, Czech Republic, 12.-14.5.2014
- Kanálik, M.: Czech Technical University in Prague, Czech Republic, 6.-14.6.2014
- Mészáros, A.: Czech Technical University in Prague, Czech Republic, 6.-14.6.2014
- Balogh, J.: UWB Pilsen, Czech Republic, 8.-14.6.2014
- Džmura, J.: UWB Pilsen, Czech Republic, 8.-14.6.2014
- Petráš, J.: WBU Pilsen, Czech Republic, 8.-14.6.2014
- Medveď, D.: WBU Pilsen, Czech Republic, 6.-17.7.2014
- Mészáros, A.: WBU Pilsen, Czech Republic, 6.-17.7.2014
- Jakubčák, R.: WBU Pilsen, Czech Republic, 6.-17.7.2014
- Mikita, M.: WBU Pilsen, Czech Republic, 6.-17.7.2014
- Čonka, Z.: WBU Pilsen, Czech Republic, 6.-17.7.2014
- Bucko, S.: WBU Pilsen, Czech Republic, 6.-17.7.2014
- Lisoň, L.: WBU Pilsen, Czech Republic, 6.-17.7.2014
- Kolcun, M.: Executive Assembly WEC, Cartagena, Republic of Colombia, 15.-26.10.2014
- Kolcunová, I.: Executive Assembly WEC, Cartagena, Republic of Columbia, 15.-26.10.2014

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
- 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
- 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
- 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

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	31	39	4

8 OTHER ACTIVITIES

8.1 Conferences, Seminars

- Specialized Seminar: Smart Grids, 6.-7.11.2014, Poráč, Slovak Republic

8.2 Projects for Industry Companies

- Kolcun, M., Input value preparation for real test execution of “Start from darkness” VE Ružín-TEKO and DG Moldava-TEKO on 18.6.2014, test result evaluation and remedy design. SEPS, a.s. Bratislava, 2014 Slovak Republic
- Cimbala, R.: Calibration of AC/DC Flash tester CLARE A303J, Stroptel, Stropkov 2014, Slovak Republic
- Cimbala, R.: DC voltage component measurement on supply grid operation, PRAKOENERG, spol. s r.o. Prakovce, 2014, Slovak Republic
- Kolcun, M.: Study VSD, a.s Košice, 2014, Slovak Republic
- Kolcun, M., Increasing of transfer capability in Slovak-Hungarian cross-border profile. SEPS, a.s. Bratislava, 2014 Slovak Republic
- Kolcun, M., Research of WAMS applicability for dispatcher control alarm creation. SEPS, a.s. Bratislava, 2014 Slovak Republic

- Kolcun, M., In-depth analysis of data measured during Start from darkness tests at PVE Ružín – TEKO and DG Moldava-TEKO on 18.6.2014. SEPS, a.s. Bratislava, 2014 Slovak Republic
- Kolcun, M.: VSE, a.s Košice employee training, 2014, Slovak Republic

9 PUBLICATIONS

9.1 Journals

[1] KURIMSKÝ, Juraj - DOLNÍK, Bystrík - MARTON, Karol - KOLCUN, Michal - TOMČO, Ladislav - RAJŇÁK, Michal - TIMKO, Milan - KOPČANSKÝ, Peter: The Investigation on the E-J Characteristics and the Role of Nanoparticle Concentration in Weakly Polar Magnetic Fluids / - 2014. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 246-247. - ISSN 0587-4246.

[2] DOLNÍK, Bystrík - KURIMSKÝ, Juraj - MARTON, Karol - KOLCUN, Michal - TOMČO, Ladislav - BRIANČIN, J. - FABIÁN, M. - HALAMA, Maroš - VOJTKO, Marek - RAJŇÁK, M.: Hall Effect in ZnO Extrinsic Structure / - 2014. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 76-77. - ISSN 1898-794X.

[3] RAJŇÁK, M. - KURIMSKÝ, Juraj - DOLNÍK, Bystrík - MARTON, K. - TOMČO, Ladislav - MOLČAN, M. - KOPČANSKÝ, P. - TIMKO, M.: Influence of magnetic field on dielectric breakdown in transformer oil based ferrofluids / - 2014. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 248-249. - ISSN 0587-4246

[4] MÁSLO, Karel - KOLCUN, Michal: Load–frequency control management in island operation / - 2014. In: Electric Power Systems Research. Vol. 114 (2014), p. 10-20. - ISSN 0378-7796

[5] MEDVEĎ, Dušan - KANÁLIK, Martin: Measurement of power quality on the COTEK S1500-124 Inverter's terminals in case of linear load supplying / - 2014. In: Universal Journal of Electrical and Electronic Engineering. Vol. 2, no. 4 (2014), p. 178-182. - ISSN 2332-3280

[6] GRABARA, Janusz - KOLCUN, Michal - KOT, Sebastian: The role of information systems in transport logistics / - 2014. In: International Journal of Education and Research. Vol. 2, no. 2 (2014), p. 1-8. - ISSN 2201-6740

[7] PAVLÍK, Marek - KOLCUN, Michal: Predikcia ceny elektriny na burze PXE použitím RSI a MACD indikátorov / - 2014. In: Energetika. Vol. 64, no. 5 (2014), p. 279 - 281. - ISSN 0375-8842

[8] PAVLÍK, Marek: Pohľad na cenu elektriny na burze PXE / - 2014. In: Elektro. Vol. 24, no. 6 (2014), p. 42-43. - ISSN 1210-0889

[9] PAVLÍK, Marek - ZBOJOVSKÝ, Ján: Regulácia osvetlenia s využitím denného svetla / - 2014. In: Světlo. Vol. 17, no. 3 (2014), p. 58-59. - ISSN 1212-0812

[10] CIMBALA, Roman - KIRÁLY, Jozef - GERMAN-SOBEK, Martin: Ageing of Transformer Ferrofluid Oil as to Capacitance in Frequency Domain at Initial Stage of Ageing / - 2014. In: EEA - Electrotehnica, Electronica, Automatica. Vol. 62, no. 3 (2014), p. 90-95. - ISSN 1582-5175

[11] GERMAN-SOBEK, Martin - CIMBALA, Roman - KIRÁLY, Jozef: Change of dielectric parameters of XLPE cable due to thermal aging / - 2014. In: EEA -

Electrotehnica, Electronica, Automatica. Vol. 62, no. 3 (2014), p. 47-53. - ISSN 1582-5175

[12] KOVALČÍK, Michal - FECIĽAK, Peter - JAKAB, František - DUDIAK, Jozef - KOLCUN, Michal: Cost-Effective Smart Metering System for the Power Consumption Analysis of Household / - 2014. In: International Journal of Advanced Computer Science and Applications (IJACSA). Vol. 5, no. 8 (2014), p. 135-144. - ISSN 2156-5570.

[13] JAKUBČÁK, Roman - KMEC, Miroslav - BEŇA, Ľubomír: Využitie evolučných výpočtových metód v optimalizácii prevádzky elektrizačných sústav / - 2014. In: Elektroenergetika. Roč. 7, č. 1 (2014), s. 23-27. - ISSN 1337-6756

[14] KMEC, Miroslav - ČONKA, Zsolt - BEŇA, Ľubomír: Simulácia digitálnych dištančných ochrán pomocou programu Matlab Simulink / - 2014. In: Elektroenergetika. Roč. 7, č. 1 (2014), s. 18-22. - ISSN 1337-6756

[15] LISOŇ, Lukáš - KOLCUNOVÁ, Iraida - BUCKO, Samuel: Vplyv spôsobu impregnácie na prieraznú pevnosť kombinovanej izolácie olej-papier / - 2014. In: Starnutie elektroizolačných systémov. Roč. 9, č. 1 (2014), s. 9-11. - ISSN 1337-0103.

[16] KOLCUN, Michal - DUDIAK, Jozef: Analýza komunikačných technológií pre inteligentné meracie systémy / - 2014. In: EE časopis. Roč. 20, č. 2 (2014), s. 42-44. - ISSN 1335-2547

[17] KOLCUNOVÁ, Iraida - HRINKO, Marián - KURIMSKÝ, Juraj: Detekcia porúch meraním čiastkových výbojov s využitím umelej inteligencie / - 2014. In: Starnutie elektroizolačných systémov. Roč. 9, č. 1 (2014), s. 5-8. - ISSN 1337-0103

[18] BABJAK, Ján - PAVLÍK, Marek - BEŇA, Ľubomír: Posúdenie a návrh osvetlenia pozemných komunikácií / - 2014. In: Elektroenergetika. Roč. 7, č. 1 (2014), s. 5-8. - ISSN 1337-6756.

[19] PAVLÍK, Marek - KOLCUNOVÁ, Iraida - MÉSZÁROS, Alexander - KOLCUN, Michal - MEDVEĎ, Dušan - ZBOJOVSKÝ, Ján: Meranie účinnosti tienenia MDF dosky v závislosti na vlhkosti v oblasti od 1 GHz do 10 GHz / - 2014. In: Elektroenergetika. Roč. 7, č. 1 (2014), s. 9-13. - ISSN 1337-6756

[20] PAVLÍK, Marek - KOLCUN, Michal: Analýza ceny elektriny na burze PXE / - 2014. In: EE časopis. Roč. 20, č. 3 (2014), s. 14-16. - ISSN 1335-2547

[21] PAVLÍK, Marek - KOLCUNOVÁ, Iraida - DOLNÍK, Bystrík - KURIMSKÝ, Juraj - MÉSZÁROS, Alexander - KOLCUN, Michal - MEDVEĎ, Dušan - BOJOVSKÝ, Ján: Meranie účinnosti tienenia elektromagnetického poľa / - 2014. In: EE časopis. Roč. 20, č. 3 (2014), s. 16-18. - ISSN 1335-2547

[22] PAVLÍK, Marek: Návrh osvetlenia vnútorných pracovných priestorov v praxi / - 2014. In: EE časopis. Roč. 20, č. 3 (2014), s. 30 - 31. - ISSN 1335-2547

[23] ZBOJOVSKÝ, Ján - MÉSZÁROS, Alexander - MEDVEĎ, Dušan - KOLCUN, Michal - KOLCUNOVÁ, Iraida - PAVLÍK, Marek: Modelovanie vplyvu tieniacich materiálov na rozloženie elektromagnetického poľa / - 2014. In: Elektroenergetika. Roč. 7, č. 1 (2014), s. 14-17. - ISSN 1337-6756

[24] MOLNÁR, Lukáš - GERMAN-SOBEK, Martin - CIMBALA, Roman: Sledovanie vplyvu prívodných vodičov meracej aparatúry na meranie dielektrickej relaxačnej spektroskopie / - 2014. In: Starnutie elektroizolačných systémov. Roč. 9, č. 1 (2014), s. 15-18. - ISSN 1337-0103

[25] ŠEVEC, Štefan - DOLNÍK, Bystrík - KURIMSKÝ, Juraj: Vplyv teploty na koeficient nelinearity ZnO varistorov / - 2014. In: Starnutie Elektroizolačných Systémov. Roč. 9, č. 1 (2014), s. 12-14. - ISSN 1337-0103.

[26] ZBORNÁK, Marcel - KIRÁLY, Jozef - CIMBALA, Roman: Vplyv tepelného starnutia na magnetické kvapaliny / - 2014. In: Starnutie elektroizolačných systémov. Roč. 9, č. 2 (2014), s. 5-8. - ISSN 1337-0103

[27] PODOLINSKÝ, Peter - KURIMSKÝ, Juraj: Súvisia priečne straty a zrážky? / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 42-45. - ISSN 1337-6756

[28] KANÁLIK, Martin: Vplyv parametrov synchrónneho generátora na dobu horenia oblúka pri vypínaní skratu / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 23-27. - ISSN 1337-6756.

[29] MÉSZÁROS, Alexander - JAŠŇÁK, Patrik: Ekonomická efektívnosť bioplynovej stanice / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 9-14. - ISSN 1337-6756.

[30] MÉSZÁROS, Alexander - ZBOJOVSKÝ, Ján - KURIMSKÝ, Peter - LENDVAI, Zoltán: Meranie intenzity elektromagnetického poľa a určenie účinnosti tienenia vybraných materiálov pri frekvenčnom rozsahu od 500 MHz – 5 GHz / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 19-22. - ISSN 1337-6756.

[31] MÉSZÁROS, Alexander - PAVLÍK, Marek - TÓTH, Roman: Aplikácia technických indikátorov v prostredí trhu s elektrinou / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 33-37. - ISSN 1337-6756.

[32] KOŠICKÝ, Tomáš - BEŇA, Ľubomír - KOLCUN, Michal: Analýza využiteľnosti systémov akumulácie energie pre frekvenčnú reguláciu / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 28-32. - ISSN 1337-6756.

[33] KOLCUNOVÁ, Iraida - ĽUBOMÍR, Orosi - MIROSLAV, Priščák - PAVLÍK, Marek: Meranie účinnosti tienenia a odrazu elektromagnetického poľa stavebných objektov / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 15-18. - ISSN 1337-6756.

[34] KOLCUNOVÁ, Iraida - DUDA, Pavol: Meranie výbojovej činnosti vo vzduchu pomocou UV kamery / - 2014. In: Starnutie elektroizolačných systémov. Roč. 9, č. 2 (2014), s. 9-12. - ISSN 1337-0103.

[35] ČONKA, Zsolt - KOLCUN, Michal - KMEC, Miroslav: Zlepšenie dynamickej stability pomocou TCSC / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 5-8. - ISSN 1337-6756.

[36] JAKUBČÁK, Roman - BEŇA, Ľubomír - KMEC, Miroslav: Minimalizácia činných strát a riadenie toku výkonu v elektrizačných sústavách s využitím FACTS zariadení / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 38-41. - ISSN 1337-6756.

[37] MIKITKA, Martin - KURIMSKÝ, Juraj: Fraktálna dimezia elektrického stromčeka / - 2014. In: Starnutie elektroizolačných systémov. Roč. 9, č. 2 (2014), s. 13-15. - ISSN 1337-0103.

[38] MEDVEĎ, Dušan - KOLCUN, Michal - PETRÁŠ, Jaroslav - STOLÁRIK, Rastislav - VAŠKO, Štefan: Farbivom senzitizované slnečné články (DSSC) / - 2014. In: Elektroenergetika. Roč. 7, č. 3 (2014), s. 5-8. - ISSN 1337-6756

[39] MEDVEĎ, Dušan - KOLCUN, Michal - PETRÁŠ, Jaroslav - STOLÁRIK, Rastislav - VAŠKO, Štefan: Meranie charakteristík fotovoltických panelov / - 2014. In: Elektroenergetika. Roč. 7, č. 3 (2014), s. 18-20. - ISSN 1337-6756

[40] MEDVEĎ, Dušan - KOLCUN, Michal - PETRÁŠ, Jaroslav - STOLÁRIK, Rastislav - VAŠKO, Štefan: Automatizované meranie charakteristických veličín fotovoltických panelov / - 2014. In: Elektroenergetika. Roč. 7, č. 3 (2014), s. 21-23. - ISSN 1337-6756

[41] PETRÁŠ, Jaroslav - KOLCUN, Michal - MEDVEĎ, Dušan - STOLÁRIK, Rastislav - VAŠKO, Štefan: Automatizovaný systém zberu dát z fotovoltických panelov / - 2014. In: Elektroenergetika. Roč. 7, č. 3 (2014), s. 9-11. - ISSN 1337-6756

[42] PETRÁŠ, Jaroslav - MEDVEĎ, Dušan - KOLCUN, Michal - STOLÁRIK, Rastislav - VAŠKO, Štefan: Výrobné technológie fotovoltických panelov ako komponentov solárneho systému / - 2014. In: Elektroenergetika. Roč. 7, č. 3 (2014), s. 12-14. - ISSN 1337-6756

[43] PETRÁŠ, Jaroslav - KOLCUN, Michal - MEDVEĎ, Dušan - STOLÁRIK, Rastislav - VAŠKO, Štefan: Výskum charakteristík fotovoltických komponentov solárnych systémov / - 2014. In: Elektroenergetika. Roč. 7, č. 3 (2014), s. 15-17. - ISSN 1337-6756.

[44] PAVLÍK, Marek - KOLCUN, Michal: Trh s energiami a analýza vývoja cien plynu / - 2014. In: Slovgas. Roč. 2014, č. 4 (2014), s. 6-8. - ISSN 1335-3853.

[45] HVIZDOŠ, Marek: Komunikačné systémy distribuovaných zdrojov energie / - 2014. In: Elektroenergetika. Roč. 7, č. 2 (2014), s. 46-49. - ISSN 1337-6756.

[46] TKÁČ, Ján - HVIZDOŠ, Marek: Meranie vlastností nelineárnych dielektrík na báze titánu / - 2014. In: Starnutie elektroizolačných systémov. Roč. 9, č. 2 (2014), s. 16-18. - ISSN 1337-0103

[47] ZDRAVECKÁ, Eva - TKÁČOVÁ, Jana - TKÁČ, Ján: Tribologické povlaky pre tvárniace stroje / - 2014. In: Strojárstvo. Roč. 18, č. 11 (2014), s. 116-118. - ISSN 1335-2938

[48] DOLNÍK, Bystrík: The analysis of local failure effect on electric field distribution in solid HV insulation / - 2014. In: Electrotehnica, Electronica, Automatica. Vol. 62, no. 1 (2014), p. 18-25. - ISSN 1582-5175.

[49] KURIMSKÝ, Juraj: PD acoustic response in oil-filled transformers / - 2014. In: Electrotehnica, Electronica, Automatica. Vol. 62, no. 1 (2014), p. 46-51. - ISSN 1582-5175

[50] KURIMSKÝ, Juraj: ZnO varistors I-V characteristics change against current-pulse load and thermal aging stress / - 2014. In: Electrotehnica, Electronica, Automatica. Vol. 62, no. 2 (2014), p. 74-80. - ISSN 1582-5175

9.2 Textbooks

[1] KOLCUNOVÁ, Iraida - HRINKO, Marián: Výskum vzniku a rozvoja výbojov na rozhraní dvoch dielektrík / - 1. vyd - Košice : TU - 2014. - 128 s.. - ISBN 978-80-553-1651-2.

[2] CIMBALA, Roman - SKLENÁROVÁ, Vieroslava: Tepelná degradácia izolačných systémov / - 1. vyd. - Košice : TU - 2014. - 127 s.. - ISBN 978-80-553-1703-8.

[3] ILENIN, Stanislav - VARGA, Ladislav: Elektrické inštalácie a stanice časť Elektrické stanice/ - 1. vyd - Košice : TU - 2014. - 114 s.. - ISBN 978-80-553-1725-0.

[4] JURÍČEK, Ivan - HOBLÍKOVÁ, Renáta - VRANAYOVÁ, Zuzana - KOŠIČANOVÁ, Danica - HARTINGER, Zdeněk - KAPALO, Peter - ILENIN, Stanislav - PETRÁŠ, Jaroslav - BALOGH, Jozef: Kontrola kvality na stavbách 3. diel : Dokončovacie práce a technické zariadenia budov/ - 1. vyd. - Bratislava : Vydavateľstvo Eurostav - 2014. - 344 s.. - ISBN 978-80-89228-39-3.

[5] HVIZDOŠ, Marek - KMEC, Miroslav: Testovanie inteligentných elektronických zariadení / - 1. vyd - Košice : TU - 2014. - 82 s.. - ISBN 978-80-553-1740-3.

[6] ILENIN, Stanislav: Dimenzovanie vodičov a ochrana proti nadprúdom / - 1. vyd. - Košice : TU - 2014. - 80 s.. - ISBN 978-80-553-1807-3.

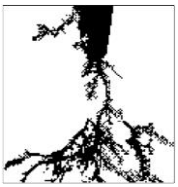
[7] MEDVEĎ, Dušan: Premeny elektrickej energie Zbierka príkladov 1/ - 1. vyd. - Košice : TU - 2014. - 88 s.. - ISBN 978-80-553-1803-5.

[8] MÉSZÁROS, Alexander: Liberalizácia trhu s elektrinou Učebné texty pre kurz pracovníkov z elektroenergetickej praxe/ - 1. vyd. - Košice : TU - 2014. - 99 s.. - ISBN 978-80-553-1809-7.

[9] ILENIN, Stanislav - VARGA, Ladislav: Základné prvky distribučných sústav / - 1. vyd. - Košice : TU - 2014. - 82 s.. - ISBN 978-80-553-1819-6.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	28	18	37



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

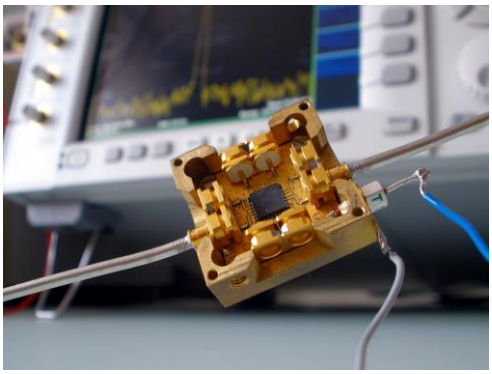
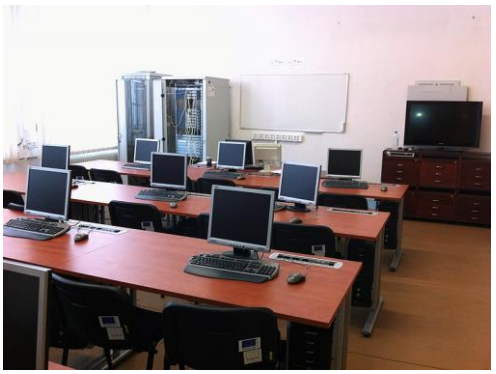
The Department of Electronics and Multimedia Communications was founded in 1969. The original name of department was Department of Electronics. The Department offers three types of full-time courses:

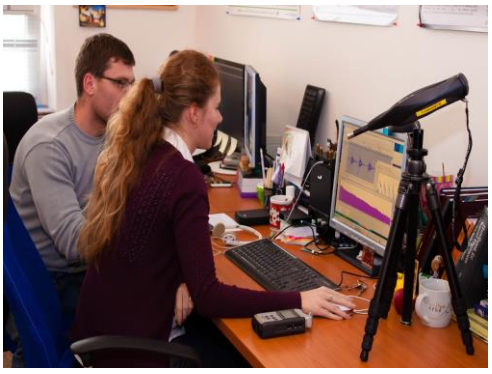
Bachelor's Degree course lasts in normal way 3 years and is leading to degree Bc. The graduates get more-or-less practical skills in mastering

- 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 4 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. Ján Staš, PhD.
	Mgr. Jana Fortes, PhD.	Mgr. Mária Švecová, PhD.
	Ing. Daniel Hládek, PhD.	Ing. Michal Varchola, PhD.
	Ing. Martin Lojka, PhD.	Ing. Jozef Vavrek, PhD.
	Ing. Eva Kiktová, PhD.	Ing. Peter Viszlay PhD.
	Ing. Matúš Pleva, PhD.	Ing. Matej Žiga
Support staff:	Ing. Zuzana Ciulisová	Viera Šumáková
	Božena Marchevská	

Ph.D. students:

Internal form:
Ing. Martin Broda
Ing. Dávid Čonka
Ing. Vladimír Hajduk
Ing. Tomáš Ivaniga
Ing. Peter Kažimír
Ing. Tomáš Koctúr
Ing. Ondrej Kováč
Ing. Jozef Lipták
Ing. Lenka Macková
Ing. Daniel Novák
Ing. Lukáš Sendrei
Ing. Ján Schneider
Ing. Dávid Solus
Ing. Martin Sulír
Ing. Matúš Tatarko
Ing. Ján Tóth
Ing. Ján Valiska
Ing. Daniel Zlacký

External form:
Ing. Martin Kmec
Ing. Matúš Kozák
Ing. Ján Pastirčák
Ing. Martin Petrvalský
Ing. František Rakoci
Ing. Ján Ružbarský
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, Gladišová
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	Michaeli
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	1st	3/2	Mihalík, Zavacký
Optoelectronics	1st	2/2	Turán
Programmable logic devices	1st	2/2	Varchola, Drutarovský
Signal processors	1st	3/2	Drutarovský
Electronic measurement	1st	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
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
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

- 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)
- 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)
- The Use of TUKE PON Experimental Model in Teaching (Ministry of Education of Slovak Republic KEGA Project, No. 006TUKE-4/2014)
- Interactive Multiview Video Streaming for Supporting Education (Ministry of Education of Slovak Republic KEGA Project, No. 062TUKE-4/2014)
- 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)
- 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)
- Utilization of the Maximum Likelihood Method for Analog to Digital Interface Testing and for the Measurement of Distorted Waveforms by the Non-orthogonal Components (Scientific Grant Agency Project VEGA, No. 1/0281/14)
- Agent Based Modelling of the Spectrum Distribution in the Cognitive Radio Networks (Scientific Grant Agency Project VEGA, No. 1/0766/14)
- 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)

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

- prof. Jan Mikkelsen, University of Aalborg, Denmark, April 22-25, 2014
- prof. P Takis Mathiopulos, University of Athena's, Greek, April 22-25, 2014
- prof. Janos Bitto, Budapest University of Technology and Economics, Hungary, April 22-25, 2014
- prof. Guntar Balodis, Riga Technical University, Latvia, April 22-25, 2014
- prof. Dina Simunic, University of Zagreb, Croatia, April 22-25, 2014
- prof. Vidas Laurruske, Šiauliai University Vilnius, Lithuania, April 22-25, 2014
- prof. Veljko Malhasa, University of Novi Sad, Serbian, April 22-25, 2014
- prof. Soulla Louca, University of Nicosia, Cyprus, April 22-25, 2014

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 Politècnica 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, Sweden
- University in Oulu, Finland

6.2.1. Visit of Staff Members to Foreign Institutions

- Bánoci,V., VUT Brno, Czech Republic April 10-11, 2014
- Bánoci,V., University of Zadar, Croatia September 5-13, 2014
- Broda,M., Sofia, Bulgaria March 30 - April 11, 2014
- Broda,M., University of Zadar, Croatia September 5-13, 2014
- Bugár,G., University of Zadar, Croatia September 5-13, 2014
- Doboš,Ľ., Sofia, Bulgaria April 7-11, 2014
- Doboš,Ľ., Mikulov, Czech Republic May 22-22, 2014
- Doboš,Ľ., Aalborg, Denmark May 25-28, 2014
- Doboš, Ľ., AGH University of Science and Technology Krakow, Poland June 10-14, 2014
- Doboš, Ľ., AGH University of Science and Technology Krakow, Poland September 23-26, 2014
- Drutarovský,M., Oxford, Great Britain March 14-19, 2014
- Drutarovský,M., Oslo, Norway April 22-26, 2014
- Drutarovský,M., TU Ilmenau, Germany June 21-29, 2014
- Drutarovský,M., Lisbon, Portugal July 13-19, 2014
- Drutarovský,M., BUTE Budapest, Hungary July 22-23, 2014
- Drutarovský,M., Munich, Germany September 3-9, 2014
- Drutarovský,M., Busan, South Korea September 17-28, 2014
- Drutarovský,M., Amsterdam, Nederland Sept. 29 – Oct. 2, 2014
- Drutarovský,M., San Diego, California, USA October 3-14, 2014
- Drutarovský,M., ČVUT Prague, Czech Republic October 19-20, 2014
- Galajda,P., Edinburgh, Great Britain March 23-27, 2014
- Galajda,P., VUT Brno, Czech Republic April 28-30, 2014
- Galajda,P., TU Ilmenau, Germany June 21-29, 2014
- Galajda,P., VUT Brno, Czech Republic June 16-17, 2014
- Galajda,P., Frymburk, Czech Republic September 10-12, 2014
- Galajda,P., Toulouse, France Sept. 27 – Oct. 1, 2014
- Galajda,P., San Diego, California, USA October 3-14, 2014
- Gazda,J., Athens, Greece March 13-17, 2014
- Gazda,J., BUTE Budapest, Hungary May 26, 2014
- Gazda,J., Athens, Greece Aug. 28 – Sept. 1, 2014
- Hládek,D., Reykjavik, Iceland May 27 – June 1, 2014
- Hládek,D., Warsaw, Poland September 16-20, 2014
- Ivaniga,T., TU Ostrava, Czech Republic December 3-4, 2014
- Juhár,J., EC, Brussels, Belgium March 13-15, 2014
- Juhár,J., VUT Brno, Czech Republic April 28-30, 2014
- Juhár,J., Kajaani/Kuopio/Oului, Finland August 24-29, 2014
- Juhár,J., Larnaka, Cyprus September 24-27, 2014
- Juhár,J., ČVUT Prague, Czech Republic October 20-21, 2014
- Kažimír,P., Gdansk, Poland June 14-19, 2014
- Kažimír,P., TU Ilmenau, Germany June 21-29, 2014
- Kažimír,P., Guangzhou, China August 23-30, 2014

- Kažimír,P., Roma, Italy October 6-11, 2014
- Kiktová,E., University of Zadar, Croatia September 8-14, 2014
- Kocur,D., Oxford, Great Britain March 15-19, 2014
- Kocur,D., Edinburgh, Great Britain March 23-27, 2014
- Kocur,D., Delft, Nederland April 15-21, 2014
- Kocur,D., VUT Brno, Czech Republic June 9-10 2014
- Kocur,D., Gdansk, Poland June 14-19, 2014
- Kocur,D., TU Ilmenau, Germany June 21-29, 2014
- Kocur,D., BUTE Budapest, Hungary July 22-23, 2014
- Kocur,D., Guangzhou, China August 23-30, 2014
- Kocur,D., Toulouse, France Sept. 27 – Oct. 1, 2014
- Kocur,D., San Diego, California, USA October 3-14, 2014
- Lipták,J., Sofia, Bulgaria March 30 - April 11, 2014
- Lipták,J., Chisinau, Moldova June 3-6, 2014
- Lipták,J., Vilanova i la Geltru, Spain June 29 - July 18, 2014
- Lipták,J., Chisinau, Moldova July 30 – Aug. 1, 2014
- Lojka,M., AGH University of Science and Technology Krakow, Poland June 10-14, 2014
- Lojka,M., University of Zadar, Croatia September 8-14, 2014
- Macková,L., Vietri sul Mare, Italy November 4-8, 2014
- Maceková,Ľ., BUTE Budapest, Hungary July 22-23, 2014
- Michaeli,L., Chisinau, Moldova March 26-28, 2014
- Michaeli,L., VUT Brno, Czech Republic April 7-8, 2014
- Michaeli,L., Vilanova i la Geltru, Spain June 29 - July 11, 2014
- Michaeli,L., Benevento, Italy September 13-21, 2014
- Novák,D., Gdansk, Poland June 14-19, 2014
- Novák,D., Vilanova i la Geltru, Spain June 29 - July 18, 2014
- Novák,D., Roma, Italy October 6-11, 2014
- Ondáš,S., Frymburk, Czech Republic September 10-12, 2014
- Ondáš,S., Vietri sul Mare, Italy November 4-8, 2014
- Papaj,J., VUT Brno, Czech Republic April 28-30, 2014
- Papaj,J., Aalborg, Denmark May 25-28, 2014
- Papaj,J., AGH University of Science and Technology Krakow, Poland June 10-14, 2014
- Papaj,J., AGH University of Science and Technology Krakow, Poland September 23-26, 2014
- Papaj,J., Florence, Italy October 8-11, 2014
- Papaj,J., Vietri sul Mare, Italy November 4-8, 2014
- Pastirčák,J., BUTE Budapest, Hungary May 26, 2014
- Pastirčák,J., University of Zadar, Croatia September 9-12, 2014
- Pleva,M., Luxembourg, Grand Duchy of Luxembourg February 5-7, 2014
- Pleva,M., Valletta, Malta March 28-29, 2014
- Pleva,M., Reykjavik, Iceland May 27 – June 1, 2014
- Pleva,M., AGH University of Science and Technology Krakow, Poland June 10-14, 2014
- Pleva,M., Lyon, France July 3-5, 2014
- Pleva,M., Kajaani/Kuopio/Oului, Finland August 24-29, 2014
- Pleva,M., Florence, Italy October 8-11, 2014
- Pleva,M., Warwick, Great Britain October 26-29, 2014

- Pleva,M., Amsterdam, Netherlands December 16-18, 2014
- Ružbarský,J., TU Ostrava, Czech Republic December 3-4, 2014
- Sendrei,L., Sofia, Bulgaria March 30 - April 11, 2014
- Sendrei,L., Kittilä, Finland November 25-28, 2014
- Schneider,J., Vilanova i la Geltru, Spain June 29 - July 18, 2014
- Staš,J., University of Zadar, Croatia September 8-14, 2014
- Sulír,M., Bilbao, Spain June 8 - July 5, 2014
- Sulír,M., University of Zadar, Croatia September 8-14, 2014
- Šaliga,J., Chisinau, Moldova March 26-28, 2014
- Šaliga,J., EC, Brussels, Belgium March 8-13, 2014
- Šaliga,J., VUT Brno, Czech Republic April 28-30, 2014
- Šaliga,J., Chisinau, Moldova June 3-6, 2014
- Šaliga,J., Vilanova i la Geltru, Spain June 29 - July 16, 2014
- Šaliga,J., BUTE Budapest, Hungary July 22-23, 2014
- Šaliga,J., Chisinau, Moldova July 30 – Aug. 1, 2014
- Šaliga,J., Benevento, Italy September 15-19, 2014
- Šaliga,J., Athens, Greece October 12-17, 2014
- Tatarko,M., Veľké Karlovice, TU Ostrava, Czech Republic May 21-23 2014
- Tóth,J., TU Ostrava, Czech Republic December 3-4, 2014
- Turán,J., Dubrovnik, Croatia May 10-16, 2014
- Turán,J., BUTE Budapest, Hungary December 3-5, 2014
- Varchola,M., VUT Brno, Czech Republic June 10-11, 2014
- Varchola,M., Busan, South Korea Sept. 18 – Oct. 10, 2014
- Vavrek,J., Berlin, Germany June 30 – July 3, 2014
- Vavrek,J., Barcelona, Spain October 15-18, 2014
- Viszlay,P., Lisbon, Portugal Aug. 31 – Sept. 7, 2014
- Zlacký,D., Sofia, Bulgaria March 30 - April 11, 2014
- Žiga,M., BUTE Budapest, Hungary July 22-23, 2014

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

- 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	34	71	6

8 PUBLICATIONS

8.1 Books

[1] GAMCOVÁ,M.-GAMEC,J.: Multimedia Course Basic of Electronics - Problem Solvers. In: Košice: TU, Slovakia, 2014, 85 pp.

[2] GAMEC,J.-GAMCOVÁ,M.: CAN a CANoe In: Košice: TU, Slovakia, 2014, 69 pp.

[3] LEVICKÝ,D.: Kryptografia v komunikačnej bezpečnosti. In: Košice: Elfa, Slovakia, 2014, 298 pp.

[4] MIHALÍK,J.-KOVÁČ,O.: Číslicové spracovanie textúr ľudskej hlavy. In: Košice: TU, Slovakia, 2014, 65 pp.

[5] MIHALÍK,J.: Diskrétne ortogonálne transformácie a korelačná analýza v transformovanom priestore. In: Košice: TU, Slovakia, 2014, 66 pp.

[6] MIHALÍK,J.-GLADIŠOVÁ,I.: Solutions of image coding problems. In: Košice: TU, Slovakia, 2014, 64 pp.

[7] MIHALÍK,J.-GLADIŠOVÁ,I.-ZAVACKÝ,J.: Neperiodické a modulované signály (Návody na cvičenia). In: Košice: TU, Slovakia, 2014, 62 pp.

[8] TURÁN,J.-OVSENÍK,Ľ.-HARASTHY,T.: Projekčné transformácie a optický korelátor v systémoch spracovania obrazu a videa. In: Košice: TU, Slovakia, 2014, 257 pp.

[9] ZAVACKÝ,J.-MIHALÍK,J.: Diskrétne sústavy. In: Košice: TU, Slovakia, 2014, 69 pp.

[10] ZAVACKÝ,J.-MIHALÍK,J.-GLADIŠOVÁ,I.: Pôsobenie lineárnych spojitých sústav na determinované a náhodné signály (Návody na cvičenia In: Košice: TU, Slovakia, 2014, 73 pp.

[11] 11. ZAVACKÝ,J.-MIHALÍK,J.: Waveletová transformácia a jej implementácie. In: Košice: TU, Slovakia, 2014, 79 pp.

8.2 Journals

[1] ABDULLAEV,A.-TURÁN,J.: Analisys of the Methods of Preventing of Contention Resolution in Optical Packet Switching Networks. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 7, no. 1 (2014), pp. 3-6.

[2] ABDULLAEV,A.-TURÁN,J.: Survey of the Problems and Solutions of Arrayed Waveguide Gratings Used in the Optical Networks. In: Acta Electrotechnica et Informatica, Vol. 14, no. 3 (2014), pp. 49-53.

[3] BOULIOU-HELLO,V.-LIPTÁK,J.-ORIOL PASCUAL,M.: Automatic Morse Transceiver. In: Instrumentation Viewpoint, no. 16 (2014), pp. 36-37.

[4] DUPÁK,D.-KOCUR,D.: Optimalizácia 16-APSK modulácie pre SC-FDMA prenosové systémy. In: Posterus, Vol. 7, no. 9 (2014), pp. 1-12.

[5] DUPÁK,D.-GAZDA,J.-KOCUR,D.-PETRÍK,M.: Optimization of 16-APSK by Maximizing Mutual Information Criteria in SC-FDMA Communication Systems. In: Acta Electrotechnica et Informatica. Vol. 14, no. 1 (2014), pp. 3-8.

[6] HOFFMANN,J.-KOVÁČ,O.: Trigonometrická analýza súosového stereoskopického kamerového systému. In: Posterus, Vol. 7, no. 4 (2014), pp. 1-10.

[7] IVANIGA,T.-RUŽBARSKÝ,J.-OVSENÍK,Ľ.-TURÁN,J.: Optical Networks FTTx and Reduced Attenuation Balance with Passive Optical Splitter. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 7, no. 1 (2014), pp. 30-35.

[8] JACKO,M.-ZAVACKÝ,J.: Zmena vzorkovacej frekvencie s ľubovoľným faktorom In: Posterus, Vol. 7, no. 8 (2014), pp. 1-11.

[9] JURČIŠIN,M.-RUMAN,K.-KOVÁČ,O.: Bezkontaktný EKG monitorovací system. In: Posterus, Vol. 7, no. 7 (2014), pp. 1-7.

[10] KIKTOVÁ,E.-LOJKA,M.-JUHÁR,J.-ČIŽMÁR,A.: Feature Selection for Audio Surveillance in Urban Environment. In: Journal of Electrical and Electronics Engineering. Vol. 7, no. 1 (2014), pp. 69-72.

[11] KOKOŠKA,R.-HANDRIKOVÁ,J.-VALISKA,J.: Zabezpečenie kvality prenosu NGN IPTV videotoku v IP sieťach v programe Opnet. In: Posterus, Vol. 7, no. 3 (2014), pp. 1-9.

[12] KOKOŠKA,R.-HANDRIKOVÁ,J.-VALISKA,J.: Software Network Simulators for IPTV Quality of Services. In: Acta Electrotechnica et Informatica. Vol. 14, no. 1 (2014), pp. 18-22.

[13] KOKOŠKA,R.-HANDRIKOVÁ,J.-VALISKA,J.: Analysis of QoS Tree for MHP Services in IP Networks in Fragile Environments Incentive Opnet. In: Acta Electrotechnica et Informatica. Vol. 14, no. 1 (2014), pp. 43-47.

[14] KOVÁČ,O.-MIHALÍK,J.: Teoretická analýza geometrickej kalibrácie kamery. In: Posterus, Vol. 7, no. 7 (2014), pp. 1-9.

[15] KOVÁČ,O.-MIHALÍK,J.: Generovanie a vyhladzovanie textúr ľudskej hlavy. In: Elektrorevue, Vol. 16, no. 1 (2014), pp. 4-9.

[16] KOVÁČ,V.-PASTIRČÁK,J.-FRIGA,L.: Brief Guide for Agent-Based Modelling. In: Acta Electrotechnica and Informatica. Vol. 14, no. 2 (2014), pp. 19-27.

[17] LOJKA,M.-ONDÁŠ,S.-PLEVA,M.-JUHÁR,J.: Multi-thread Parallel Speech Recognition for Mobile Applications. In: Journal of Electrical and Electronics Engineering. Vol. 7, no. 1 (2014), pp. 81-86.

[18] MACEKOVÁ,Ľ.-ŽIGA,M.j: The Wireless Sensor Network Concept for Measurement of Water Quality in Water Streams . In: Acta Electrotechnica et Informatica. Vol. 14, no. 2 (2014), pp. 60-67.

[19] MACKOVÁ,L.-ČIŽMÁR,A.: Speaker Recognition from Emotional Speech Using I-vector Approach. In: Journal of Electrical and Electronics Engineering. Vol. 7, no. 1(2014), pp. 93-96.

[20] MIHALÍK,J.: Videokomunikácie v ISDN a ATM sieťach. In: Slaboproudý obzor, Vol. 70, no. 1 (2014), pp. 18-22.

[21] MICHAELI,L.-ŠALIGA,J.: Error Models of the Analog to Digital Converters. In: Measurement science review. Vol. 14, no. 2 (2014), pp. 62-77.

[22] NOVÁK,D.-FÚRA,V.-PAILLOT,A.: Acoustic Channel Frequency Response. In: Instrumentation Viewpoint, No. 16 (2014), pp. 28-30.

[23] ONDÁŠ,S.-JUHÁR,J.-HOLCER,R.: Methodology for Training Small Domain-Specific Language Models and its Application In Service Robot Speech Interface. In: Journal of Electrical and Electronics Engineering. Vol. 7, no. 1 (2014), pp. 107-110.

[24] OVSENÍK,Ľ.-TATARKO,M.-IVANIGA,T.: Návrh optickej siete v programe OptSim a následné meranie pomocou OTDR. In: Posterus, Vol. 7, no. 6 (2014), pp. 1-6.

[25] PAPAJ,J.-PALITEFKA,R.-DOBOŠ,Ľ.: DTN Modeling in OPNET Modeler. In: Journal of Electrical and Electronics Engineering. Vol. 7, no. 1 (2014), pp. 127-130.

[26] RUSKO,M.-JUHÁR,J.-TRNKA,M.-STAŠ,J.-DARJAA,S.-HLÁDEK,D.-SABO,R.-PLEVA,M. -RITOMSKÝ,M.-LOJKA,M.: Slovak Automatic Dictation System for Judicial Domain. In: Lecture Notes in Computer Science: Lecture Notes in Artificial Intelligence, Cham: Springer, Vol. 8387 (2014), pp. 16-27.

[27] RUŽBARSKÝ,J.-TÓTH,J.-IVANIGA,T.-TURÁN,J:-OVSENÍK,Ľ.: Recognition System for Vertical Traffic Signs Using an Optical Correlator. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 7, no. 2 (2014), pp. 24-28.

[28] SCHNEIDER,J.-MAZŮREK,P.-LE BOUGEANT,G.: Automatic Detection System Measuring Acoustically the Rotation Rate and Faults in a Rotating Engine. In: Instrumentation Viewpoint, No. 16 (2014), pp. 34-35.

[29] SCHNEIDER,J.-GAMEC,J.: Overview of UWB Low-Profile Planar Antennas. In: Acta Electrotechnica et Informatica. Vol. 14, no. 2 (2014), pp. 55-59.

[30] SILAGHI,H.-SPOIALA,V.-DALE,S.-COCTEA,C.-PAPAJ,J.: Improved Direct Torque Control for Induction Machine with PWM Inverter. In: Journal of Computer Science and Control Systems, Vol. 7, no. 1 (2014), pp. 47-50.

[31] STAŠ,J.-JUHÁR,J.-HLÁDEK,D.: Classification of Heterogeneous Text Data for Robust Domain-Specific Language Modelling. In: EURASIP Journal on Audio Speech and Music Processing, (2014), pp. 1-12.

[32] TATARKO,M.-OVSENÍK,Ľ.-TURÁN,J.: Switching of Hybrid FSO/RF Link Using Fog Sensor. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 7, no. 2 (2014), pp. 11-14.

[33] TATARKO,M.-OVSENÍK,Ľ.: Tvary zobrazovacích jednotiek LCD displejov. In: Posterus, Vol. 7, no. 4 (2014), pp. 1-6.

[34] TOMÁŠ,J.-BRODA,M.: Moderné metódy obrazovej steganografie. In: Posterus, Vol. 7, no. 6 (2014), pp. 1-11.

[35] TÓTH,J.-TATARKO,M.-OVSENÍK,Ľ.-TURÁN,J.-RUŽBARSKÝ,J.: Free Space Optics Availability and Reliability. In: Carpathian Journal of Electronic and Computer Engineering, Vol. 7, no. 2 (2014), pp. 19-23.

[36] VAVREK,J.-JUHÁR,J.-ČIŽMÁR,A.: The SVM binary Tree Classification Using MRMR and F-score Feature Selection Algorithms. In: Acta Electrotechnica et Informatica, Vol. 14, č. 2 (2014), pp. 8-14.

[37] VIRČÍKOVÁ,M.-MAGYAR,G.-PAĽA,M.-GAMEC,J.-SINČÁK,P.: Od priemyselných robotov k servisným a spoločenským robotom. In: ATP Journal, Vol. 21, no. 1 (2014), pp. 42-44.

[38] ZLACKÝ,D.-STAŠ,J.-JUHÁR,J.-ČIŽMÁR,A.: Text Categorization with Latent Dirichlet Allocation. In: Journal of Electrical and Electronics Engineering. Vol. 7, no. 1 (2014), pp. 161-164.

8.3 Other publications

Publication Type	Conferences		Other
	Foreign	Home	
Number	19	68	2

DEPARTMENT OF ELECTRICAL ENGINEERING AND MECHATRONICS

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

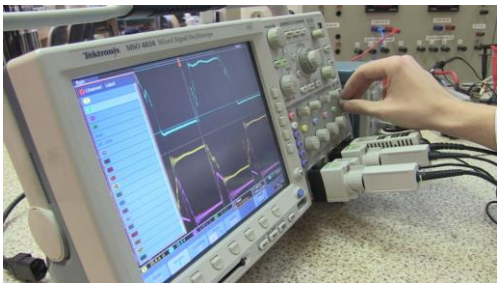
Head of Department
prof. Ing. Daniela Perduková, PhD.
E-mail: daniela.perdukova@tuke.sk

1 DEPARTMENT'S PROFILE

The Department was established at foundation of the Faculty of Electrical Engineering in 1969 as the Department of Electrical Drives but originally it is derived from the Department of Electrical Egineering established at foundation of the Technical University of Kosice (1953). Through the years the name of the department was changed in order to express closier its activities and development.

Staff members of the department are experienced in wide areas of electrical engineering, incl. automotive electrical engineering, mechatronics, and robotics what they utilise in teaching and research. Currently, the department is responsible for education and research in electrical engineering, namely in fields of power and industrial electronics, electrical machines and apparatuses, sensors, electromechanical systems, controlled drives, multi-motor drives, control systems, industrial and automotive mechatronic systems up to drives of robots.

The Department offers all types of university courses: bachelor course, master course 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.
Ing. Marek Pástor, PhD. (since June 2014)

Senior Scientists:
Ing. Peter Hajsák
Ing. Michal Pajkoš (till December 2014)
Ing. Ján Tkáč, PhD. (till December 2014)

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. Godem Ali M. Ismeal
Ing. Marek Pástor (till May 2014)
Ing. Radoslav Sivý
Ing. Viktor Šlapák
Ing. Marek Vacek
Ing. Milan Biroš (since Sept. 2014)
Ing. Martin Lešo (since Sept. 2014)
Ing. Peter Talian (since Sept. 2014)
Ing. Róbert Žatkovič (since Sept. 2014)

3 LABORATORIES

- Laboratories of Electrical Engineering
- Power Electronics Laboratory
- Laboratory for CAD (COSMOS, ProEngineer, MATLAB, PSpice, and applied SW, ABBRobotStudio)
- 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

4 TEACHING

4.1 Undergraduate Study (Bc.) - Control of electromechanical systems

Subject	Semester	Lectures/exercises (hours per week)	Lecturer
Fundamentals of Electrical Engineering	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

4.2 Graduate Study (Ing.) - Electrical Engineering

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 Automation	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
Robotics	8th	2/2	Žilková
Diploma Thesis	9th	0/6	Supervisor
Mechatronic Production Systems	9th	2/2	Ďurovský
Intelligent Control in EI 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

4.3 Undergraduate and Graduate Study for Foreign Students (in English)

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

4.4 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

4.5 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.

- University Science Park TECHNICOM for Innovation Applications Supported by Knowledge Technology, ITMS: 26220220182, supported by the Research & Development Operational Programme funded by the ERDF. Participation on Activity 3.2, Pilot Project 2 (PP2).
- Research of Modulus for Intelligent Robotic Systems. ITMS: 26220220141. Research & Development Operational Programme funded by the ERDF. Call: OPVaV-2009/2.2/05-SORO. Prinipal investigator: ZTS VVÚ Košice, Paritcipation on project as a partner.
- Research and developement of a small power drives with two-phase motors, APVV-0138-10, 2011-2014, Principal investigator: Záskalický, P.
- Multivariable Physical Calculation Applicable to Electric Drives. SK-CZ-2013-0065. Project of Czech and Slovak intergovernmental scientific and technological cooperation (KEM FEI TU Košice and KEL TU Liberec). (2014-2015). Principal investigator: FERKOVÁ, Ž.

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
- University of West Bohemia, Pilsen, Czech Republic
- University of Technology and Economy, Budapest, Hungary
- University of Miskolc, Hungary
- Delft University of Technology, The Netherlands
- Czech Academy of Science, Prague Czech Republic
- Silesian Polytechnic Institute of Gliwice, Poland
- University of Oradea, Romania
- University of Maribor, Slovenia

6.2.1. Visits of Staff Members to Foreign Institutions

- BAČIK, J.: ICINS 2014. The 21st St. Petersburg International Conference on Integrated Navigation System, Saint Petersburg, 26–28 May 2014.
- ĎUROVSKÝ, F.: Expert Workshop at CluStrat, Clusterland OÖ GmbH, Linz, (AT), 5-6 Februar and 20-21 March 2014
- ĎUROVSKÝ, F.: WIFI Linz (AT), 5 Februar 2014
- ĎUROVSKÝ, F.: Johannes Kepler University, Linz, (AT), 6 Februar 2014.
- ĎUROVSKÝ, F.: University of Applied Sciences Upper Austria (AT), Wels, 21 March 2014.
- ĎUROVSKÝ, F.: Automatica 2014, Munchen (D) 3-5 June 2014.
- ĎUROVSKÝ, F.: Bergische University Wuppertal (D), 6 june 2014
- ĎUROVSKÝ, F.; LACKO, M.; ŠLAPÁK, V.: SYMEP 2014, Vysoká škola báňská – Technická univerzita Ostrava (CZ), 25–27 June 2014
- ĎUROVSKÝ, F.; PÁSTOR, M.; ŠLAPÁK, V.; PAJKOŠ, M.: SPS/IPC Drives 2014, Nürnberg (D), 25-27 November 2014
- FEDÁK, V.: microCAD, Miskolc, 10-11 April 2014
- FEDÁK, V. KYSLAN, K.: PEMC 2014, Antalya, 21-24 September 2014
- FERKOVÁ,Ž.: TechSoft Praha, 28-30 May 2014.
- FERKOVÁ, Ž.: SPEEDAM, Ischia, Italy, 16-21 June 2014
- FERKOVÁ Ž., KYSLAN, K.; M; ŠLAPÁK, V.: TU Liberec(CZ) 1-5 June 2014
- FERKOVÁ, Ž; KYSLAN,K; ŠLAPÁK V: APVV SK-CZ-2013-0065 Bilateral Exchange Project on Technical Universtity of Liberec, 31 August to 5 September 2014
- KAŇUCH, J., FERKOVÁ, Ž.: TU Liberec (ČR), 21-23 Januar 2014.
- KAŇUCH, J., FERKOVÁ, Ž.: Politechnika Krakow (PL), 22-25 June 2014.
- KYSLAN, K: Annual General Meeting of IEEE Czechoslovakia Section, Žilina, 12 December 2014
- KYSLAN, K; FEDÁK, V: „16th International Power Electronics & Motion Control Conference and Exposition PEMC 2014, Antalya, Turkey, 21-25 September 2014
- LACKO, L.; PÁSTOR, M.: PCIM Europe 2014, Nürnberg (D), 20-22 May 2014.
- PÁSTOR, M. – Electronics 2014, 18 International Conference, 16-18 June 2014, Palanga (LT)
- ZÁSKALICKÝ, P., KAŇUCH, J.; KOMEL Katowice, Rytro (PL), 28-30 May 2014.

6.3 Membership in International Organizations, Societies and Committees

- DUDRIK, J; PÁSTOR, M; KYSLAN, K: IEEE members
- DUDRIK, J., FEDÁK, V., TIMKO, J.: Power Electronics and Motion Control Council EPE-PEMC – Budapest. Council and Steering Committee members.
- FEDÁK, V.: IEEE ICETA 2014, Starý Smokovec. Program Chairman.
- FERKOVÁ, Ž: member of Steering Committee ISEM (INTERNATIONAL SYMPOSIUM ON ELECTRIC MACHINERY) ČVUT Praha.
- FEDOR, P., PERDUKOVÁ, D. ŽILKOVÁ, J.: members of Programme Committee: 9th International Conference on Soft Computing Models in Industrial and Environmental Applications – SOCO 2014, Bilbao, Spain, June 25th-27th, 2014.

6.4 Membership in Slovak Professional Bodies

- FEDÁK, V.; KAŇUCH, J.; TIMKO, J.; ZÁSKALICKÝ, P.; FEDOR, P.; FERKOVÁ, Ž.; GIROVSKÝ, P.; HAJSÁK, P.;LACKO, M. ; PERDUKOVÁ, D.: members of The SES (Slovak Electrotechnical Society), Branch at FEI TU Košice
- FEDOR, P., (chairman), FEDÁK, V., GIRMAN, M., PERDUKOVÁ, D., ZÁSKALICKÝ, P.: members 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 Accreditation Commission working group for research in Electrical and Power Engineering.
- PERDUKOVÁ, D.: Council of the Secondary Technical School for EE, Košice (delegate of the FEI TU Košice).
- KOVÁČOVÁ, I., (chairman), DUDRIK, J., GIRMAN, M., PERDUKOVÁ, D., ZÁSKALICKÝ, P.: members of board for the PhD. Study in Electrical Engineering at FEI TU Košice
- TIMKO, J.: member of board for the PhD. Study in Mechatronics at SjF TU Košice
- TIMKO, J., ZÁSKALICKÝ, P.: member of board for the PhD. Study in Electrical Engineering at EF ZU Žilina

6.5 National Educational Projects

- Teaching innovation in control of mechatronic systems. KEGA 042TUKE-4/2012. (2012-2014). 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

Thesis type	Bachelor	Master	Doctoral
Number	26	38	2

8 OTHER ACTIVITIES

8.1 Projects for Industry

- Technical support at rotor emergency repairs of HV synchronous motor. For U.S.Steel Košice, 2014. Co-ordinator: Ferková, Ž.

9 PUBLICATIONS

9.1 Books

[1] FEDÁK, Viliam - ĎUROVSKÝ, František - ÜVEGES, Róbert: Analysis of Robotic System Motion in SimMechanics and MATLAB GUI Environment. In: MATLAB Applications for the Practical Engineer. Rijeka: Intech, 2014 P.1-14. ISBN 978-953-51-1719-3.

[2] FEDÁK, Viliam - ZÁSKALICKÝ, Pavel - GELVANIČ, Zoltán: Analysis of Balancing of Unbalanced Rotors and Long Shafts using GUI MATLAB. In: MATLAB Applications for the Practical Engineer. Rijeka: Intech, 2014 P. 535-564. - ISBN 978-953-51-1719-3. Access: http://www.intechopen.com/articles/show/title/analysis-of-balancing-of-unbalanced-rotors-and-long-shafts-using-gui-matlab.

9.2 Textbooks

[1] PERDUKOVÁ, Daniela: Visualization in PLC. 1st edition. Košice. TU 2014. 150 p. ISBN 978-80-553-1776-2.

[2] FEDOR, Pavol - PERDUKOVÁ, Daniela: Control of assembling lines with PLC. Košice. TU 2014. 73 p. ISBN 978-80-553-1775-5.

9.3 Scientific Journals

Journals indexed in Thomson Reuters "Current Contents" list

[1] DUDRIK, Jaroslav - BODOR, Marcel - PÁSTOR, Marek. Soft Switching Full – Bridge PWM DC - DC Converter with Controlled Output Rectifier and Secondary Energy Recovery Turn - Off Snubber. In: IEEE Transactions on Power Electronics. Vol. 29, no. 8 (2014), p. 4116-4125. ISSN 0885-8993. Access: http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=6678628&searchWithin%3Dp_Last_Names%3ADudrik%26matchBoolean%3Dtrue%26queryText%3D%28p_Authors%3ADudrik%29.

Forreign Journals

[1] FEDOR, Pavol - PERDUKOVÁ, Daniela - BATMEND, Mišél: Analysis of the Effect of Clustering on an Asynchronous Motor Fuzzy Model. In: Advances in Intelligent Systems and Computing. Vol. 239 (2014), p. 339-348. - ISSN 2194-5357.

[2] FERKOVÁ, Želmíra: Influence of Arrangement and Sizes of Magnets upon

Cogging Torque and EMF of Two-phase PMSM. In: Maszyny elektryczne: Zeszyty Problemowe. Vol. 104, no. 4 (2014), p. 43-48. - ISSN 0239-364.

[3] KAŇUCH, Ján - FERKOVÁ, Želmíra: Simulation and measurement of two-phases synchronous motor with permanent magnets. In: Maszyny elektryczne: Zeszyty problemove. Vol. 102, no. 2 (2014), p. 71-75. ISSN 0239-3646.

[4] KAŇUCH, Ján - FERKOVÁ, Želmíra: Simulation and measurement of synchronous motor prototype with an external rotor by using permanent magnets. In: Maszyny elektryczne: Zeszyty problemove. Vol. 104, no. 4 (2014), p. 25-30. - ISSN 0239-3646.

[5] ZÁSKALICKÝ, Pavel: Calculation of a torque ripple a three-phase asynchronous motor supplied by a PWM controlled inverter. 2014.In: Komel: Maszyny elektryczne. Vol. 102, no. 2 (2014), p. 53-58. ISSN 0239-3646.

[6] ŽILKOVÁ, Jaroslava - GIROVSKÝ, Peter - BATMEND, Mišél: Modelling the Technological Part of a Line by Use of Neural Networks..In: Advances in Intelligent Systems and Computing. Vol. 239 (2014), p. 349-258. ISSN 2194-5357.

Foreign Journals indexed in Web of Science or Scopus databases

[1] BAČÍK, Ján jr. - FEDOR, Pavol - FEDÁK, Viliam: Development of Sensorial Subsystem Hardware for Mechatronics Systems. In: Electronics and Electrical Engineering. Vol. 20, no. 2 (2014), p. 11-14. ISSN 1392-1215. Access: eejournal.ktu.lt.

[2] BAČÍK, Ján ml. - SIVÝ, Radovan - ŠLAPÁK, Viktor: Mathematical Model Design of Small Helicopter - Unmanned Aerial Vehicle Development. In: Applied Mechanics and Materials. Vol. 613 (2014), p. 236-242. ISBN 978-3-03835-202-0. ISSN 1660-9336.

[3] BATMEND, Mišél - PERDUKOVÁ, Daniela - FEDOR, Pavol: A prototype of a bitmap CNC engraver. In: Applied Mechanics and Materials. Vol. 613 (2014), p. 408-417. ISSN 1660-9336.

[4] Fetyko, Ján - JEZNÝ, Jaromír - ÜVEGES, Róbert - FEDÁK, Viliam: Development of Motion Control of Legs in Six-Legged Robotic Vehicle. In: Applied Mechanics and Materials. Vol. 613 (2014), p. 36-42. ISSN 1660-9336. Access: http://www.scientific.net/AMM.613.36.

[5] Godem Ali M. ISMEAL, KYSLAN, Karol – FEDÁK, Viliam: CAD of Cascade Controllers for DC Drives Using Genetic Algorithm Methods. Procedia Engineering, Vol. 96 (Modelling of Mechanical and Mechatronic Systems), 2014, pp. 182–189. ISSN: 1877-7058.

[6] MAGURA, Daniel - KYSLAN, Karol – FEDÁK, Viliam: Modeling and analysis of multi-motor drive properties in a web processing continuous line. Procedia Engineering, Vol. 96 (Modelling of Mechanical and Mechatronic Systems), 2014, pp. 281–288. ISSN: 1877-7058.

[7] PAJKOŠ, Michal - ŠLAPÁK, Viktor - SIVÝ, Radovan - ĎUROVSKÝ, František: Measurement of Transmission Nonlinearities in Servodrives. In: Applied Mechanics and Materials. Vol. 613 (2014), p. 248-252. ISBN 978-3-03835-202-0. ISSN 1660-9336.

[8] PÁSTOR, Marek - DUDRIK, Jaroslav: Comparison of MPC and PI controller for grid-connected cascade inverter. In: Elektronika ir Elektrotechnika. Vol. 20, no. 6 (2014), p. 46-50. ISSN 1392-1215.

[9] ŠLAPÁK, Viktor - BAČÍK, Ján ml. - PAJKOŠ, Michal - LACKO, Milan:

Autonomous Parking of Small Vehicle. In: Applied Mechanics and Materials. Vol. 613 (2014), p. 157-162. ISBN 978-3-03835-202-0. ISSN 1660-9336.

[10] ZÁSKALICKÝ, Pavel - DOBRUCKÝ, Branislav - PRAŽENICA, Michal: Analysis and modeling of converter with PWM output for two-phase motor applications. In: Electronika ir Elektrotechnika. Vol. 20, no. 1 (2014), p. 25-28. ISSN 1392-1215.

National Journals indexed in Web of Science of Scopus databases

[1] BOBER, Peter: Simulation for IT Service Desk Improvement. In: Quality Innovation Prosperity. Vol. 18, No.1 (2014), pp. 47-58. ISSN 1335-1745. Access: http://qip-journal.eu/index.php/QIP/article/view/343/327

National Journals

[1] DUDRIK, Jaroslav: DC-DC menič s riadeným výstupným usmerňovačom s jedným aktívnym spínačom. In: EE časopis. Roč. 20, č. 3 (2014), p. 12-14. ISSN 1335-2547.

[2] DUDRIK, Jaroslav - BODOR, Marcel: Návrh výkonového vysokofrekvenčného transformátora pre meniče. In: Časopis pre elektrotechniku a energetiku. Roč. 20, č. 2 (2014), s. 32-34. ISSN 1335-2547.

[3] FERKOVÁ, Želmíra - KAŇUCH, Ján: Synchrónny motor s permanentnými magnetmi a vonkajším rotorom pre aplikáciu v elektromobile. In: Strojárstvo. Roč. 18, č. 4 (2014), p. 84. ISSN 1335-2938.

[4] GIROVSKÝ, Peter - KOLLÁRIK, Marek: Riadenie ABS systému pomocou fuzzy regulátora. In: Strojárstvo. Roč. 18, č. 5 (2014), p. 138-139. ISSN 1335-2938.

[5] GIROVSKÝ, Peter - KOLLÁRIK, Marek: Systém vozidla ABS s fuzzy regulátorom. In: ATP journal. Roč. 21, č. 5 (2014), p. 38-40. ISSN 1335-2237.

[6] KAŇUCH, Ján: Synchrónny stroj – meranie záťažného uhla. In: Strojárstvo. Roč. 18, č. 12 (2014), p. 86-87. ISSN 1335-2938.

[7] KAŇUCH, Ján: Stručná história a využitie nanotechnológii v elektrotechnike. In: EE časopis. Roč. 20, č. 6 (2014), p. 5-10. ISSN 1335-2547.

[8] KYSLAN, Karol - ĎUROVSKÝ, František: Riadenie dynamometra pomocou simulátora OP 5600. In: ATP Journal. Roč. 21, č. 9 (2014), p. 42-43. ISSN 1335-2237.

[9] PERDUKOVÁ, Daniela - FEDOR, Pavol: Využitie fuzzy logiky pre oblasť riadenia pohonárskych komplexov. In: ATP Journal. Roč. 21, č. 4 (2014), p. 40-43. ISSN 1335-2237.

[10] SIVÝ, Radovan - GIROVSKÝ, Peter: Master-Slave control of dynamixel actuators. In: Acta Electrotechnica et Informatica. Roč. 14, č. 2 (2014), p. 51-54. ISSN 1338-3957. Access: http://www.aei.tuke.sk/papers/2014/2/09_Sivy.pdf

[11] VACEK, Marek - ŽILKOVÁ, Jaroslava: Modelovanie a riadenie experimentálneho robotického ramena. In: Časopis pre elektrotechniku a energetiku. Roč. 20, č. 2 (2014), p. 35-37. ISSN 1335-2547.

[12] VACEK, Marek - ŽILKOVÁ, Jaroslava: Regulácia servopohonov experimentálneho robotického ramena. In: Časopis pre elektrotechniku a energetiku. Roč. 20, č. 6 (2014), p. 42-43. ISSN 1335-2547.

[13] ZÁSKALICKÝ, Pavel: Analýza a modelovanie dvojfázového striedača v mostíkovom zapojení so šírkovoimpulzovou moduláciou výstupného napätia.

In: Strojárstvo. Roč. 18, č. 3 (2014), p. 90-91. ISSN 1335-2938.
[14] ŽATKOVIČ, Róbert - DUDRIK, Jaroslav: Vysokofrekvenčný DC/DC menič s mäkkým spínaním pri širokom rozsahu zaťaženia. In: EE časopis. Roč. 20, č. 6 (2014), p. 36-38. ISSN 1335-2547.

9.4 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	2+7	12+1+9	1

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. Mária Kovaľaková, PhD
doc. RNDr. Ladislav Novák, CSc.
doc. RNDr. Dušan Olčák, CSc.
doc. RNDr. Jana Tóthová, PhD.
doc. RNDr. Ján Ziman, CSc.

Assistant Professors:

RNDr. Anton Baran, PhD.	RNDr. Mária Kladivová, PhD.
RNDr. Oľga Fričová, PhD.	RNDr. Jozef Kravčák, PhD.
RNDr. Zuzana Gibová, PhD.	Ing. RNDr. Jozef Onufer, PhD.
RNDr. Viktor Hronský, CSc.	RNDr. Ladislav Ševčovič, PhD.
RNDr. Ľubomír Mucha	RNDr. Natália Šmídová, PhD. (since 1. 12. 2014)
RNDr. Mária Hutníková, PhD.	RNDr. Peter Vrábel, PhD.
RNDr. Ján Kecer, PhD.	

PhD. Students:

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

Technical Staff:

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**
Solid State Physics	6th	3/1/1	Hronský
Progressive Materials	6th	3/0	Lisý
Bachelor Thesis II	6th	6/0	Olčák, Ziman
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 II (SjF)	3rd	2/2	Novák

Physics 1 (FBERG)	2nd	2/2	Lisý
Physics I (FBERG)	2nd	2/2	Tóthová
Physics (FBERG)	2nd	2/2	Lisý
Physics (FBERG)) – external study	2nd	2/0	Lisý
Physics 1 (FBERG)) – external study	2nd	2/0	Lisý
Physics I (SjF)	2nd	3/3	Novák
Physics (SjF)	2nd	3/3	Novák
Physics (SjF) – external study	2nd	2/0	Kecer
Physics (SvF) – external study	2nd	3/0	Onufer
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	Kecer
Physics II (FEI)	2nd	3/2	Hlaváčová Fričová, Olčák, Gibová
Physics II (FEI, in English)	2nd	3/2	Hlaváčová
Physics I (FEI) – external study	2nd	2/0	Baran
Physics I (SvF)	1st	2/1	Kovaľaková
Physics II (FBERG)	1st	2/2	Tóthová
Physics I (FEI)	1st	2/2	Hlaváčová Gibová, Olčák
Physics (FEI)	1st	2/2	Gibová
Physics Seminar I(FEI)	1st	0/2	Kecer
Physics Seminar (FEI)	1st	0/2	Kecer
Physics I (FEI) – external study	1st	2/0	Baran
Physics I (FEI, in English)	1st	2/2	Hlaváčová

4.2 Graduate Study (Ing.)

Subject	**Semester**	**Lectures/exercises** (hours per week)	**Lecturer**
Solid State Physics (FBERG)	2nd	2/2	Hronský
Equations of Mathematical Physics	1st	2/2	Lisý
Quantum Physics	1st	2/2	Lisý
Experimental Methods in Materials Sciences I	1st	2/2	Tóthová
Seminar on Actual Problems Materials Sciences and Applications	1st	0/2	Lisý
Physics 2 (FBERG)	1st	2/2	Tóthová
Physics III (FBERG)	1st	2/3	Mucha
Physics 2 (FBERG)) – external study	1st	2/0	Baran
Physics (HF)	1st	2/3	Ziman
Physics (HF)) – external study	1st	2/0	Kladivová
Selected Topics in Modern Physics (FEI)	1st	2/2	Hlaváčová
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.
- ***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. (Faculty of Science, Pavol Jozef Šafárik University in Košice). Collaborator: doc. RNDr. L. Novák, CSc.
- ***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). Collaborator: M. Kovaľaková
- ***Domain wall dynamics in thin ferromagnetic wires***, APVV project, No. APVV-0027-11. Principal investigator: doc. RNDr. R. Varga, DrSc. (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
- ***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
- ***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.
- ***Improvement of physics teaching at the Technical University of Košice using video-demonstration experiments,*** Project KEGA, No. 032TUKE-4/2014, Principal investigator: doc. RNDr. Mária Kovaľaková, PhD.

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

6.2 Visitors to the Department

- Doc. Dr. Antal Lovas, PhD., Budapest University of Technology and Economics, Hungary

6.3 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

6.4 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).

6.5 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)
- 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

- DURANKA, Peter: MAS 1H NMR Study of Structure and Molecular Dynamics of Polypropylene Materials. Košice: TU - 2014.

8 PUBLICATIONS

8.1 Journal Papers

[1] KLEMENT, Robert - HRUŠKA, B. - HRONSKÝ, Viktor - OLČÁK, Dušan: Preparation and Characterization of Basic and Er3+-Doped Glasses in the System Y2O3-Al2O3-ZrO2. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 302-303. - ISSN 1898-794X
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p146.pdf.

[2] [VRÁBEL, Peter - HRONSKÝ, Viktor - FRIČOVÁ, Oľga - KOVAĽAKOVÁ, Mária - CHODÁK, I. - ALEXY, P.: Solid State 13C NMR Study of Modified Polyhydroxybutyrate. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 419-420. - ISSN 0587-4246.
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p203.pdf.

[3] HRONSKÝ, Viktor - KOVAĽAKOVÁ, Mária - VRÁBEL, Peter - UHRÍNOVÁ, Magdaléna - OLČÁK, Dušan: Estimation of the Degree of Crystallinity of Partially Crystalline Polypropylenes Using 13C NMR. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 409-410. - ISSN 0587-4246
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p198.pdf.

[4] ZIMAN, Ján - ŠUHAJOVÁ, Viktória - KLADIVOVÁ, Mária: Single domain wall contribution to the impedance of amorphous ferromagnetic wire. In: Acta Physica Plonica A. Vol. 126, no. 1 (2014), p. 82-83. - ISSN 1898-794X

[5] ONUFER, Jozef - ZIMAN, Ján - KLADIVOVÁ, Mária: Stress-Induced Changes in Closure Domain Structure Dynamics in Bistable Ferromagnetic Microwire. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 80-81. - ISSN 1898-794X
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p036.pdf.

[6] KLADIVOVÁ, Mária - MUCHA, Ľubomír: Physical pendulum—a simple experiment can give comprehensive information about a rigid body. In: European Journal of Physics. Vol. 35, no. 2 (2014), p. 1-14. - ISSN 0143-0807
http://iopscience.iop.org/0143-0807/35/2/025018/article.

[7] BARAN, Anton - ZORKOVSKÁ, Anna - KAJŇÁKOVÁ, Marcela - LIN, C.T. - FEHER, Alexander: Thermodynamic and Magnetotransport Properties of High Quality Na0.77CoO2 Single Crystals. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 360-361. - ISSN 0587-4246
http://przyrbwn.icm.edu.pl/APP/apphome.html.

[8] LOVAS, A. - KRAVČÁK, Jozef - SZABO, A.: Thermopower Monitoring of Relaxation and Devitrification in Fe-Based Glassy Alloys. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 78-79. - ISSN 0587-4246
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p035.pdf.

[9] RYBA, T. - VARGOVA, Z. - VARGA, R. - ILKOVIC, S. - REIFFERS, M. - HASKOVA, V. - SZABO, P. - KRAVČÁK, Jozef - GYEPES, R.: Structural and Magnetic Characterization of NiMnSb Half-Heusler Alloy Prepared by Rapid Quenching. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 206-207. ISSN 0587-4246
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p098.pdf.

[10] KRAVČÁK, Jozef: Hysteresis in Asymmetrical GMI Effect in Amorphous Microwires. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 132-133. - ISSN 0587-4246
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p062.pdf.

[11] LISÝ, Vladimír - TÓTHOVÁ, Jana: Effect of Magnetic Field on the Fluctuations of Charged Oscillators in Viscoelastic Fluids. In: Acta Physica Polonica A. Vol. 127, no. 1 (2014), p. 413-414. - ISSN 0587-4246
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p200.pdf.

[12] LISÝ, Vladimír - TÓTHOVÁ, Jana: Brownian Motion of Charged Particles Driven by Correlated Noise in Magnetic Field. In: Transport Theory and Statistical Physics. Vol. 42, no. 6-7 (2013), p. 365-380. - ISSN 0041-1450

[13] ĎURKOVIČ, Jaroslav - KAČÍK, František - OLČÁK, Dušan - KUČEROVÁ, Veronika - KRAJŇÁKOVÁ, Jana: Host responses and metabolic profiles of wood components in Dutch elm hybrids with a contrasting tolerance to Dutch elm disease. In: Annals of Botany. Vol. 114, no. 1 (2014), p. 47-59. - ISSN 0305-7364

[14] NOVÁK, Ladislav - KOVÁČ, Jozef: Rayleigh region in amorphous and nanocrystaline FINEMET alloy. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 126-127. - ISSN 0587-4246

[15] LOVAS, Antal - HUBAČ, Lukáš - NOVÁK, Ladislav: Pulse Heat Treatment of FINEMET Alloys Under Tension. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 100-101. - ISSN 0587-4246
http://przyrbwn.icm.edu.pl/APP/PDF/126/a126z1p046.pdf.

[16] KREŠÁK, Jozef - PETERKA, Pavel - KROPUCH, Stanislav - NOVÁK, Ladislav: Measurement of tight in steel ropes by a mean of thermovision. In: Measurement. Vol. 50 (2014), p. 93-98. - ISSN 0263-2241

[17] TÓTHOVÁ, Jana - KOVÁČ, Jozef - KOPČANSKÝ, P. - RAJŇÁK, M. - PAULOVIČOVÁ, Katarína - TIMKO, M. - JÓZEFCZAK, A.: Viscosity dependence of a magnetic fluid nanoparticles concentration. In: Acta Physica Polonica A. Vol. 126, no. 1 (2014), p. 278-279. - ISSN 0587-4246

[18] TÓTHOVÁ, Jana - TIMKO, Milan - KOPČANSKÝ, Peter - LISÝ, Vladimír: Search for Anomalous Temperature Behavior of the Viscosity of Polyethylene Glycol Solutions. In: International Journal of Thermophysics. Art. in press (2014), p. 1-8. - ISSN 1572-9567
http://link.springer.com/article/10.1007/s10765-014-1707-0.

[19] TÓTHOVÁ, Jana - TIMKO, Milan - KOPČANSKÝ, Peter - LISÝ, Vladimír: Search for Anomalous Temperature Behavior of the Viscosity of Polyethylene Glycol Solutions. In: International Journal of Thermophysics. Art. in press (2014), p. 1-8. - ISSN 1572-9567
http://link.springer.com/article/10.1007/s10765-014-1707-0.

8.2 Other publications

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

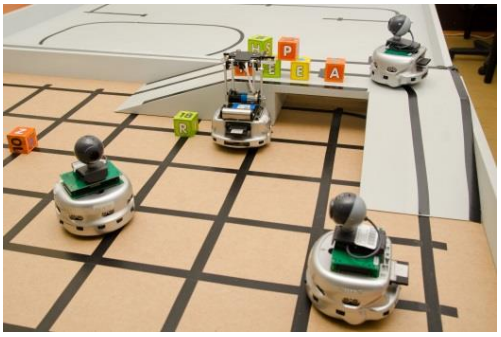
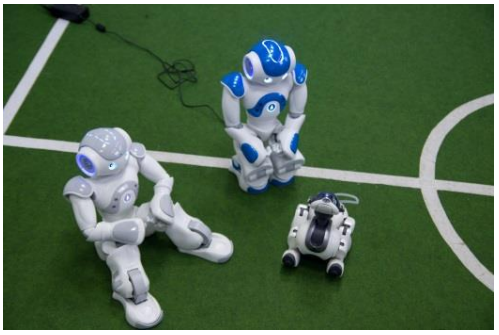
DEPARTMENT OF CYBERNETICS AND ARTIFICIAL INTELLIGENCE

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. Peter Butka, PhD.
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.
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
Renáta Giannusis

Ph.D. Students:
1st. **Internal**
Ing. Ján Čabala
Ing. Jakub Hvizdoš

	Ing. Martin Mikula	
	Ing. Martin Miškuf	
	Ing. Miroslava Muchová	
	Ing. Jaroslav Ondo	
	Ing. Matej Oravec	
2nd.	**Internal**	**External**
	Ing. Tomáš Cádrik	Ing. Miloš Ľos
	Ing. Michal Kopčík	Ing. Mousa Younes Alfitorey
	Ing. Tomáš Lojka	
	Ing. Gergely Magyar	
	Ing. Ladislav Nyulászi	
	Ing. Michal Puheim	
	Ing. Eva Turňová	
3rd.	**Internal**	**External**
	Ing. Jakub Čerkala	Ing. Matúš Molčányi
	Ing. Cecília Havrilová	
	Ing. Pavol Liščinský	
	Ing. Daniel Lorenčík	
	Ing. Peter Michalik	
	Ing. Martina Tarhaničová	
4th.	**Internal**	
	Ing. Vladimír Gašpar	
	Ing. Slávka Jadlovská	
	Ing. Alexandra Lukáčová	
	Ing. Martin Paľa	
	Ing. Peter Papcun	
	Ing. Vladimír Serbák	
	Ing. Ján Štofa	
5th.	**Internal**	**External**
	Ing. Mgr. Peter Koncz	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	2/2	Mach
Management in practice	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 Cybernetics and AI	4th	2/2	Sarnovský, J.
Repetition of AI Foundations	4th	0/2	Sinčák
AI Applications Seminar	4th	2/2	Sinčák
Optimal and Nonlinear Systems	1st	2/2	Jadlovská, A.

5 RESEARCH PROJECTS

- ***Semantic keyword-based search on structured data sources (KEYSTONE),*** COST Action IC-1302, European Cooperation in Science and Technology, duration: 2014 – 2017, members from our department: Peter Butka (Management Committee member for Slovakia)
- ***Autonomous Control for a Reliable Internet of Services (ACROSS),*** COST Action IC-1304, European Cooperation in Science and Technology, duration: 2013 – 2016, members from our department: Peter Bednár (Management Committee member for Slovakia)
- The Technical University was accepted as a full member of the **ALICE experiment** at the European Organization for Nuclear Research (CERN) on September 1st, 2014. This will provide an opportunity for direct participation in the research and development of the "**Upgrade of the Alice Inner Tracking System**", planned for installation in the second long LHC shutdown in the years 2018-2019. The research team led by Ján Jadlovský (Team leader TUKE) is actually composed of members from our department: Anna Jadlovská, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Michal Kopčík, Matej Oravec, Ján Čabala, (duration: 2014-2018)
- ***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
- ***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, Ján Jadlovský, Anna Jadlovská, Iveta Zolotová, Eva Ocelíková, Jana Ligušová, Peter Karch, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Štefan Jajčišin and Michal Kopčík
- ***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
- ***Incremental learning methods for intelligent systems,*** Scientific Grant Agency project No. 1/0667/12, duration: 2012 – 2015, members: Peter Sinčák (project leader)
- ***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, Miroslava

Muchová, Martin Mikula

- ***Resident core of active reconfigurable control systems,*** Scientific Grant Agency project No. 1/0348/14, duration: 2014 – 2016, members: Dušan Krokavec (project leader), Filasová Anna, Hladký Vratislav
- ***Integration of study programs Cybernetics and Artificial Intelligence.*** Cultural and Education Grant Agency Project No. 034TUKE-4/2014, duration 2014 – 2016, members: Ján Vaščák (project leader), Anna Jadlovská, Mária Virčíková, Rudolf Jakša, Peter Sinčák, Marián Mach, Kristína, Machová
- ***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, Michal Kopčík
- ***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
- ***University Science Park TECHNICOM for Innovation Applications Supported by Knowledge Technology***, ITMS: 26220220182, supported by the Research & Development Operational Programme funded by the ERDF. Three pilot projects are performed at our department:
    - PP4: IT tools and services for analysis of various types of processes, Ján Paralič - pilot project leader, members: František Babič, Jozef Wagner, Gabriel Tutoky, Martin Sarnovský, Peter Butka, Alexandra Lukáčová, Peter Koncz, Vladimír Gašpar, Cecília Havrilová, Michal Puheim
    - PP6: Use of artificial intelligence in intelligent systems, Peter Sinčák - pilot project leader
    - PP7: Center for Nondestructive Diagnostics of Technological Processes Using Standard Software for Control and Communication, Ján Jadlovský - pilot project leader, members: Ján Sarnovský, Anna Jadlovská, Iveta Zolotová, Slávka Jadlovská, Peter Papcun, Jakub Čerkala, Michal Kopčík, Matej Oravec, Ján Čabala
- ***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

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

- Department of Software Engineering and Interactive Systems, Vienna University of Technology, Austria
- University of Regensburg, Germany
- 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
- Hungarian Academy of Sciences, Computer and Automation Research Institute, Hungary
- Regional Association of the Hungarian Academy of Sciences, Miskolc, Hungary

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
- Madarász, L.: Slovak Society for Cybernetics and Informatics
- 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

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.
- OI-Net, European Academic Network for Open Innovation, Reference number: 542203-LLP-1-2013-1-FI-ERASMUS-ENW- Iveta Zolotová
- Socrates - Erasmus agreement between TU of Košice and Czech University of Life Sciences, Prague, Czech Republic. Contact person: Eva Ocelíková
- Socrates - Erasmus agreement between TU of Košice and Université Henri Poincaré, Nancy 1, France, Contact person: Ján Sarnovský
- Socrates - Erasmus agreement between TU of Košice and University Hradec Kralove, Czech Republic. Contact person: Ján Vaščák
- Socrates - Erasmus agreement between TU of Košice and Univesite de Technologie Compiegne, France, Contact person: Ján Liguš
- Socrates - Erasmus agreement between TU of Košice and Institut Universitaire de Technologie 1 de Grenoble 1, France, Contact person: Jana Ligušová

6.6 Visitors to the Department

- doc. Ing. Dalibor Fiala, PhD., Ing. Martin Dostal, ZČU Plzeň, ČR, 29.6-4.7.2014

6.7 Visits of Staff Members to Foreign Institutions

- P. Sinčák, Budapešť, Viedeň, Maďarsko, Rakúsko, 8.-11.1.2014
- M. Bundzel, Luxemburg, Luxembursko, 5.-7.2.2014
- R. Jakša, Ostrava, ČR, 6.-7.2.2014
- K. Machová, Nice, Francúzsko, 23.2.-1.3.2014
- P. Sinčák, Bielefeld, Bremen, Nemecko, 1.-9.3.2014
- G. Magyar, Dortmund, Nemecko, 2.-7.3.2014

- M. Bundzel, Rovereto, Taliansko, 11.-14.3.2014
- J. Jadlovský, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- M. Čopík, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- S. Jadlovská, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- P. Papcun, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- J. Čerkala, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- M. Kopčík, Ženeva – CERN, Švajčiarsko, 16.-21.3.2014
- J. Liguš, Valletta, Malta, 26.-30.3.2014
- J. Ligušová, Valletta, Malta, 26.-30.3.2014
- P. Butka, Olomouc, ČR, 7.-10.4.2014
- L. Madarász, Budapešť, Maďarsko, 24.-25.4.2014
- J. Paralič, Plzeň, ČR, 20.-22-5.2014
- P. Koncz, Plzeň, ČR, 20.-22-5.2014
- C. Havrilová, Plzeň, ČR, 20.-22-5.2014
- P. Sinčák (+12 others), Miškolc, Maďarsko, 12.-13.6.2014
- C. Havrilová, Madrid, Španielsko, 21.-28.6.2014
- P. Michalik, Madrid, Španielsko, 22.-28.6.2014
- R. Jakša, Ostrava, ČR, 23.-24.6.2014
- D. Krokavec, Štrasburg, Francúzsko, 23.-28.6.2014
- T. Cádrik, Brno, ČR, 24.-27.6.2014
- M. Puheim, Tihany, Maďarsko, 3.-5.7.2014
- T. Lojka, Grenoble, Francúzsko, 6.-11.7.2014
- T. Lojka, Thira, Grécko, 17.-23.7.2014
- M. Tarhaničová, Lisabon, Portugalsko, 21.-30.7.2014
- J. Štofa, Trento, Taliansko, 26.7.-10.8.2014
- D. Krokavec, Cape Town, JAR, 22.-31.8.2014
- R. Jakša, Viedeň, Rakúsko, 31.8.-3.9.2014
- J. Paralič, Mníchov, Nemecko, 1.-5.9.2014
- M. Sarnovský, Karlsruhe, Nemecko, 1.-5.9.2014
- F. Babič, Wroclaw, Poľsko, 16.-19.9.2014
- A. Lukáčová, Wroclaw, Poľsko, 16.-19.9.2014
- P. Sinčák, Budapešť, Maďarsko, 7.-9.9.2014
- M. Sarnovský, Drážďany, Nemecko, 30.9.-2.10.2014
- V. Gašpar, Antibes, Francúzsko, 6.-11.10.2014
- D. Krokavec, Antibes, Francúzsko, 6.-11.10. 2014
- A. Filasová, Antibes, Francúzsko, 6.-11.10. 2014
- P. Butka, Riva del Garda, Taliansko, 16.-19.10.2014
- L. Nyulászi, Brno, ČR, 21.-24.10.2014
- P. Bednár, Larnaka, Cyprus, 22.-24.10. 2014
- P. Sinčák, Kitakyushu, Peking, Japonsko, Čína, 25.10.-12.11.2014
- M. Virčíková, Kitakyushu, Peking, Japonsko, Čína, 25.10.-12.11.2014
- J. Ondo, Peking, Čína, 3.-11.11.2014
- R. Jakša, Kitakyushu, Japonsko, 30.11.-10.12.2014
- T. Cádrik, Kitakyushu, Japonsko, 30.11.-10.12.2014
- L. Madarász, Budapešť, Maďarsko, 20.-21.11.2014
- V. Gašpar, Budapešť, Maďarsko, 19.-21.11.2014
- L. Nyulászi, Budapešť, Maďarsko, 19.-21.11.2014
- M. Puheim, Budapešť, Maďarsko, 19.-21.11.2014

- D. Krokavec, Berlín, Nemecko, 12.-15.11.2014
- P. Liščinský, Berlín, Nemecko, 12.-15.11.2014
- V. Serbák, Berlín, Nemecko, 12.-15.11.2014
- D. Krokavec, Budapešť, Maďarsko, 20.-21.11.2014
- J. Ondo, Orebro, Švédsko, 6.-14.12.2014
- G. Tutoky, Plzeň, ČR, 1.-11.12.2014

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	93	139	3

8 OTHER ACTIVITIES

- SAMI 2014 (IEEE 11th International Symposium on Applied Machine Intelligence and Informatics) has been held January 23 - 25, 2014 in Herl'any, Slovakia
- Meeting for Departments of Automation, Cybernetics, Artificial Intelligence and Computer Science in Slovakia and Czech Republic, September 10-11, 2014 in Poprad (web page of this meeting)
- CINTI 2014 (15th IEEE International Symposium on Computational Intelligence and Informatics) has been co-organized on November 19-21, 2014 in Budapest, Hungary
- L. MADARÁSZ - Order of Merit of the Republic of Hungary, Civil Officer's Cross, The highest State Order of Hungary, Hungarian Consulate in Košice, Košice, March 7, 2014
- L. MADARÁSZ – Dr. h.c. Óbuda University, Budapest, Hungary, November 21, 2014
- Our PhD student Martin Pala with his team won Startup Awards 2014 competition in category Society (see more information).

9 PUBLICATIONS

9.1. Books chapters

[1] GAŠPAR, Vladimír - MADARÁSZ, Ladislav - ANDOGA, Rudolf: Scientific Research Information System as a Solution for Assessing the Efficiency of Applied Research. In: Advances in Soft Computing, Intelligent Robotics and Control : Topics in Intelligent Engineering and Informatics 8. - Switzerland : Springer International Publishing, 2014 P. 273-293. - ISBN 978-3-319-05944-0 - ISSN 2193-9411

9.1 Journals

[1] BUTKA, Peter - PÓCS, Jozef - PÓCSOVÁ, Jana: On equivalence of conceptual scaling and generalized one-sided concept lattices. In: Information Sciences. Vol. 259 (2014), p. 57-70. - ISSN 0020-0255

[2] KROKAVEC, Dušan - FILASOVÁ, Anna: H-infinity enhanced control design of

discrete-time Takagi-Sugeno state-multiplicative noisy systems. In: Mathematical Problems in Engineering. Vol. 2014 (2014), p. 1-12. - ISSN 1024-123X

[3] SINČÁK, Peter - ONDO, Jaroslav - KÁPOSZTÁSOVÁ, Daniela - VIRČÍKOVÁ, Mária - VRANAYOVÁ, Zuzana - SABOL, Jakub: Artificial Intelligence in Public Health Prevention of Legionelosis in Drinking Water Systems / Peter Sinčák ... [et al.] - 2014.In: International Journal of Environmental Research and Public Health. Vol. 11, no. 8 (2014), p. 8597-8611. - ISSN 1660-4601

[4] ABELEV, B. - ADAM, J. - ADAMOVA, D. - AGGARWAL, M.M. - RINELLA, G.A. - JADLOVSKÝ, Ján - VAĽA, Martin: Technical Design Report for the Upgrade of the Alice Inner Tracking System / ALICE Collaboration - 2014.In: Journal of Physics G: Nuclear and Particle Physics. Vol. 41, no. 8 (2014), p. 87002-87002. - ISSN 0954-3899

[5] RÁSTOČNÝ, Karol - FRANEKOVÁ, Mária - ZOLOTOVÁ, Iveta - RÁSTOČNÝ, jr., Karol: Quantitative Assessment of Safety Integrity Level of Message Transmission between Safety-Related Equipment / Karol Rástočný ... [et al.] - 2014.In: Computing and Informatics. Roč. 33, č. 2 (2014), s. 343-368. - ISSN 1335-9150

[6] MACHOVÁ, Kristína - MARHEFKA, Lukáš: Opinion Classification in Conversational Content Using N-grams. In: Recent Developments in Computational Collective Intelligence : Studies in Computational Intelligence. Vol. 513 (2014), p. 177-186. - ISBN 978-3-319-01787-7 - ISSN 1860-949X

[7] FILASOVÁ, Anna - KROKAVEC, Dušan - SERBÁK, Vladimír: Control reconfiguration for one class of Takagi-Sugeno fuzzy SISO systems. In: Intelligent Systems in Technical and Medical Diagnostics : book series: Advances in Intelligent Systems and Computing. Vol. 230 (2014), p. 53-64. - ISSN 2194-5357

[8] KROKAVEC, Dušan - FILASOVÁ, Anna: Robust residual generator design for systems with distributed time delay. In: Intelligent Systems in Technical and Medical Diagnostics : book series: Advances in Intelligent Systems and Computing. Vol. 230 (2014), p. 417-428. - ISSN 2194-5357

[9] KROKAVEC, Dušan - FILASOVÁ, Anna - LIŠČINSKÝ, Pavol: Fault residual functions make use of linear quadratic control performances. In: Intelligent Systems in Technical and Medical Diagnostics: book series: Advances in Intelligent Systems and Computing. Vol. 230 (2014), p. 429-440. - ISSN 2194-5357

[10] FRANKOVSKÝ, Peter - TREBUŇA, František - JADLOVSKÝ, Ján - PÁSTOR, Miroslav - KENDEROVÁ, Mária: Implementation of correction coefficients relevant for photoelastic coatings into the PhotoStress software. In: Applied Mechanics and Materials. Vol. 486 (2014), p. 26-31. - ISBN 978-303785977-3 - ISSN 1660-9636

[11] BUTKA, Peter - PÓCS, Jozef - PÓCSOVÁ, Jana: Distributed version of algorithm for generalized one-sided concept lattices. In: Studies in Computational Intelligence. Vol. 511 (2014), p. 119-129. - ISSN 1860-949X

[12] BUTKA, Peter - PÓCS, Jozef - PÓCSOVÁ, Jana: Basic theorem for generalized one-sided concept lattices. In: Applied Mathematical Sciences. Vol. 8, no. 10 (2014), p. 463-468. - ISSN 1312-885X

[13] KROKAVEC, Dušan - FILASOVÁ, Anna: LMI based fuzzy observer design for Takagi-Sugeno models containing vestigial nonlinear terms. In: Archives of Control Sciences. Vol. 24 (60) (2014), p. 39-52. - ISSN 1230-2384

[14] JADLOVSKÝ, Ján - JADLOVSKÁ, Anna - SARNOVSKÝ, Ján - JAJČIŠIN,

Štefan - ČOPÍK, Matej - JADLOVSKÁ, Slávka - PAPCUN, Peter - BIELEK, Radoslav - ČERKALA, Jakub - KOPČÍK, Michal - CHOCHULA, Peter - AUGUSTINUS, Andre: External Access to ALICE Controls Conditions Data. In: Journal of Physics : Conference Series (JPCS). Vol. 513 (2014), p. 1-5. - ISSN 1742-6588

[15] HLADKÝ, Vratislav - BIELEK, Radoslav: Modelling and control of thermal system. In: Advances in Electrical and Electronic Engineering. Vol. 12, no. 2 (2014), p. 103-110. - ISSN 1804-3119

[16] BABIČ, František - MAJNARIC, L. - LUKÁČOVÁ, Alexandra - PARALIČ, Ján - HOLZINGER, A.: On Patient's Characteristics Extraction for Metabolic Syndrome Diagnosis: Predictive modelling based on Machine Learning / František Babič ... [et al.] - 2014.In: Lecture Notes in Computer Science. - Switzerland : Springer International Publishing, 2014 Vol. 8649 LNCS (2014), p. 118-132. - ISBN 978-3-319-10264-1 - ISSN 0302-9743

[17] LOJKA, Tomáš - ZOLOTOVÁ, Iveta: Improvement of Human-Plant Interactivity via Industrial Cloud-Based Supervisory Control and Data Acquisition System. In: Advances in Production Management Systems. Vol. 440, no. Part 3 (2014), p. 83-90. - ISSN 1868-4238

[18] ZOLOTOVÁ, Iveta - LOJKA, Tomáš: Online data stream mining in distributed sensor network. In: WSEAS Transactions on Circuits and Systems. Vol. 13 (2014), p. 412-421. - ISSN 1109-2734

[19] TUŠANOVÁ, Adela - PARALIČ, Ján: A methodology for decision support for implementation of cloud computing IT services. In: Quality Innovation Prosperity. Roč. 18, č. 1 (2014), s. 33-46. - ISSN 1338-984X

[20] ŠTOFA, Ján - ZOLOTOVÁ, Iveta: Factors of risks influencing the safety of the company and its strategy. In: International journal of economics and statistics. No. 2 (2014), p. 145-150. - ISSN 2309-0685

[21] ČERKALA, Jakub - JADLOVSKÁ, Anna : Methodology for Experimental Identification of the Laboratory Hydraulic System. In: Annals of Faculty Engineering Hunedoara - International Journal of Engineering. Vol. 12, no. 3 (2014), p. 33-40. - ISSN 1584-2665

[22] VAŠČÁK, Ján - MICHNA, Roman: Learning of Fuzzy Cognitive Maps by a PSO Algorithm for Movement Adjustment of Robots. In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer, 2014 Vol. 316 (2014), p. 155-162. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[23] JADLOVSKÝ, Ján - KOPČÍK, Michal: Basic Motion Control of Differential-Wheeled Mobile Robot ALFRED. In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer, 2014 Vol. 316 (2014), p. 73-80. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[24] PAPCUN, Peter - JADLOVSKÝ, Ján: Mathematical Model of Robot Melfa RV-2SDB / Peter Papcun, Ján Jadlovský - 2014.In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer, 2014 Vol. 316 (2014), p. 145-154. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[25] JADLOVSKÁ, Slávka - SARNOVSKÝ, Ján - VOJTEK, Jaroslav - VOŠČEK, Dominik: Advanced Generalized Modelling of Classical Inverted Pendulum Systems. In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer, 2014 Vol. 316 (2014), p. 255-264. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[26] LOJKA, Tomáš - ZOLOTA, Milan - MIHAĽ, Roman - ZOLOTOVÁ, Iveta: Communication Engine in Human-Machine Alarm Interface System. In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer, 2014 Vol. 316 (2014), p. 129-136. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[27] TARHANIČOVÁ, Martina - MACHOVÁ, Kristína - SINČÁK, Peter: Computers Capable of Distinguishing Emotions in Text / Martina Tarhaničová, Kristína Machová, Peter Sinčák - 2014.In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer, 2014 Vol. 316 (2014), p. 61-69. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[28] SARNOVSKÝ, Martin: Design and implementation of Interactive visualization of GHSOM clustering algorithm for text mining tasks. In: International Journal of Research in Information Technology. Vol. 2, no. 7 (2014), p. 146-151. - ISSN 2001-5569

[29] SARNOVSKÝ, Martin: Design and implementation of the cloud based application for text mining tasks. In: Data Mining and Knowledge Engineering. Vol. 6, no. 6 (2014), p. 261-264. - ISSN 0974-9578

[30] PUHEIM, Michal - BUNDZEL, Marek - SINČÁK, Peter - MADARÁSZ, Ladislav: Application of Tracking-Learning-Detection for Object Tracking in Stereoscopic Images. In: Advances in Intelligent Systems and Computing. Vol. 316 (2014), p. 323-331. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[31] VIRČÍKOVÁ, Mária - SINČÁK, Peter: Teach Your Robot How You Want It to Express Emotions : On the Personalized Affective Human-Humanoid Interaction. In: Advances in Intelligent Systems and Computing : Emergent Trends in Robotics and Intelligent Systems. - Switzerland : Springer International Publishing, 2014 Vol. 316 (2014), p. 81-92. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[32] MAGYAR, Gergely - SINČÁK, Peter - KRIZSÁN, Zoltán: Comparison Study of Robotic Middleware for Robotic Applications. In: Advances in Intelligent Systems and Computing. Vol. 316 (2014), p. 121-128. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[33] KLIMEŠOVÁ, Dana - KONOPÁSEK, Jan - OCELÍKOVÁ, Eva: Pyramidal Objects and Comparing Objects Using Similarity Measures / Dana Klimešová, Jan Konopásek, Eva Ocelíková - 2014.In: International Journal of Mathematical Models and Methods in Applied Sciences. Vol. 8 (2014), p. 138-145. - ISSN 1998-0140

[34] LORENČÍK, Daniel - SINČÁK, Peter - TUŠAN, Jakub - MAREK, Martin: Smartphone Robots. In: Advances in Intelligent Systems and Computing. Vol. 316 (2014), p. 137-143. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[35] SINČÁK, Peter - LORENČÍK, Daniel - VIRČÍKOVÁ, Mária - GAMEC, Jan: Theoretical Analysis of Recent Changes and Expectations in Intelligent Robotics. In: Advances in Intelligent Systems and Computing. Vol. 316 (2014), p. 13-30. - ISBN 978-3-319-10782-0 - ISSN 2194-5357

[36] VIRČÍKOVÁ, Mária - MAGYAR, Gergely - PAĽA, Martin - GAMEC, Ján - SINČÁK, Peter: Od priemyselných robotov k servisným a spoločenským robotom (6). In: ATP Journal. Roč. 21, č. 1 (2014), s. 42-44. - ISSN 1335-2237

[37] MADARÁSZ, Ladislav - LAZAR, Tobiáš - ANDOGA, Rudolf - GAŠPAR, Vladimír: Komplexný výskum efektívnosti a inovácia technológie skúšok malého prúdového motora (5). In: ATP Journal. Roč. 21, č. 1 (2014), s. 50-54. - ISSN 1335-2237

[38] MADARÁSZ, Ladislav - LAZAR, Tobiáš - ANDOGA, Rudolf - GAŠPAR, Vladimír: Komplexný výskum efektívnosti a inovácia technológie skúšok malého prúdového motora (6). In: ATP Journal. Roč. 21, č. 2 (2014), s. 44-47. - ISSN 1335-2237
[39] HOCKO, Marián - MADARÁSZ, Ladislav - LAZAR, Tobiáš - GAŠPAR, Vladimír: Komplexný výskum efektívnosti a inovácia technológie skúšok malého prúdového motora (7). In: ATP Journal. Roč. 21, č. 3 (2014), s. 54-57. - ISSN 1335-2237
[40] GAŠPAR, Vladimír - MADARÁSZ, Ladislav - LAZAR, Tobiáš - ANDOGA, Rudolf - FŐZŐ, Ladislav Komplexný výskum efektívnosti a inovácia technológie skúšok malého prúdového motora (8). In: ATP Journal. Roč. 21, č. 4 (2014), s. 52-55. - ISSN 1335-2237
[41] LORENČÍK, Daniel - CÁDRIK, Tomáš - SINČÁK, Peter - MACH, Marián: Cloudová robotika. Vplyv cloudového computingu na budúcnosť robotiky (1). In: ATP Journal. Roč. 21, č. 3 (2014), s. 40-42. - ISSN 1335-2237
[42] LORENČÍK, Daniel - CÁDRIK, Tomáš - SINČÁK, Peter - MACH, Marián: Cloud robotika: Vplyv cloud computingu na budúcnosť robotiky (2). In: ATP Journal. Roč. 21, č. 4 (2014), s. 46-47. - ISSN 1335-2237
[43] LORENČÍK, Daniel - CÁDRIK, Tomáš - MACH, Marián - SINČÁK, Peter: Cloud Robotika: vplyv cloud computingu na budúcnosť robotiky (3) Využitie servisne orientovanej architektúry na vzdialené riadenie komunikácie robota s cloudom. In: ATP Journal. Roč. 21, č. 5 (2014), s. 47-49. - ISSN 1335-2237
[44] SARNOVSKÝ, Ján: Regulácia veľmi rozsiahleho systému. In: ATP Journal. Roč. 21, č. 5 (2014), s. 9-9. - ISSN 1335-2237
[45] HLADKÝ, Vratislav - MUCHOVÁ, Miroslava: Návrh a simulácia riadenia vybranej cestnej križovatky. In: Transfer inovácií. Č. 29 (2014), s. 267-272. - ISSN 1337-7094

9.2 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	25	79	5

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. Jana Petrillová, PhD.
Mgr. Ján Pribiš, PhD.
RNDr. Štefan Schrötter, CSc.
RNDr. Michal Staš, PhD.

Technical Staff: Lenka Ondrejková

The Department consists of two parts:

- Mathematics Section
- Section of Theoretical Informatics

3 LABORATORIES

- Laboratory of Mathematical and Computing Modelling
- LabIT4KT-1: Laboratory of Computer Modeling (prototype unit of the project IT4KT)
- LabIT4KT-2: Laboratory of Numerical Mathematics (prototype unit of the project IT4KT)

4 TEACHING

4.1 Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Mathematics I	1st	3/2/2	Baculíková, Kravecová, Daňo, Klešč
Mathematics I	1st	4/3	Molnárová
Mathematics I	1st	2/0	Pirč
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	Klešč, Pribiš
Mathematics II	2rd	2/2	Grinčová
Mathematics II (English)	2rd	3/3	Plavka
Mathematics II	2rd	2/0	Schrötter
Numerical Methods, Probability and Statictics	3rd	3/2	Pribiš, Draženská, Myšková, Ostertagová,
Numerical Methods, Probability and Statictics	3rd	2/0	Buša
Mathematics III (English)	3rd	3/2	Berežný
Discrete Mathematics	3nd	3/3	Schrötter
Theory of Coding	3rd	2/2	Plavka
Applications of Differential Equations	4nd	2/2	Baculíková
Operation Analysis	4th	2/2	Kravecová
Algorithms and Complexity	4th	2/2	Plavka
Financial Mathematics	4th	2/2	Pirč
Numerical Methods, Probability and Statictics	5th	3/3	Buša
Mathematical and Computing Modelling	5th	2/2/1	Džurina
Typographical System TEX	5th	1/2/1	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 (English)	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
Linear and Quadratic Programing	8th	2/2	Berežný
Graph Algorithms and Discrete Optimization	9th	2/2	Klešč
Mathematical Methods for Neural Networks and Time Series	9th	2/2	Daňo
Queueing Theory	9th	2/2	Berežný
Finite Element Method	10th	2/2	Buša Jr.

5 RESEARCH PROJECTS

- ***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.
- ***Scaling in Stochastic Dynamics: Influence of Random Fluctuations on Diffusion, Kinetic Processes, and Phase Transitions.*** VEGA Slovak Grant Agency No. 1/0222/13, duration 2013 – 2016, co ordinator: Ján Buša.
- ***Function spaces, bornologies, hyperspaces and topological structures.*** APVV-0269-11, duration 2012 – 2015, co-ordinator: Michal Staš..

6 CO-OPERATION

6.1 Co-operation in Slovakia

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

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

6.1.1. Visitors to the Department

- Prof. Peter Butkovic, University of Birmingham, School of Mathematics, Birmingham, UK
- Prof. Vasile Berinde, Technical university of Cluj Napoca, North University Center at Baia Mare, Department of Mathematics and Informatics, Romania
- Prof. Marie Demlová, Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Mathematics, Czech Republic
- Prof. Peter Vojtáš, Charles university in Prague, Faculty of Mathematics and Physics, Department of Software Engineering, Czech Republic
- Dr. Edik Hayryan, Joint Institute for Nuclear Research, Dubna, Russia
- Dr. Alexander Ayriyan, Joint Institute for Nuclear Research, Dubna, Russia
- Dr. Shura Hayryan, Institute of Physics, Academia Sinica, Taipei, Taiwan
- Carolina Medina, University of San Luis Potosi, Mexico
- Martin Rohleder, Palacky University, Olomouc, Czech Republic
- Motoiu Costin Calin, Technical university of Cluj Napoca, Department of Mathematics and Informatics, Baia Mare, Romania
- Borodi Ioana Raluca, Technical university of Cluj Napoca, Department of Mathematics and Informatics, Baia Mare, Romania
- Ardelean Ioan, Technical university of Cluj Napoca, Department of Mathematics and Informatics, Baia Mare, Romania

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

The Summer School: Mathematical Modelling and Fixed Point Iterative Methods, 1. – 15. June 2014, Technical university of Cluj Napoca, North University at Baia Mare, Romania:

- Baculíková, B.
- Berežný, Š.
- Buša, J.
- Buša Jr., J.
- Džurina, J.
- Klešč, M.
- Kravecová, D.
- Plavka, J.
- 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-0028-07-1314 – Active Methods in Teaching and Learning Mathematics and Informatics
- CEEPUS – partner in CEEPUS III program CIII-HU-0028-08-1415 – Active Methods in Teaching and Learning Mathematics and Informatics

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	8	11	1

8 OTHER ACTIVITIES

8.1 Workshops:

- Buša, J. – Schrötter, Š.: 15-th Conference of Košice Mathematicians, 2. – 5. April 2014, Herľany, Co-organisers

8.2 Study tours:

- Baculíková, B: Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Mathematics, Czech Republic
- Berežný, Š.: Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Mathematics, Czech Republic
- Džurina, J.: Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Mathematics, Czech Republic
- Klešč, M.: Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Mathematics, Czech Republic
- Plavka, J.: Waseda University Kokura a Gakuin, University Aoyama, Japan
- Pribiš, J.: JINR Dubna, Russia

9 PUBLICATIONS

9.1 Books

[1] BEREŽNÝ Štefan: Mathematics 1. 1. ed., TU Košice, 2014, 170 pp., ISBN 978-80-553-1788-5.
[2] BEREŽNÝ Štefan: Mathematics 1. 1. ed., TU Košice, 2014, 284 pp., ISBN 978-80-553-1789-2.
[3] BEREŽNÝ Štefan – KRAVECOVÁ Daniela: Mathematics 3, University Textbook. 1. ed., TU Košice, 2014, 119 pp., ISBN 978-80-553-1790-8.
[4] BEREŽNÝ Štefan – KRAVECOVÁ Daniela: Mathematics 3. 1. ed., TU Košice, 2014, 210 pp., ISBN 978-80-553-1791-5.
[5] DŽURINA Jozef – BACULÍKOVÁ Blanka – KRAVECOVÁ Daniela: Matematicko počítačové modelovanie. 1. ed., TU Košice, 2014, 80 pp., ISBN 978-80-553-1829-5.
[6] DRAŽENSKÁ Emília – MYŠKOVÁ Helena: Matematická logika. 3. ed., TU Košice, 2014, 148 pp., ISBN 978-80-553-1821-9.
[7] DRAŽENSKÁ Emília: Diskrétna matematika, zbierka riešených a neriešených príkladov. 1. ed., TU Košice, 2014, 78 pp., ISBN 978-80-553-1833-2.

[8] DAŇO Ivan: Neural networks as mathematical systems. 1. ed., TU Košice, 2014, 94 pp., ISBN 978-80-553-1827-1.
[9] DAŇO Ivan: Neurónové siete ako matematické sýstemy v príkladoch. 1. ed., TU Košice, 2014, 85 pp., ISBN 978-80-553-1797-7.

9.2 Journals

[1] ANDREJIOVÁ Miriam – GRINČOVÁ Anna – MARASOVÁ Daniela – FEDORKO Gabriel – MOLNÁR Vieroslav: Using logistic regression in tracing the significance of rubber-textile conveyor belt damage. Wear. Vol. 318, no. 1-2 (2014), p. 145-152. ISSN 0043-1648.
[2] AYRIYAN Alexander – PRIBIŠ Ján: Numerical algorithm for simulation of thermal processes in four layer cylindrical object. Vestnik RUDN: Matematika, Informatika, Fyzika. No. 2 (2014), p. 67-71. ISSN 0869-8732.
[3] BACULÍKOVÁ Blanka – DŽURINA Jozef: On functional inequalities and their applications in the oscillation theory. Applied Mathematics and Computation. Vol. 226 (2014), p. 266-273. ISSN 0096-3003.
[4] BACULÍKOVÁ Blanka – DŽURINA Jozef: Oscillation of trinomial differential equations with positive and negative terms. Electronic Journal of Qualitative Theory of Differential Equations. Vol. 2014, no. 43 (2014), p. 1-8. ISSN 1417-3875.
[5] DŽURINA Jozef – BACULÍKOVÁ Blanka: Property (A) of third-order advanced differential equations. Mathematica Slovaca. Vol. 64, no. 2 (2014), p. 339-346. ISSN 0139-9918.
[6] FEDORKO Gabriel – MOLNÁR Vieroslav – MARASOVÁ Daniela – GRINČOVÁ Anna – DOVICA Miroslav – ŽIVČÁK Jozef – TÓTH Teodor – HUSÁKOVÁ Nikoleta: Failure analysis of belt conveyor damage caused by the falling material. Part 1: Experimental measurements and regression models. Engineering failure analysis. Vol. 36 (2014), p. 30-38. ISSN 1350-6307.
[7] FEDORKO Gabriel – MOLNÁR Vieroslav – GRINČOVÁ Anna – DOVICA Miroslav – TÓTH Teodor – HUSÁKOVÁ Nikoleta – TARABA Vladimír – KELEMEN Michal: Failure analysis of irreversible changes in the construction of rubber-textile conveyor belt damaged by sharp-edge material impact. Engineering Failure Analysis. Vol. 39 (2014), p. 135-148. ISSN 1350-6307.
[8] GAVALEC Martin – PLAVKA Ján – TOMÁŠKOVÁ Hana: Interval eigenproblem in max-min algebra. Linear Algebra and its Applications. Vol. 440 (2014), p. 24-33. ISSN 0024-3795.
[9] GRINČOVÁ Anna – MARASOVÁ Daniela: Experimental research and mathematical modelling as an effective tool of assessing failure of conveyor belts. Eksploatacja i Niezawodnosc - Mainteneance and Reliability. Vol. 16, no. 2 (2014), p. 229-235. - ISSN 1507-2711.
[10] LI Tongxing – BACULÍKOVÁ Blanka – DŽURINA Jozef – ZHANG, Chenghui: Oscillation of fourth-order neutral differential equations with p Laplacian like operators. Boundary Value Problems. March 2014 (2014), p. 1-9. ISSN 1687-2770.
[11] LI Tongxing – BACULÍKOVÁ Blanka – DŽURINA Jozef: Oscillatory behavior of second-order nonlinear neutral differential equations with distributed deviating arguments. Boundary Value Problems. March 2014 (2014), p. 1 15. ISSN 1687-2770.

[12] MYŠKOVÁ Helena – PLAVKA Ján: The robustness of interval matrices in max-plus algebra. Linear Algebra and Its Applications. No. 445 (2014), p. 85-102. ISSN 0024-3795.
[13] MYŠKOVÁ Helena – ŠTEFANSKÝ Lukáš: Robustness of fuzzy interval circulant-Hankel matrices. Linear Algebra and its Applications. No. 444 (2014), p. 165-182. ISSN 0024-3795.
[14] OSTERTAG Oskar – OSTERTAGOVÁ Eva – KELEMEN Michal – KELEMENOVÁ Tatiana – BUŠA Ján – VIRGALA Ivan: Miniature Mobile Bristed In-Pipe Machine. International Journal of Advanced Robotic Systems. Vol. 11 (2014), p. 1-9. ISSN 1729-8806.
[15] OSTERTAGOVÁ Eva – OSTERTAG Oskar – KOVÁČ Jozef: Methodology and application of the Kruskal-Wallis test. Applied Mechanics and Materials. No. 611 (2014), p. 115-120. ISSN 1660-9336.
[16] OSTERTAG Oskar – OSTERTAGOVÁ Eva – FRANKOVSKÝ Peter: Photoelast method and possible applications of mathematical statistics in prediction of stress state of structural elements. Applied Mechanics and Materials. No. 611 (2014), p. 405-411. ISSN 1660-9336.
[17] OSTERTAG Oskar – NOVOTNÝ Ladislav – OSTERTAGOVÁ Eva: Application of differential equations to calculations of large deformations of structural members. Applied Mechanics and Materials. No. 611 (2014), p. 400-404. ISSN 1660-9336.
[18] OSTERTAGOVÁ Eva: Aplikácia Kruskalovho-Wallisovho testu v technickej praxi. Transfer inovácií. No. 29 (2014), p. 56-58. ISSN 1337 7094.
[19] OSTERTAG Oskar – OSTERTAGOVÁ Eva: Problém aberácie v procese automatizácie fotoelasticimetrického merania napätosti konštrukčných prvkov. Transfer inovácií. No. 29 (2014), p. 59-62. ISSN 1337 7094.
[20] OSTERTAG Oskar – NOVOTNÝ Ladislav – OSTERTAGOVÁ Eva: Uplatnenie diferenciálnych rovníc v riešení veľkých deformácií konštrukčných prvkov z kompozitu. Transfer inovácií. No. 29 (2014), p. 65-67. ISSN 1337 7094.
[21] OSTERTAG Oskar – OSTERTAGOVÁ Eva – KELEMEN Michal – KELEMENOVÁ Tatiana: Aplikácia diferenciálnych rovníc v riešení veľkých deformácií štetiny inšpekčného potrubného stroja. Transfer inovácií. No. 29 (2014), p. 123-127. ISSN 1337 7094.
[22] OSTERTAG Oskar – OSTERTAGOVÁ Eva – FRANKOVSKÝ Peter: Metóda Photostress a matematická štatistika pri predikcii napätosti konštrukcií. Strojárstvo. Vol. 18 (2014), No. 7-8, p. 80-82. ISSN 1335 2938.
[23] PLAVKA Ján: The weak robustness of interval matrices in max-plus algebra. Discrete Applied Mathematics. Vol. 173 (2014), p. 92-101. ISSN 0166-218X.
[24] PRIBIŠ Ján: Mathematical modeling phase transition in solids. Mathematical Modelling and Geometry. Vol. 2, no. 2 (2014), p. 37-45. ISSN 2311-1275.
[25] PRIBIŠ Ján: Mathematical Modeling of Track Formation in Superconductor in Cylindrical Coordinates. Mathematical Modelling and Geometry. Vol. 2, no. 3 (2014), p. 1-10. ISSN 2311-1275.

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	1	1	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. Branislav Sobota, PhD.
doc. Ing. Milan Šujanský, CSc.
doc. Ing. Martin Tomášek, PhD.

Assistant Professors:

Ing. Norbert Ádám, PhD.
Ing. Anton Baláž, PhD.
Ing. Michaela Bačíková, 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. Emília Pietriková, 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, Jozef Šefčík, Ing. Mária Halászová, Helena Švarcová

Ph.D. Students:
Internal form:

Ing. Michaela Bačíková
Ing. Martina Benčková
Ing. Dávid Cymbalák
Ing. Marek Čajkovský
Ing. Marek Čopjak
Ing. Emília Demeterová
Ing. Pavol Drienik
Ing. Zuzana Dudláková
Ing. Michal Ennert
Ing. Peter Fanfara
Ing. Martin Grekšo
Ing. Ivan Halupka
Ing. Miroslav Hartinger
Ing. Ján Hurtuk
Ing. Peter Ivančák
Ing. Ladislav Jacho
Ing. Ján Juhár
Ing. Ondrej Kainz
Ing. Michal Kovalčík
Ing. Dominik Lakatoš
Ing. Jakub Livovský
Ing. Jaroslav Lámer
Ing. Pavol Macko
Ing. Tawfik Mudarri
Ing. Milan Nosáľ
Ing. Adrián Pekár
Ing. Emília Pietriková
Ing. Jana Petrillová
Ing. Michal Sičák
Ing. Milan Spišiak
Ing. Matúš Sulír
Ing. Veronika Szabóová
Ing. Jana Šťastná
Ing. Lukáš Štefanský
Ing. Martin Varga
Ing. Roman Vápeník

External form:

Ing. Martin Droppa
Ing. Marek Dufala
Ing. Dušan Janovský
Ing. Matej Kostroš
Ing. Milan Krendželák
Ing. Marcel Mojžiš
Ing. Róbert Peťka
Ing. Ján Polák
Ing. Peter Prazňák
Ing. Ján Radušovský
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, Slodičák
Assembler	2nd	2/2	Šimoňák
Principles of Computer Engineering	2nd	2/2	Vokorokos, Madoš
Programming	2nd	2/2	Biňas, Paralič, Tomášek
Object-Oriented Programming	3rd	2/2	Tomášek
Formal Languages and Compilers	3rd	3/2	Kollár
Theoretical Foundations of Informatics	3rd	2/2	Hudák, Tomášek
Data Structures and Algorithms	3rd	2/2	Šimoňák
OS Linux Administration I.	3rd	0/2	Biňas
Database Systems	4th	2/2	Telepovská
Operating Systems	4th	2/2	Genči
Computer Networks	4th	2/2	Jakab
Programming in .NET Environment	4th	2/2	Porubän
Java Technologies	4th	2/2	Porubän
Security in Computer Systems	4th	2/2	Vokorokos, Baláž
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
Internet Security	6th	2/2	Vokorokos, Baláž
Technologies of IS Development I.	6th	2/2	Havlice

4.2 Graduate study (Ing.)

Subject	Semester	Lectures / exercises (hours per week)	Name of Lecturer
Compilers Design	1th	3/2	Havlice
Composition of Computers	1th	3/2	Vokorokos, Chovancová
Theoretical Informatics	1th	3/2	Hudák
Type Theory	1th	2/2	Novitzká
Database Administration	1th	2/2	Telepovská
Modeling and Simulation	1th	2/2	Šujanský
Design of Digital Systems	1th	1/3	Bača
Advanced Database Technologies	1th	2/2	Genči
Web Technologies	1th	2/2	Porubän
Technologies of IS Development II	1th	0/3	Telepovská
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	Szabó
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:

- **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.
- **Comprehensive Processing of Contemporary Slovak Language**, Research Grant Agency VEGA No. 1/0255/12, duration: 2012–2015, TUKE coordinator: doc. Ing. Ján Genči, PhD.
- **University Science Par TECHNICOM for Innovation Application Supported by Knowledge Technolgy**, Research & development operational programme funded by the ERDF. No. 26220220182, duration 2013-2015, Faculty coordinator: doc. Ing. Frantisek Jakab, PhD.
- **Competency centre for knowledge technologies applied in innovation of production systems in industry and services,** Research & development operational programme funded by the ERDF No. 26220220155. duration 2011-2014, Activity coordinator: doc. Ing. Frantisek Jakab, PhD.
- **National project The Slovak Infrastructure for High Performance Computing,** Research and Development Operational Programme funded by the ERDF No. 26210120002, duration: 2010-2014, TUKE coordinator: doc. Ing. Milan Šujanský, CSc.
- **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.)
- **Integration of the Basic Theories of Software Engineering into Courses for Informatics Master Study Programmes at Technical Universities – Proposal and Implementation**, Cultural and Educational Grant Agency KEGA No. 019TUKE-4/2014, duration: 2013-2015, coordinator: doc. Ing. Jaroslav Porubän, PhD.
- **Application of Virtual Reality Technologies in Teaching Formal Methods**, Cultural and Educational Grant Agency KEGA No. 050TUKE-4/2012, duration: 2012-2014, coordinator: Ing. Štefan Korečko, 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.

- **Application of Virtual-Reality Technologies for Handicapped Persons Education,** 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: Ing. Csaba Szabó, PhD.
- **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, 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. Stanislav Racek, CSc., University of West Bohemia in Pilsen,

Czech Republic
- prof. Ing. Jiří Šafařík, CSc., University of West Bohemia in Pilsen, Czech Republic
- prof. Ing. Róbert Lórencz, CSc., Czech Technical University in Prague, Czech Republic
- doc. Ing. Jaroslav Zendulka, CSc., Brno University of Technology, Czech Republic
- doc. Ing. Marcel Harakaľ, PhD., 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. Jaroslav Zendulka, CSc., Brno University of Technology, Czech Republic
- doc. RNDr. Per 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
- M. Sc. Dejan Mitrovic, University of Novi Sad, Serbia
- PD Mag. Dipl.-Ing. Dr. Michael Sontag, Johanes Kepler University (JKU) Linz, Austria
- Assis. Pro. PhD. Stanka Hadzhikoleva, Paisii Plovdiv University, Bulgaria
- Viktória Szóg, Eötvös Loránd University, Budapest, Hungary
- Ph. D. Marjan Hericko, University of Maribor, Slovenia
- Maria Filizova, Paisii Hilendarski Plovdiv University, Bulgaria

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
- University of Hradec Králové, Czech Republic
- Information Systems Institute, Technical University of Vienna, Austria
- Johannes Kepler University, Linz, Austria
- Alpen-Adria University, Klagenfurt, Austria

- University Koblenz-Landau, Germany
- University of Alcalá, Alcalá de Henares (Madrid), Spain
- Eötvös Loránd University, Budapest, Hungary
- Budapest University of Technology and Economics, Budapest, Hungary
- University of Szeged, Hungary
- Technical University of Gdansk, Poland
- Warsaw University of Technology, Warsaw, Poland
- Czestochova University of Technology, 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
- University of Rome, 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
- Institute For Language and Speech Processing, Athena Research Center, Athens, Greece
- Digital EUROPE, EUROPEAN SCHOOLNET, Belgium, Brussels
- Cisco Technical Assistance Center Krakow, Poland
- Erasmus Centre for Entrepreneurship, Rotterdam, Netherlands
- Science and Engineering Institute, Dubai, United Arab Emirates
- BAYLOGI, Miskolc, Hungary

6.2.1. Visits of Staff Members to Foreign Institutions

- Ing. Csaba Szabó, PhD., ICAI 2014, Eger, Hungary
- Ing. Peter Feciľak, PhD., Cisco Live 2014, Milano, Italy
- Ing. Miroslav Michalko, PhD., iTEC Technical Meeting, Budapest, Hungary
- Ing. William Steingartner, PhD., University of Novi Sad, Serbia (CEEPUS)
- doc. Ing Ján Genči, PhD., PARSEME meeting, Athens, Greece
- doc. Ing. František Jakab, PhD., Steering committee eSkills, Brussel, Belgium
- Ign. Peter Feciľak, PhD., CISCO TAC, Krakow, Poland
- Ing. Mária Halászová, H2020 Call ICT2-2014, Brussels, Belgium
- Ing. Miroslav Michalko, H2020 Call ICT2-2014, Brussels, Belgium
- Ing. Peter Feciľak, PhD., CISCO, ASC meeting, Prague, Czech Republic

- Ing. Katarína Feciľaková, PhD., CISCO, ASC meeting, Prague, Czech Republic
- Ing. Michaela Bačíková, PhD., International Conference POSTER 2014, Prague, Czech Republic
- Ing. Emília Pietriková, PhD., International Conference POSTER 2014, Prague, Czech Republic
- Ing. Ondrej Kainz, International Conference POSTER 2014, Prague, Czech Republic
- Ing. Dávid Cymbalák, International Conference POSTER 2014, Prague, Czech Republic
- doc. Ing. Jaroslav Porubän, PhD., SLATE 2014: Symposium on Languages, Applications and Technologies, Braganca, Portugal
- Ing. Csaba Szabó, PhD., MaCS 2014, Cluj-Napoca, Romania
- Ing. Martin Varga, MaCS 20141, Cluj-Napoca, Romania
- doc. Ing. Ján Genči, PhD., TEMPUS INARM project meeting, Roma, Italy
- prof. Ing. Ján Kollár, CSc., KES IDT 2014, Chania, Greece
- Ing. Miroslav Michalko, PhD., ITEC Conference, Belgium, Brussels
- doc. Ing. Branislav Sobota, PhD., HUSK – project meeting, Miskolc, Hungary
- Ing. Štefan Korečkom, PhD., HUSK – project meeting, Miskolc, Hungary
- Ing. František Hrozek, PhD., HUSK – project meeting, Miskolc, Hungary
- Ing. Martin Varga, HUSK – project meeting, Miskolc, Hungary
- Ing. Ladislav Jacho, HUSK – project meeting, Miskolc, Hungary
- Ing. Dávid Cymbalák, ICOSE 2014, Dubai, United Arab Emirates
- Ing. Ondrej Kainz, ICOSE 2014, Dubai, United Arab Emirates
- Ing. Ondrej Kainz, ICCST 2014, Roma, Italy
- doc. Ing. Branislav Sobota, PhD., Brno University of Technology, Czech Republic
- Ing. William Steingartner, PhD., Brno University of Technology, Czech Republic
- doc. Ing. Jaroslav Porubän, PhD., ICNAAM 2014, Rhodos, Greece
- prof. Ing. Ján Kollár, CSc., ICNAAM 2014, Rhodos, Greece
- Ing. Csaba Szabó, PhD., APVV project meeting, University of Klagenfurt, Austria
- Ing. Csaba Szabó, PhD., ITRO 2014, Idvor, Serbia
- Ing. William Steingartner, PhD., MMFT 2014, Malutkie k. Radomska, Poland
- Ing. Dávid Cymbalák, Telecom Innovation Contest, Krakow, Poland
- Ing. Jaroslav Lámer, Telecom Innovation Contest, Krakow, Poland
- Ing. Ondrej Kainz, Telecom Innovation Contest, Krakow, Poland
- doc. Ing. František Jakab, PhD., V4 Startups in the Netherlands, Rotterdam Netherlands
- Ing. Jaroslav Lámer, V4 Startups in the Netherlands, Rotterdam Netherlands
- Ing. Dávid Cymbalák, V4 Startups in the Netherlands, Rotterdam Netherlands
- Ing. Ondrej Kainz, V4 Startups in the Netherlands, Rotterdam Netherlands
- doc. Ing. Ján Genči, PhD., TEMPUS Summer Academy, Koblenz, Germany
- Ing. Miroslav Michalko, PhD., IKT seminar meeting, VŠB-Technical university of Ostrava, Ostrava, Czech Republic
- Ing. Štean Korečko, PhD., SEFM 2014, Grenoble, France

- Ing. Ondrej Kainz, V4 Startups in the Netherlands, Rotterdam Netherlands
- doc. Ing. Jaroslav Porubän, PhD., FedCSIS, MDASD, Warsaw University of Technology, Warsaw, Poland
- doc. Ing. Jaroslav Porubän, PhD., University of Klagenfurt, Austria
- Ing. Veronika Szabóová, University of Klagenfurt, Austria
- doc. Ing. Ján Genči, PhD., COST Action 1207 PARSEME, Frankfurt, Germany
- Ing. Miroslav Michalko, PhD., Budapest Uniersity of Technology and Economics, Budapest, Hungary
- Ign. William Steingartner, PhD., CECIIS 2014, Varaždin, Croatia
- Ing. František Hrozek, PhD., AMLTA 2014, Cairo, Egypt
- doc. Ing. Branislav Sobota, PhD., CSCC 2014, Thira, Santoriny, Greece
- Ing. Štean Korečko, PhD., CSCC 2014, Thira, Santoriny, Greece
- Doc. Ing. Ján Genči, PhD., eLearning Conference and Competition, Hradec Králové, Czech Republic
- Ing. Peter Feciľak, PhD., ASSESSMENT DAY, Krakov, Poland
- prof. RNDr. Valerie Novitzká, PhD., Brno University of Technology, Czech Republic
- doc. Ing. Milan Šujanský, CSc., Brno University of Technology, Czech Republic
- Ing. Štefan Korečko, PhD., 2014 IEEE 15th International Symposium on Computational Intelligence and Informatics (CINTI), Budapest, Hungary

6.3 Membership in International Organizations and Societies

- Bača, J., Genči, J., Havlice, Z., Hudák, Š., Kollár, J., Korečko, Š., Novitzká, V., Porubän, J., Sobota, B., 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
- Šujanský, M.: Member of CSSIM/Scientific Association

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

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

6.5 Contracts, International Scientific Projects

- Cooperation with the Cisco company (www.cnl.sk)
- Cooperation with the Siemens PSE company
- Cooperation with the Sybase company
- Cooperation with the T- Systems company
- Cooperation with the Microsoft company
- Cooperation with the IBM company

7 THESES

Thesis type	Bachelor	Master	Doctoral
Number	189	162	6

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences, Seminars

- SAMI 2014 – IEEE 12th International Symposium on Applied Machine Intelligence and Informatics, 23–25th January, 2014 in Herľany, Slovakia (DCI co-operation)
- ICETA 2014 – IEEE 12th International Conference on Emerging eLearning Technologies and Applications, December 4–5th, 2014, The High Tatras, Slovakia (DCI co-operation)

8.2 Study tours

- Ing. Ivan Halupka, University of Ljubljana, Faculty of Computer and Information Science, Slovenia (CEEPUS)
- Ing. Martina Benčková, Eötvös Loránd University, Faculty of Informatics, Department of Programming Languages and Compilers, Hungary (CEEPUS)
- Ing. Marek Čopjak, Paisii Hilendarski Plovdiv University, Faculty of Mathematics and Informatics, Bulgaria (CEEPUS)
- Ing. Zuzana Dudláková, Paisii Hilendarski Plovdiv University, Faculty of Mathematics and Informatics, Bulgaria (CEEPUS)
- Ing. Michal Ennert, Paisii Hilendarski Plovdiv University, Faculty of Mathematics and Informatics, Bulgaria (CEEPUS)

- Ing. Veronika Szabóová, Aplen-Adria Universität Klagenfurt, Austria (APVV)

9 PUBLICATIONS

9.1 Books

[1] BALÁŽ, Anton: Computer System Security – Košice: TU - 2014. - 103 s - ISBN 978-80-553-1778-6.
[2] KARDOŠ, Slavomír - KAINZ, Ondrej: Virtual electrotechnologic factory – multimedia study texts - Košice: TU - 2014. - 120 s - ISBN 978-80-553-1824-0.
[3] SOBOTA, Branislav - PARALIČ, Marek - KOREČKO, Štefan - STEINGARTNER, William: Úvod do programovania a sietí - návody na cvičenia - Košice: TU FEI - 2014. - 160 s - ISBN 978-80-553-1661-1.
[4] SOBOTA, Branislav - PARALIČ, Marek - KOREČKO, Štefan - STEINGARTNER, William: Úvod do programovania a sietí – 2nd ed. - Košice: Elfa - 2014. - 408 s - ISBN 978-80-8086-238-1

9.2 Journals

[1] ÁDÁM, Norbert: Generating Grid DTM Based on Altitude Point System - 2014. In: International Journal of Computer and Information Technology. Vol. 3, no. 2 (2014), p. 188-192. - ISSN 2279-0764
[2] ÁDÁM, Norbert: A Speech Analysis System Based on Vector Quantization Using the LBG Algorithm and Self-Organizing Maps - 2014. In: International Journal of Computer and Information Technology (IJCIT). Vol. 3, no. 5 (2014), p. 952-957. - ISSN 2279-0764
[3] ÁDÁM, Norbert - MADOŠ, Branislav - ČAJKOVSKÝ, Marek - HURTUK, Ján - TOMČÁK, Tomáš: Methods of the Data Mining and Machine Learning in Computer Security - 2014. In: Acta Electrotechnica et Informatica. Roč. 14, č. 2 (2014), s. 46-50. - ISSN 1335-8243
[4] BAČÍKOVÁ, Michaela - PORUBÄN, Jaroslav: DSL-driven generation of Graphical User Interfaces - 2014. In: Central European Journal of Computer Science. Vol. 4, no. 4 (2014), p. 204-221. - ISSN 2081-9935
[5] CYMBALÁK, Dávid - MICHALKO, Miroslav - JAKAB, František: Model pre sledovanie objektu s prediktívnym riadením zdrojov streamingu v multikamerových systémoch - 2014. In: Acta Informatica Pragensia. Vol. 3, no. 1 (2014), p. 89-103. - ISSN 1805-4951
[6] GRYS, S. - VOKOROKOS, Liberios - BOROWIK, L.: Size determination of subsurface defect by active thermography – Simulation research - 2014. In: Infrared Physics & Technology. Vol. 62 (2014), p. 147-153. - ISSN 1350-4495
[7] HOVANEC, Michal - PAČAIOVÁ, Hana - HROZEK, František - VARGA, Martin: Proactive Ergonomics Based on Digitalization Using 3D Scanning and Workplace Modeling in Texnomatix Jack with Augmented Reality - 2014. In: Our Sea, International Journal of Maritime Science and Technology. Vol. 61, no. 1-2 (2014), p. 22-26. - ISSN 0469-6255
[8] KAINZ, Ondrej - JAKAB, František: Approach to Hand Tracking and Gesture Recognition Based on Depth-Sensing Cameras and EMG Monitoring - 2014. In: Acta Informatica Pragensia. Vol. 3, no. 1 (2014), p. 104-112. - ISSN 1805-4951.
[9] KAINZ, Ondrej - CYMBALÁK, Dávid - JAKAB, František: Adaptive Web-Based System for Examination with Cheating Prevention Mechanism -

2014. In: Lecture Notes on Software Engineering. Vol. 3, no. 2 (2014), p. 90-94. - ISSN 2301-3559

[10] KORČÁK, Michal - LÁMER, Jaroslav - JAKAB, František: Intrusion PreventionIntrusion Detection System (IPSIDS) for Wifi Networks - 2014. In: International Journal of Computer Networks & Communications (IJCNC). Vol. 6, no. 4 (2014), p. 77-89. - ISSN 0974-9322

[11] KOREČKO, Štefan - SOBOTA, Branislav: Petri nets to B-language transformation in software development - 2014. In: Acta Polytechnica Hungarica. Vol. 11, no. 6 (2014), p. 187-206. - ISSN 1785-8860

[12] KOVALČÍK, Michal - FECIĽAK, Peter - JAKAB, František - DUDIAK, Jozef - KOLCUN, Michal: Cost-Effective Smart Metering System for the Power Consumption Analysis of Household - 2014. In: International Journal of Advanced Computer Science and Applications (IJACSA). Vol. 5, no. 8 (2014), p. 135-144. - ISSN 2156-5570

[13] MADOŠ, Branislav: Architecture of Multi-Core System-on-the-Chip with Data Flow Computation Control - 2014. In: International Journal of Computer and Information Technology (IJCIT). Vol. 3, no. 5 (2014), p. 958-965. - ISSN 2279-0764

[14] MIHÁLYI, Daniel - NOVITZKÁ, Valerie: Towards the Knowledge in Coalgebraic model of IDS - 2014. In: Computing and Informatics. Roč. 33, č. 1 (2014), s. 61-78. - ISSN 1335-9150

[15] ŠIMOŇÁK, Slavomír: Using algorithm visualizations in computer science education - 2014. In: Central European Journal of Computer Science. Vol. 4, no. 3 (2014), p. 183-190. - ISSN 2081-9935

[16] ŠIMOŇÁK, Slavomír - BENEJ, Martin: Visualizing Algorithms and Data Structures Using the Algomaster Platform - 2014. In: Journal of Information, Control and Management Systems. Roč. 12, č. 2 (2014), s. 189-201. - ISSN 1336-1716

[17] SULÍR, Matúš - ŠIMOŇÁK, Slavomír: A Terse String-Embedded Language for Tree Searching and Replacing - 2014. In: Acta Electrotechnica et Informatica. Roč. 14, č. 2 (2014), s. 28-35. - ISSN 1338-3957

[18] TELEPOVSKÁ, Henrieta: Support of Database Skills Testing - 2014. In: International Journal for Innovation Education and Research (IJIER). Vol. 2, no. 5 (2014), p. 67-75.

[19] TOMÁŠEK, Martin: Security Properties Verification of Security Protocols - 2014. In: Acta Electrotechnica et Informatica. Roč. 14, č. 2 (2014), s. 15-18. - ISSN 1338-3957

[20] TOMÁŠEK, Martin: Reconfiguring the Structure of Component-Based Systems - 2014. In: Acta Electrotechnica et Informatica. Roč. 14, č. 2 (2014), s. 41-45. - ISSN 1338-3957

[21] VARGA, Martin - SOBOTA, Branislav - HROZEK, František - KOREČKO, Štefan: Augmented Reality with Interactive Interfaces - 2014. In: Studia Universitatis Babes-Bolyai: Series Informatica. Vol. 59, no. 2 (2014), p. 21-33. - ISSN 2065-9601

[22] VIRGALA, Ivan - GMITERKO, Alexander - KELEMEN, Michal - MIKOVÁ, Ľubica - VARGA, Martin: Inverse Kinematic Model of Humanoid Robot Hand - 2014. In: Applied Mechanics and Materials. Vol. 611 (2014), p. 75-82. - ISSN 1660-9336

[23] VOKOROKOS, Liberios - MADOŠ, Branislav - RUSKA, Viktor: FPGA Hardware Acceleration for Visualization with Use of the Ray Tracing Algorithm - 2014. In: Acta Electrotechnica et Informatica. Roč. 14, č. 2 (2014), s. 3-7. - ISSN 1335-8243

[24] VOKOROKOS, Liberios - MADOŠ, Branislav - ČAJKOVSKÝ, Marek - HURTUK, Ján - MORAVČÍK, Kristián: Analysis of the Software Behaviour Using Forensic Methods for Computer Security Purposes - 2014. In: Acta Electrotechnica et Informatica. Roč. 14, č. 2 (2014), s. 36-40. - ISSN 1335-8243

[25] VOKOROKOS, Liberios - ÁDÁM, Norbert - MADOŠ, Branislav: Non-Invasive Brain Imaging Technique for Playing Chess with Brain-Computer Interface - 2014. In: International Journal of Computer and Information Technology (IJCIT). Vol. 3, no. 5 (2014), p. 877-882. - ISSN 2279-0764

9.3 Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	29	45	62

DEPARTMENT OF TECHNOLOGIES IN ELECTRONICS

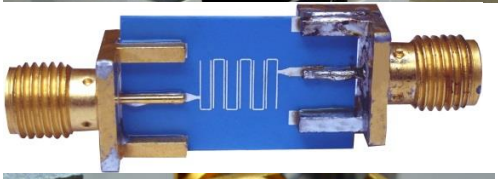
http://www.tuke.sk/fei-kte/
Tel./Fax: +421 55 602 3195

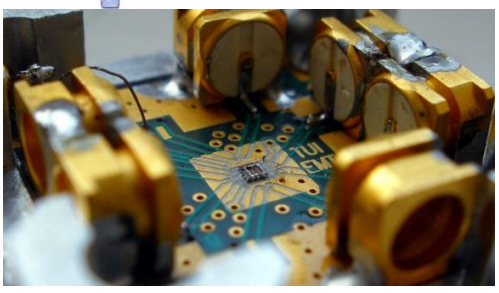
Head of Department
prof. Ing. Alena Pietriková, CSc.
E-mail: alena.pietrikova@tuke.sk

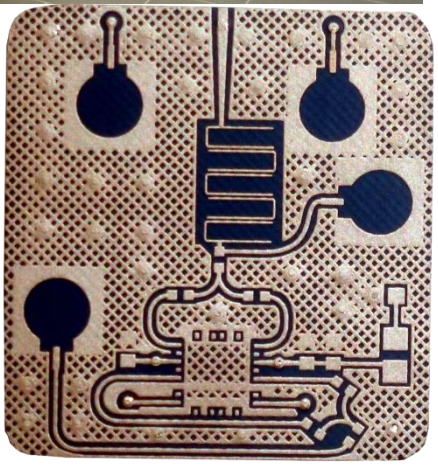
1 DEPARTMENT'S PROFILE

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 4 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. Kornel Ruman Ing. Tibor Rovenský Ing. Peter Lukács Ing. Kornel Ruman Ing. Tomáš Girašek Ing. Peter Balog

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, Kardoš, Ďurišin, Vehec, Cabúk
Production Proceses in Electronics	3rd	2/3	Ďurišin, Cabúk
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	2/3	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
Production Processes in Electronics	1st	2/3	Slosarčík
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)
Electrotechnologies and Materials	1st	0/2
Scientific Research I.	1st	0/8
Analyse Methods of Electronic Materials and Structures	2nd	0/2
Scientific Research II.	3rd	0/16
Subject of the Branch	3rd	0/2
Scientific Research III.	5th	0/16
Scientific Research IV.	6th	0/16
Scientific research V.	7th	0/16
PhD Project	3rd	2
PhD Thesis	8th	9

4.5 PhD. Students at the Branch of Electrotechnology and Materials

Name of PhD student	Thesis	Year of study/form	Supervisor
Balog, P.	System for Movement of Paraplegics	1 / internal	Slosarčík
Girašek, T.	Joints in electronics	1 / internal	Pietriková
Lukács, P.	Layers Based on Silver Nanoparticles Realized by Inkjet Printing Technology	2 / internal	Pietriková
Rovenský, T.	Analyse of HF component´s properties from the point of view of various material´s and technologie´s application	3 / internal	Pietriková

Ruman, K.	Contribution to Analyse of Microstrip Filtres for UWB Sensor Systems based on LTCC	4 / internal	Pietriková
Demeter, D.	The Virtual Technology Laboratory for the e-learning Education of the Assembling Technologies in Electronics	defended in 2014	Banský

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 International Projects

- **Virtual and Practical Applications to Electronic Assembling Technology (VAPAEAT**). VAPAEAT/2013-1-TR1-LEO05-47531. Local coordinator: prof. Ing. Alena Pietriková, CSc. Duration: 2013 - 2015.

5.3 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.
- ***Electrical properties of soldered and bonded joints in microelectronics*** (Elektrické vlastnosti spájkovaných a kontaktovaných spojov v mikroelektronike). Project VEGA 1/0776/14. Coordinator: Ing. Juraj Ďurišin, PhD. Duration: 2014 - 2015.
- ***Implementation of new research trends into education in the area of progressive materials and intelligent technologies of auto electronics*** (Implementácia nových trendov výskumu do vzdelávania v oblasti progresívnych materiálov a inteligentných technológií autoelektroniky).

Project KEGA 002TUKE-4/2014. Coordinator doc. Alena Pietriková, CSc. Duration: 2014 - 2016..

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
- Sensor, s.r.o., Košice research, development
- Semikron, s.r.o., Vrbové research, development
- Michatek, k.s., Michalovce research, development

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

- Paul Svasta, Romania 26.06. – 28.06.2014
- Norocel Codreanu, Romania 26.06. – 28.06.2014
- Zsolt Illyefalvi-Vitez, Hungary 26.06. – 28.06.2014
- Oliver Krammer, Hungary 26.06. – 28.06.2014
- Nuh Naci Atay, Turkey 26.06. – 28.06.2014
- Edip Senyurek, Turkey 26.06. – 28.06.2014
- Gürhan Ustali, Turkey 26.06. – 28.06.2014
- Yusuf Ölmez, Turkey 26.06. – 28.06.2014
- Petr Bača, Ph.D., CZ 21.08. – 21.08.2014
- Jiří Starý, Ph.D., CZ 21.08. – 21.08.2014
- János Mizsei, Hungary 25.09. – 26.09.2014

- Atiila Bonyár, Hungary 25.09. – 26.09.2014
- Martin Kmec, Germany 25.09. – 26.09.2014
- Martin Kirchner, Germany 25.09. – 26.09.2014
- Aleksandar B Menićanin, Serbia 25.09. – 26.09.2014
- Djordjije Tripkovic, Serbia 25.09. – 26.09.2014
- Edita Hejátková, CZ 27.10. – 31.10.2014

6.2.2. Visits of Staff Members to Foreign Institutions

- Slosarčík, S., Poland (Rzeszow) 23.03. – 23.03.2014
- Pietriková, A., Germany (Dresden) 06.05. – 12.05.2014
- Ďurišin, J., Germany (Dresden) 06.05. – 11.05.2014
- Livovský, Ľ., Germany (Dresden) 06.05. – 12.05.2014
- Rovenský, T., Germany (Dresden) 06.05. – 12.05.2014
- Kardoš, S., Germany (Dresden) 06.05. – 12.05.2014
- Ruman, K., Germany (Dresden) 06.05. – 12.05.2014
- Pietriková, A., CZ (Harrachov) 27.05. – 31.05.2014
- Livovský, Ľ., CZ (Harrachov) 27.05. – 31.05.2014
- Vehec, I., CZ (Harrachov) 27.05. – 31.05.2014
- Slosarčík, S., Poland (Rzeszow) 03.10. – 03.10.2014
- Lukács, P., Poland (Rzeszow) 08.10. – 10.10.2014
- Pietriková, A., Poland (Czarna) 21.10. – 24.10.2014
- Pietriková, A., CZ (Brno) 16.12. – 16.12.2014
- Banský, J., CZ (Brno) 15.12. – 17.12.2014

6.3 Membership in International Organizations and Societies

- Banský, J.: Honorary Consul of Federal Republic 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.
- Pietriková, A.: Member of the International Steering Committee for IMAPS Poland Conference.
- 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	12	18	1

8 OTHER ACTIVITIES

8.1 Symposia, Workshops, Conferences

- EUROTRAINING: "Nanotechnology for Electronics". EuroTraining is the part of the EC initiated Europractice service, which aims to stimulate the wider exploitation of state-of-the-art micro/nano electronics and microsystem technologies by the European industry and academia. Course Chair: prof. Ing. Alena Pietrikova, CSc. 25-26 Sept. 2014, Kosice, Slovakia, Technical University of Kosice, Department of Technologies in Electronics.

9 PUBLICATIONS

9.1 Monographs

[1] SLOSARČÍK, S. - KARDOŠ, S. - JURČIŠIN, M.: Výrobné procesy v elektronike 2. 1. vyd., Košice, Vienala 2014. 125 p. ISBN 978-80-8126-096-4

9.2 Textbooks

[1] KARDOŠ, Slavomír - JURČIŠIN, Michal: Výrobné procesy v elektronike 2 - návody na cvičenia. 1. Vyd., Košice, TU 2014. 45 p. ISBN 978-80-553-1823-3

[2] KARDOŠ, S. - KAINZ, O.: Virtual electrotechnologic factory – multimedia study texts. 1. Vyd., Košice, TU 2014. 120 p. ISBN 978-80-553-1824-0

9.3 Journals

[1] ĎURIŠIN, J. - BALGA, D. - SAKSL, K. - PIETRIKOVÁ, A.: Atomic structure of Cu-Zr-Ti metallic glasses subjected to high temperature annealing. In: Journal of Alloys and Compounds. Vol. 608 (2014), p. 241-246. ISSN 0925-8388

[2] GMITERKO, A. - DOVICA, M. - PALENČÁR, R. - KELEMEN, M. - SLOSARČÍK, S. - KELEMENOVÁ, T. - ŠOOŠ, L. - ĎURIŠ, S.: Suppression of the Nonrespirable Fraction of Dust When Measuring Its Mass Concentration in a Working Medium. In: Measurement Techniques. Vol. 56, no. 10 (2014), p. 1197-1201. ISSN 0543-1972

[3] KARDOŠ, S. - PIETRIKOVÁ, A.: Real-time diagnostika motorového oleja. In: Ai Magazine - automotive industry magazine. Roč. 7, č. 3 (2014), s. 88-89. - ISSN 1337-7612

[4] LIVOVSKÝ, Ľ: Možnosti použitia LIN zbernice v elektronike. In: DPS Elektronika od A do Z. Vol. 5, no. 3 (2014), p. 26-29. ISSN 1805-5044

[5] VEHEC, I.: Systém HYDE pre návrh hybridných obvodov a LTCC štruktúr. In: DPS : Elektronika od A do Z. Roč. 5, č. 5 (2014), s. 31-33. ISSN 1805-5044

[6] MIŽUŠ, Gabriel - VEHEC, Igor: Technológie pre HUD displeje v automobiloch. In: Posterus.sk. Roč. 7, č. 9 (2014), s. 1-9. ISSN 1338-0087

[7] HOVANEC, P. - ROVENSKÝ, T. - PIETRIKOVÁ, A.: Spoľahlivosť LTCC s mikropásikovou štruktúrou vo vysokofrekvenčnej oblasti. In: Posterus.sk. Roč. 7, č. 7 (2014), s. 1-6. ISSN 1338-0087

[8] DEMETER, D. - BANSKÝ, J.: Využitie virtuálnej reality v e-Learningu. In: Posterus.sk. Roč. 7, č. 1 (2014), s. 1-8. ISSN 1338-0087

[9] DEMETER, D. - BANSKÝ, J.: Emulátor konzoly sériového rozhrania pre vzdialené ovládanie laboratórnych zariadení. In: Posterus.sk. Roč. 7, č. 2 (2014), s. 1-6. ISSN 1338-0087

[10] DEMETER, D. - BANSKÝ, J.: Vzdialené monitorovanie teploty v statickej vypaľovacej peci. In: Posterus.sk. Roč. 7, č. 3 (2014), s. 1-6. - ISSN 1338-0087

[11] JURČIŠIN, M. - RUMAN, K. - KOVÁČ, O.: Bezkontaktný EKG monitorovací systém. In: Posterus.sk. Roč. 7, č. 7 (2014), s. 1-7. ISSN 1338-0087

[12] KALIŇÁK, S. - RUMAN, K. - PIETRIKOVÁ, A.: Konštrukcia mikropásikového dolnopriepustného filtra s medznou frekvenciou 2,5 GHz na báze DPS. In: Posterus. Roč. 7, č. 7 (2014), s. 1-8. ISSN 1338-0087

[13] GIRAŠEK, T. - CABÚK, P.: Možnosti teplotných simulácií elektronických štruktúr vo fáze CAD návrhu s využitím programu HyperLynx® Thermal. In: Posterus.sk. Roč. 7, č. 9 (2014), s. 1-6. ISSN 1338-0087

9.4 Patents

[1] SLOSARČÍK, S. - CABÚK, P. - DOVICA, M. - KALITA, W. - WEGLARSKI, M.: Chladiace kanáliky na rozhraní korundový substrát - 3D LTCC štruktúra Zverejnená prihláška vynálezu SK 38-2012 A3: Vestník ÚPV SR 122013. Banská Bystrica: ÚPV SR - 2013. - 5 s.

9.5 Other publications

Publication Type	Conferences		Other
	Abroad	Home	
Number	6	6	12

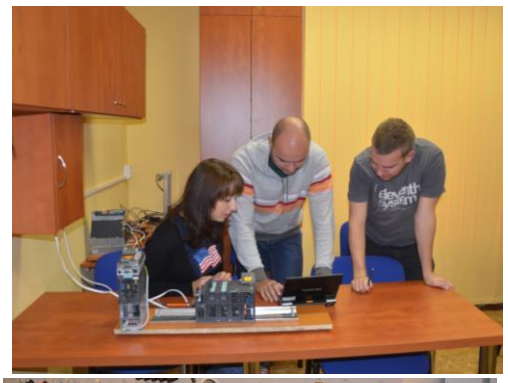
DEPARTMENT OF THEORETICAL AND INDUSTRIAL ELECTRICAL ENGINEERING

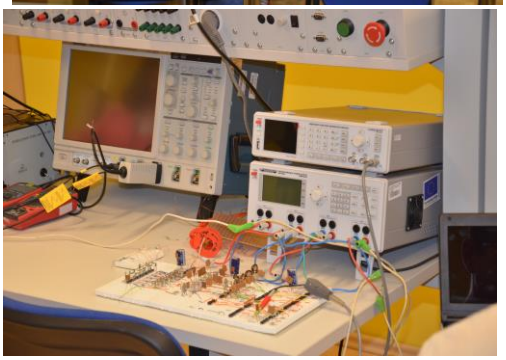
http:/ktpe.fei.tuke.sk
Tel./Fax: +421 55 602 2801

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. Ján Perduľak, PhD.
Technical staff:	Jozef Lenárt Danuša Topolčaniová
PhD. Students:	Ing. Matej Bereš 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	Hodulíková, 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	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	Kováčová
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, P.J.Šafárik University, Košice
- Department of Metals Science, TU Košice
- Faculty of Electrical Engineering and Information Technolgy, Slovak University of Technology, Bratislava
- Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava
- Department of Metal Physics, Institute of Experimental Physics, Slovak Academy of Sciences, Košice
- Department of Low Temperature Physics, 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 S2, a.s. - Unicorn Tornaľa
- Molex Slovakia, a.s.

- SPP, a.s.
- U.S. Steel Košice, s.r.o.
- Antik Telecom, Košice

6.2. International Co-operation

- The Czech Academy of Sciences, Prague, Czech Republic
- Czech Technical University in Prague, Czech Republic
- Institute of Molecular Physics, Polish Academy of Sciences, Poznan, Poland
- Institute of Physics, A.Mickiewicz University, Poznan, Poland
- Czestochowa University of Technology, Czestochowa, Poland
- Stefan cel Mare University, Suceava, Romania
- Silesian University of Technology, Gliwice, Poland
- University of Valencia, Spain
- University, Budapest, Hungary
- University of Florence, Italy
- University of Applied Sciences, Harz, Germany
- University of Miskolc, Hungary
- University of West Bohemia, Pilsen, Czech Republic
- Magna Steyr, Graz, Austria
- Kremenchuk Mykhailo Ostrohradskyi National University, Ukraine

6.3. Membership in International Organizations and Societies

- D. Kováč: Member of the team of evaluators of The Grant Agency of Czech Republic
- 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	17	9	2

8 OTHER ACTIVITIES

9 PUBLICATIONS

9.1. Journals

[1] MOLNÁR, J.: Proposal of access system based upon microcontroller. In: Electromechanical and energy saving systems, Vol. 22, no. 2 (2013), pp. 423-426, ISSN 2072-2052

[2] VINCE, T.: Object Weight Estimation for Teach-Robot Using Movement Time Tracking. In: Electromechanical and energy saving systems, Vol. 22, no. 2 (2013), pp. 419-422, ISSN 2072-2052

[3] TOMČÍKOVÁ, I.: Simulation of Circuits Containing Operational Amplifiers in MATLAB. In: Electromechanical and energy saving systems, Vol. 22, no. No. 2 (2013), pp. 348-350, ISSN 2072-2052

[4] VANSÁČ, M. - TOMČÍKOVÁ, I.: Sparse Tableau Analysis Used in MATLAB for Simulation of Electric Circuits. In: Electromechanical and energy saving systems, Vol. 7, no. 2, part 2 (2013), pp. 327-329, ISSN 2072-2052

[5] BAČKO, M. - KOVÁČ, D.: Heat flux distribution analysis and verification. In: Electromechanical and energy saving systems, No. 2 (2013), pp. 260-264, ISSN 2074-9937

[6] GUZAN, M.: Software Design for Calculation Multiple Valued Memory Boundary Surface. In: Electromechanical and energy saving systems, Vol. 22, no. 2 (2013), pp. 356-360, ISSN 2072-2052

[7] VINCE, T.: Manipulator Movement Speed Down Using For Object Weight Estimation. In: Studia i Materiały Informatyki Stosowanej, Vol. 5, no. 12 (2013), pp. 39-43, ISSN 1689-6300

[8] MOLNÁR, J.: Universal access system based on microcontroller. In: Studia i Materiały Informatyki Stosowanej, Vol. 5, no. 13 (2013), pp. 11-16, ISSN 1689-6300

[9] BUČKO, R.: Foxboard embedded system and recognition of isolated words for control of mechatronic system. In: Studia i Materiały Informatyki Stosowanej, Vol. 5, no. 13 (2013), pp. 17-24, ISSN 1689-6300

[10] DZIAK, J. - TOMČÍKOVÁ, I.: Comparison of methods for electric Circuits simulation. In: Elektromechanical and energy saving systems, No. 2 (2013), pp. 180-183, ISSN 2072-2052

[11] OCILKA, M. - KOVÁČ, D.: Circuit Topologies of High Frequency Resonant Inverters for Induction Heating Applications. In: Electromechanical and energy saving systems, No. 2 (2013), pp. 176-179, ISSN 2072-2052

[12] HODULÍKOVÁ, A.: Verifikácia výstupných parametrov elastomagnetického snímača tlakovej sily. In: ElectroScope, No. 1 (2014), pp. 1-8, ISSN 1802-4564

[13] BUČKO, R.: Recognition of imperatives by spectrograms. In: Posterus.sk. – 2013, Vol. 7, No. 9 (2014), pp. 1-6, ISSN 1338-0087

9.2. Textbooks

[14] VINCE, T. - BAČKO, M.: Windows Server – lectures, 5. part, 1st edition, TU Košice, 2014, 83 p., ISBN 978-80-553-1693-2

[1] KOVÁČOVÁ, I.: ZOSP - 2. part. 1st edition, TU Košice, 2014, 86 p., ISBN 978-80-553-1691-8

[2] KOVÁČOVÁ, I.: ZOSP - 3. part. 1st edition, TU Košice, 2014, 87 p., ISBN 978-80-553-1692-5

[3] KOVÁČOVÁ, I.: ZOSP - 4. part. 1st edition, TU Košice, 2014, 81 p., ISBN 978-80-553-1720-5

[4] ŠPALDONOVÁ, D.: Flow of electromagnetic field energy in electrical circuit. 1st editin, TU Košice, 2014, 70 p., ISBN 978-80-553-1724-3

[5] KOVÁČOVÁ, I.: Economical analyses and accounting – 1st part. 1st edition, TU Košice, 2014, 83 p., ISBN 978-80-553-1729-8

[6] KOVÁČOVÁ, I.: Economical analyses and accounting – 2nd part. 1st edition, TU Košice, 2014, 102 p., ISBN 978-80-553-1731-1

[7] KOVÁČ, D.: Applied electrical engineering. 1st edition, TU Košice, 2014, 158 p., ISBN 978-80-553-1741-0

[8] KOVÁČ, D.: Electrical engineering – selected chapters. 1st edition, TU Košice, 2014, 84 p., ISBN 978-80-553-1795-3.

[9] KOVÁČ, D.: Automated measurement systems. 1st edition, TU Košice, 2014, 78 p., ISBN 978-80-553-1794-6

[10] ŠPALDONOVÁ, D.: Numerical methods in electrical engineering – 1st part – Electromagnetic field. 1st edition, TU Košice, 2014, 74 p., ISBN 978-80-553-1784-7

9.4. Other publications

Publication Type	Confereces		Other
	Foreign	Home	
Number	10	4	55