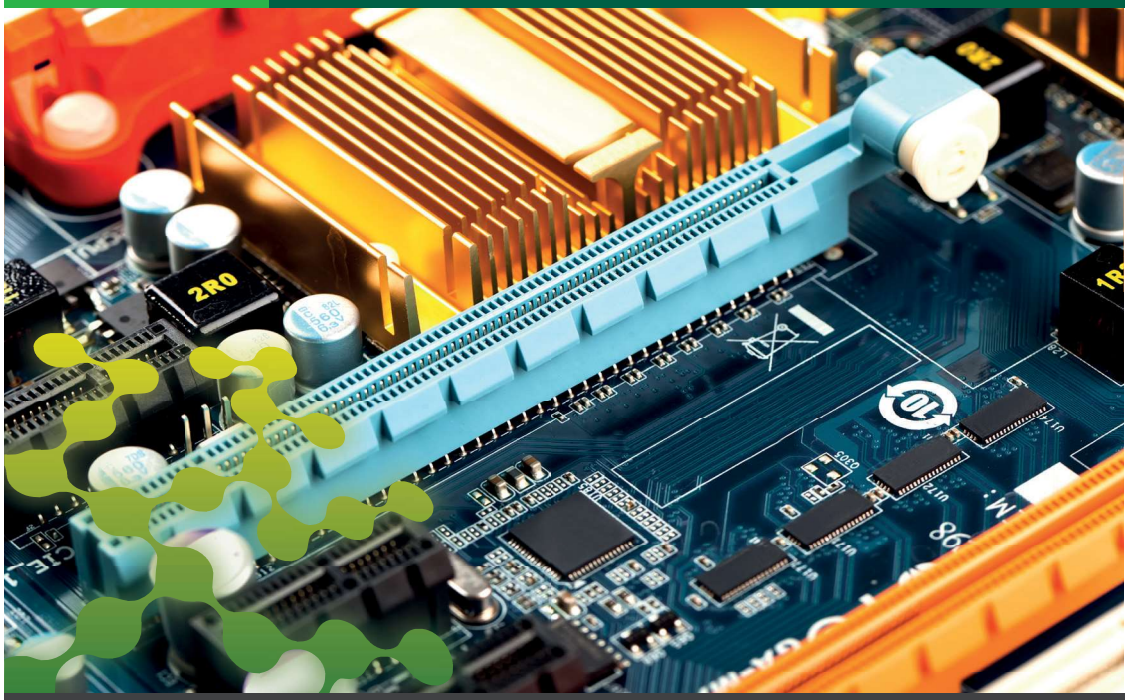
University of Žilina
FACULTY OF ELECTRICAL ENGINEERING



Annual Report 2015

Faculty of Electrical Engineering

Contents

Faculty

Departments


ŽILINSKÁ UNIVERZITA
UNIVERSITAS SOLNENSIS
ELEKTROTECHNICKÁ FAKULTA

Department of Control and Information Systems

General Information

The Department of Control and Information Systems (further referred to as the DCIS) guarantees four study programmes in the field of study Automation at the University of Žilina. Specifically, it is the study programme Automation in bachelor degree, study programme Process Control Engineering and Applied Telematics (not opened in 2015) in MSc. degree and study programme Process Control Engineering in PhD. degree.

Research activities of the DCIS are oriented in the field of information and safety-related system analysis and synthesis ranging from solution of theoretical models to practical projects of operation including implementation. There are many sectors of activities in which the DCIS has an exclusive position in the Slovak Republic, especially in expertise activities in the field of analysis and synthesis of railway interlocking systems.

The area of reliable and safe information transmission and processing in control of selected critical processes both in safety-related systems for all kinds of transport, complex technologies and in security systems for protection of humans and property provides dynamic incentive for all the staff. Realization of information services for operative control supported by automation and computer technology is applicable in decisive branches of the national economy.

The activities performed at the DCIS are integrated to the national and international co-operation with academic and industry sphere and realized through various forms - from research projects to exchanges of students and experts.

In 2015 the staff of the DCIS consisted of 17 pedagogical staff, 2 technicians and administrative support and 7 full-time postgraduate students. The pedagogical staff consisted of 4 professors, 1 guest professor, 3 associate professors, 7 senior lecturers with PhD. degree, and 2 research fellows with a PhD. degree.

Staff of the Department

Head of the Department:	**Juraj Spalek**
Vice-head of the Department:	Aleš Janota
Secretary:	Rastislav Pirník
Study Consultant:	Peter Nagy
Administrative Support:	Klára Berešíková
Technical Support:	Kamila Kršíková

Sections of the Department

Section of Automation and Signalling Systems

Head of the Section:	Karol Rástočný
Professors:	Aleš Janota, Karol Rástočný, Juraj Spalek, Pavel Přibyl
Associate Professors:	Juraj Ždánsky
Research Fellows:	Michal Gregor, Marián Hruboš
Senior Lecturers (with PhD):	Jozef Hrbček, Vojtech Šimák, Peter Nagy

Section of Communication and Information Systems

Head of the Section:	Mária Franeková
Professors:	Mária Franeková
Associate Professors:	Peter Vestenický, Peter Peniak
Senior Lecturers (with PhD):	Emília Bubeníková, Peter Holečko, Alžbeta Kanáliková, Rastislav Pirník

Postgraduate Students

Internal (full-time):	Jozef Balák (from September 2015), Dušan Nemec (from September 2015), Peter Kello (from September 2015), Ján Ďurech, Marián Hruboš (until August 2015), Tomáš Mravec, Igor Miklóšik
External (part-time):	Milan Slivka (until February 2015), Peter Lüley

Education

Courses in Bachelor and Master Degree Programmes

Bachelor Degree Programmes

Code	Title	Sem.	Hours/Week L-S-LE*
Courses at the Faculty of Electrical Engineering		*(L) lessons - (S) seminars - (LE) lab. exercises	
3B0102	Algorithmisation and programming	1	2-2-0
31443	Theory of automated control 1	3	3-1-1
31520	Bachelor project 1 A	5	0-0-5
31521	Communication security	5	3-1-1

Code	Title	Sem.	Hours/Week L-S-LE*
Courses at the Faculty of Electrical Engineering		*(L) lessons - (S) seminars - (LE) lab. exercises	
31536	Sensor technology	5	3-1-1
31541	Control systems reliability and safety	5	3-2-0
31612	Information systems	5	3-1-1
31521	Communication security	5	3-1-1
31209	Programming languages 1	2	2-2-0
31202	Information and communication networks	2	1-0-2
31437	Control systems	4	2-1-2
31606	Distributed control systems	4	3-1-1
31600	Bachelor work and its presentation	6	0-0-5
31620	Bachelor project 2 A	6	0-0-10
31623	Control systems programming	6	2-0-3
Courses at the Faculty of Security Engineering			
92347	Applied electronics	4	2-2-0
97347	Applied electronics (ext.)	4	18-0-0

Master Degree Programmes

Code	Title	Sem.	Hours/Week L-S-LE*
Courses at the Faculty of Electrical Engineering		*(L) lessons - (S) seminars - (LE) lab. exercises	
3I0101	Advanced methods of automated control	1	3-1-1
3I0102	Communication networks	1	3-1-1
3I0103	Signal processing theory in process control	1	2-1-1
3I7100	Control systems with Safety PLC	1	2-0-2
3I0106	Professional praxis (60 hours)	1	0-0-5
3I0115	Information systems security	1	3-0-2
32311	Expert systems	3	3-0-2
32316	Engineering project	3	0-0-5
32342	Visualisation of processes	3	2-0-2
32301	Interlocking systems applications	3	3-0-2
32329	Application of information systems in process control	3	3-1-1
32203	Secure system communication	2	3-1-1
32221	Object-oriented system development	2	2-0-2
32238	Artificial intelligence	2	2-0-2

Code	Title	Sem.	Hours/Week L-S-LE*
Courses at the Faculty of Electrical Engineering		*(L) lessons - (S) seminars - (LE) lab. exercises	
32243	Railway interlocking systems	2	3-1-1
32401	Wireless communication	4	4-1-2
32402	Diploma work and its presentation	4	0-2-0
32403	Diploma project	4	0-0-10
32411	Intelligent transportation systems	4	4-2-0
32420	Signal processing appliances	4	6-2-2

Research & Development

The scientific-research and development activities of department are focused on the area of control tasks algorithmisation, automation of control on process, operational and management levels, while utilising modern artificial intelligence approaches, and on the area of reliable, safe and secure communication and information processing in control of selected critical processes, above all the ones which imply the criterion of safety besides usual optimisation criteria. For reasons given there is a large number of research projects and cooperation projects with praxis and industry directed into the area of applied telematics and intelligent control and safety systems in transport and industry.

Laboratory of industrial processes control

The laboratory is oriented on development and simulation of algorithms for industrial processes control. The fundamentals of equipment are PCs, Siemens PLCs, extension modules for sensors and actuators connection, modules for remote inputs and outputs, visualisation panels, frequency converters and programming and configuration software. The interconnection of components and positions is realised by industrial networks. Actual models of industrial processes support the operation of this technology.

Laboratory of safety critical control systems

The laboratory is focused on development of safety related control systems. The fundamentals of technology equipment are PCs and Siemens PLCs with software support. Safety relevant communication between these programmable automata and cooperating devices is realised using safety relevant protocol PROFISAFE. The laboratory includes operational safety systems by Scheidt&Bachmann (BUES2000, ZBS2000).

Laboratory of traffic processes control

The laboratory is focused on the area of system identification, design and implementation of control algorithms for traffic and industrial systems. It is equipped with programmable logical automata by Bernecker + Rainer (B&R), safety PLCs, I/O modules, converters, traffic and industrial systems models and specialised computers with software; Automation Studio, Safe Designer, MATLAB, Simulink, Atmel Studio.

Laboratory Betamont

The laboratory aims on experimental works of PhD. students and final degree students of bachelor and master programmes. The focus is the area of development, customisation and realisation of experimental communication subsystem of Intelligent Transportation Systems (ITS). The development heads towards display appliances in the function of dynamic traffic signs, information panels and similar, primarily in the direction ITS infrastructure – driver. The development in laboratory also includes applications of distinct communication standards, primarily intended for the communication between vehicles, vehicles and infrastructure and between ITS infrastructure objects.

The laboratory is built within the following projects: „Centre of excellence for intelligent transportation systems and services I", „Centre of excellence for intelligent transportation systems and services II" and „New methods for measuring dynamic properties of motor vehicle and its interaction with roadway" (in cooperation with BETAMONT), which have been acquired in the operational programme Research and development by the EU Structural funds.

Laboratory of information technologies

The laboratory is oriented on information systems (databases, web technologies, virtualisation), computer networks (modelling, simulation, monitoring) and its safety (penetration testing, intrusion detection, firewalls, cryptanalysis, antimalware). The hardware equipment consists of Juniper IDP 75 – intrusion detection system; Fluke Networks Time Machine Express NTM-EX2 – network traffic monitoring device; wireless technologies. The software equipment consists of OPNET Modeler + Wireless Suite – network modelling, simulation and emulation environment; OPNET IT Guru Academic Edition – academic edition of environment; PRTG Paessler Network Monitor – network traffic monitoring tool.

Laboratory of experimental tasks

The laboratory is intended for experimental operations related to bachelor, master and research tasks including realisation of electronic devices.

Laboratory of automated control theory and signal processing

The laboratory is aimed on testing of theoretical fundamentals from the area of automated control theory (continuous and discrete systems), theory of information and signals and digital signal processing with custom programs and MATLAB with its specialised toolboxes (Simulink, Control Toolbox, Signal Processing Toolbox). It includes actual educational models by Humusoft CE 151 (ball on plane) with accessories (Extended Real Time Toolbox and Real Time Windows Target) and appliances by IMFsoft (motor rpm regulator, temperature regulation).

Joint laboratory of tunnel systems

The laboratory serves for experimental works for bachelor, master and PhD. students by providing a joint laboratory of tunnel systems (JLTS) as a competence centre, which systematically cooperates on optimisation of equipment and permanent increasing of safety of tunnel systems in Slovak and Czech Republic. The laboratory is built within the projects „Centre of excellence for intelligent transportation systems and services II" and "Transport telematics systems research centre", which have been

acquired in the operational programme Research and development by the EU Structural funds. A part of the laboratory will be a laboratory for research of methods for tunnel systems safety quantification.

Laboratory of modelling and simulation

The laboratory is aimed on education of specialised subjects requiring support of software tools. It is mainly intended for modelling of functional properties of control systems (UML; Rhapsody software tool), reliability and safety attributes (CARE software tool), control procedures and control structures (Matlab and LabView environments). In case of need, it is available for other applications – design and work with database systems, expert systems and so on. The laboratory includes technology utilised in objects protection (alarm systems, electric fire signalisation, camera surveillance systems). The laboratory can also be utilised for students' individual work during working out the semester projects and diploma theses.

Laboratory of computer networks and secure communications

The laboratory is focused on the area of LANs including wireless communication technologies. The technical equipment for computer networks includes basic PCs, structural cabling distributor, switches and routers 3com a Cisco, IEEE 802.11 wireless networks analyser. The technical equipment for industrial communication networks includes PROFIBUS and CAN protocol analysers.

Laboratory of microcomputers and robotics

The laboratory is intended for research and development in the area of robotics and microcomputers. It is equipped with computers and programmable interfaces for ATMEL microcomputers and ABB industrial robots. It is an exact copy of a real software controlling a production robot and enables realistic simulations with the use of real robotic programs and configuration files. The laboratory hosts the research of mobile sensor platform for robots navigation. The laboratory disposes of a CNC machine with B&R control system for the realization of bachelor and diploma works. The equipment also consists of E-puck robots with Webots environment enabling testing of robotic swarm algorithms.

Co-operation

Co-operation Partners in Slovakia

- ABB s.r.o., Banská Bystrica
- Aliga, s.r.o. Martin
- AP Signaling, s.r.o., Martin
- Avekol, s.r.o. Žilina
- AŽD Slovakia, Bratislava
- B+R automatizace, s.r.o. Nové Mesto nad Váhom
- Betamont, s.r.o. Zvolen
- ELTODO SK, s.r.o. Bratislava
- FEI – Technical university Košice
- IBM Slovensko, Bratislava
- InproElektrik, Bratislava
- PPA Inžiniering, s.r.o., Bratislava, branch Žilina
- REC Slovakia, s.r.o. Bratislava, development centre Žilina
- ROBOTEC, s.r.o., Sučany
- Scheidt & Bachmann Slovensko, s. r. o., Žilina
- Schneider Electric Slovakia, s.r.o. Bratislava

- Siemens, s.r.o. CEE RU-SK IC-MOL RA RA-COC
- Siemens, s.r.o. Automation technology and drives division (IA&DT)
- Siemens, s.r.o. RC-SK DF S-AREA, Žilina
- Slovak road society, Bratislava
- Soitron, s.r.o. Bratislava
- STU Bratislava
- TECHNISERV Bratislava
- TU Budapest, Hungary
- URAP-Automatizácia s.r.o
- Slovak association of electrotechnical industry (ZEP), Bratislava
- ŽSR, Bratislava

International Co-operation Partners

- ALTPRO, d.o.o., Zagreb, Croatia
- AŽD Praha s.r.o., Prague, Czech Republic
- Bernecker + Rainer Industrie Elektronik GmbH., Austria
- Budapest University of Technology and Economics, Hungary
- ELTODO EG, Prague, Czech Republic
- Fakulta dopravní ČVUT Prague, Czech Republic
- První Signální a.s., Ostrava, Czech Republic
- Transport telematics association (SDT – Sdružení pro dopravní telematiku), Prague, Czech Republic
- Signalbau, a. s., Přerov, Czech Republic
- TECHNISERV Bratislava, Czech Republic
- University of Patras, Greece
- Voestalpine SIGNALING Zeltweg GmbH, Austria

Visitors to the Department

Name	Institution	Length of stay
Mária Hristová	Todor Kableshkov Univ. of Transp., Sofia, Bulgaria	1 day
Hristo Hristov	Todor Kableshkov Univ. of Transp., Sofia, Bulgaria	1 day
Valentin Nikolov	Todor Kableshkov Univ. of Transp., Sofia, Bulgaria	1 day
Roman Danel	Technical university Ostrava, Czech Republic	1 day
Michal Řepka	Technical university Ostrava, Czech Republic	1 day

Visits to Foreign Institutions

Name	Institution	Length of stay
Juraj Spalek	Budapest Univ. of Techn. and Economics, Hungary	3 days
	Western Czech university Pilsen, Czech Republic	3 days
Mária Franeková	TU, Wroclaw, Poland	3 days
	Western Czech university Pilsen, Czech Republic	3 days
	TU Budapest, Hungary	3 days
	Todor Kableshkov Univ. of Transp., Sofia, Bulgaria	6 days
Karol Rástočný	TU Budapest, Hungary	3 days
	AŽD Olomouc, Czech Republic	1 day
	Western Czech university Pilsen, Czech Republic	4 days

	KPM Konzult, Brno, Czech Republic	2 days
	Transport telematics association, Prague, CZ	1 day
	VŠB Ostrava, Czech Republic	1 day
Aleš Janota	Western Czech university Pilsen, Czech Republic	2 days
	TU Budapest, Hungary	2 days
	TU Ostrava, Czech Republic	1 day
	TU Wroclaw, Poland	2 days
Michal Gregor	University of Patras, Greece	10 days
doc. Juraj Ždánsky	Polish Association of Transport Telematics, Poland	3 days
Rastislav Pirník	ČVUT, Faculty of Transport, Czech Republic	4 days
Jozef Hrbček	Western Czech university Pilsen, Czech Republic	3 days
	University of Porto, Portugal	7 days
Vojtech Šimák	University of Porto, Portugal	7 days
	OSN, Geneva, Croatia	2 days
Dušan Nemec	OSN, Geneva, Croatia	2 days

Contracts (Business Activities)

S-103-0009/15: Assessment of national requirements fulfilment for installation of ETCS mobile unit on electric unit (EPJ) type 671
(support for the elaboration of assessment report by the notified body ARSENAL RACE)
Customer: Thales Rail Signalling Solution, GmbH
Coordinator: Peter Nagy
Co-operators: Peter Holečko

S-103-0009/15: Assessment of safety of intervention into the braking system of electric double-deck unit series 671 during installation of Thales ETCS mobile unit
(support for the elaboration of assessment report by the notified body ARSENAL RACE)
Customer: Thales Rail Signalling Solution, GmbH
Coordinator: Peter Nagy
Co-operators: Peter Holečko

U01/2015: Ways of monitoring of ground traffic of transport objects in a specific environment of airport parking systems and a subsequent dissemination of this information towards general traffic information systems
Customer: TECHNISERV s.r.o
Coordinator: Rastislav Pirník
Co-operators: Marián Hruboš, Dušan Nemec

EF/XX/2015: Assessment of technical safety of relay connection of switch-point machine AH 950 and V block of AŽD 71 railway interlocking system
Customer: Voestalpine SIGNALING Zeltweg GmbH, Austria
Coordinator: Karol Rástočný
Co-operators: Peter Nagy, Juraj Ždánsky

P-103-0002/15: Overall assessment of Simis W SK – Point phase version 5.0, operational regulations V11.2.9
Customer: SIEMENS AG, Östereich, MO-MMF ML SEE
Coordinator: Karol Rástočný

EF/XX/2015: Overall assessment of Simis W SK – Point phase version 5.1, operational regulations V11.2.10
Customer: SIEMENS AG, Östereich, MO-MM-MMF ML SEE
Coordinator: Karol Rástočný

EF/XX/2015: Analyses related to GP JAZZ technical safety
Customer: AŽD Praha s. r. o., Czech Republic
Coordinator: Karol Rástočný

Other Activities

Conferences, Workshops, Symposiums Organized by the Department

- Organisation of Electrotechnical Olympics in cooperation with the Slovak association of electrotechnical industry
- Expert seminar "Intelligent Cities" at the 21st international trade fair ELOSYS, 16th October 2015, Trenčín, Milan Dado, dean of the FEE UNIZA. Organisers: Peter Holečko, Aleš Janota, Juraj Spalek

Specialised Lectures and Courses Organized by the Department

Distributed control system – practical perspective
Customer: Lecture for the students of Automation study programme (subject: Distributed control systems)
Lecturer: Peter Peniak, Continental Matador Truck Tires s.r.o., Púchov
Date: 26th March 2015

Cryptography and its practical utilisation
Customer: Lecture for the students of Automation study programme (subject: Communication security)
Lecturer: Martin Šuták, Aliga, s. r. o. Martin
Date: 8th December 2015

Common Safety Methods - CSM
Customer: Lecture for DCIS students and staff
Lecturer: Géza Tarnai, TU Budapest, Hungary
Date: 30th November 2015

A concept of modern railway interlocking systems by Siemens
Customer: Lecture for 2nd degree students of the Process control programme
Lecturer: Rastislav Kušpál, Siemens s.r.o., Žilina
Date: 30th November 2015

Invited Lectures/Papers

Modelling of failure effects within safety - related communications with safety code for railway applications
Lecturer: Mária Franeková
Where: Todor Kableshkov University of Transport, Sofia, Bulgaria
Date: 11th October 2015

Information and communication networks
Lecturer: Rastislav Pirník
Where: UNIZA, FCI
Date: 15th April 2015

Highway tunnels – basic description and equipment, requirements and comparison with town tunnels
Lecturer: Rastislav Pirník
Where: CTU, Faculty of transport, Czech Republic
Date: 29th April 2015

Tunnel operation, operational states – run I
Lecturer: Rastislav Pirník
Where: UNIZA – Road tunnels dispatcher course for NDS
Date: 06th November 2015

Tunnel operation, operational states – run II
Lecturer: Rastislav Pirník
Where: UNIZA – Road tunnels dispatcher course for NDS
Date: 13th November 2015

Securing train driving on Slovak railways
Lecturer: Karol Rástočný
Where: TU Budapest, Hungary
Date: 27th April 2015

Scientific-research activities of DCIS in the field of interlocking technology
Lecturer: Karol Rástočný
Where: International conference ŽOZT Vyhne,
Date: 27th April 2015

Membership in International Institutions/Committees

Juraj Spalek

Deputy chief editor of scientific journal Annals of Faculty Engineering Hunedoara – Journal of Engineering, ISSN: 1584-2665, ISSN: 1584-2673, indexed in Index Copernicus – Journal Master List

Member of Programme board - 15th International conference on Transport System Telematics – TST 2015, April 15-17, 2015, Wroclaw, Poland

Member of Scientific board Acta Technica Corviniensis – Bulletin of Engineering, e-ISSN: 2067-3809, Edited by Faculty of Engineering Hunedoara University Politehnica Timisoara, Romania

Member of international Scientific board Advanced Rail Technologies conference – ART 2015, November 18-19, 2015, Railway Research Institute jointly with Faculty of Transport of Warsaw University of Technology, Poland

Member of Programme board of international scientific journal Archives of Transport Systems Telematics, Polish Association of Transport Telematics, ISSN 1899-8208

Member of Scientific board in ICT section, Scientific conference of young researchers Transcom 2015, UNIZA, June 22- 24, 2015

Mária Franeková	Member of Programme board - 15th International conference on Transport System Telematics – TST 2015, April 15-17, 2015, Wroclaw, Poland
	Member of international Scientific board Advanced Rail Technologies conference – ART 2015, November 18-19, 2015, Railway Research Institute jointly with Faculty of Transport of Warsaw University of Technology, Poland
	Member of Editorial board of international scientific journal Archives of Transport System Telematics, Poland, ISSN 189-8208
	Member of Editorial board of international scientific journal Journal of Scientific and Applied research, Bulgaria, ISSN 1314-6289
	Member of Editorial board of international scientific journal for electrotechnics Elektrorevue, Czech Republic, ISSN 1213-1539
	Member of Editorial board of international scientific journal Advanced in Electrical and Electronic Engineering, Czech Republic, ISSN 1804-3119
Aleš Janota	Member of Scientific board - XIX. International conference Computer Aided Science, Industry and Transport TRANSCOMP 2015, Zakopane, Poland: 31 November-3 December, 2015
	Member of Programme board - 15th International conference on Transport System Telematics – TST 2015, April 15-17, 2015, Wroclaw, Poland
	Member of Scientific board - 11th International Conference on Marine Navigation and Safety of Sea Transportation TransNav 2015, 17-19 June 2015, Gdynia, Poland
	Chairman of International Programming Council - International Scientific Journal „Archives of Transport System Telematics", Poland, ISSN 1899-8208
	Member of international Programme board - International Journal on Marine Navigation and Safety of Sea Transportation „TransNav", ISSN 2083-6473
	Member-co-operator Polish academy of science, Transport commission, Katowice (Polska Akademia Nauk, Oddział w Katowicach, Komisja Transportu), Poland
	Member of ACM - Association for Computing Machinery, USA
Karol Rástočný	Member of Programme board 14th international conference Transport Systems Telematics, Wroclav, Poland: April 15-17, 2015
	Member of Programme board 11th international conference IEEE Applied Electronics, Pilsen, Czech Republic, September 8- 9, 2015
	Member of Editorial board of international scientific journal Transport Problems, ISSN 1896-0596

	Member of Editorial board of international scientific journal Archives of Transport System Telematics, ISSN 1899-8208
	Member of Editorial board of international scientific journal Advances in Electrical and Electronic Engineering, ISSN 1804-3119
	Member of Editorial board of journal New railway technology (Nová železniční technika), ISSN 1212-3942
	Member of Reviewing board of journal PROMET - Traffic&Transportation on Traffic and Transportation Research (Scientific Journal on Traffic and Transportation Research; Journal is covered by Thomson Reuters), ISSN: 1848-4069
Rastislav Pirník	Member of Cooperative systems workgroup of Transport telematics association, Prague, Czech Republic
Peter Holečko	Member of Cooperative systems workgroup of Transport telematics association, Prague, Czech Republic
Juraj Ždánsky	Member of Scientific-programme board of journal Archives of Transport System Telematics, ISSN 1899-8208

Membership in National Institutions/Committees

Juraj Spalek	Member of Slovak cybernetics and informatics society at the Slovak science academy (SSKI)
	Member of the Scientific-technical association at the UNIZA
	Member of Slovak association for applied cybernetics and informatics (SSAKI)
	Member of workgroup for OV 16 of Accreditation commission of Slovak ministry for education
Mária Franeková	Member of Technical standardisation committee TK 83 railway applications, SÚTN Bratislava
	Member of Slovak cybernetics and informatics society at the Slovak science academy (SSKI)
	Member of Profibus.sk, FEI STU Bratislava
	Member of Scientific-technical association at the UNIZA
	Member of Organising board 11th UNIZA children university 2015 (ŽDU 2015)
	Member of Cultural & Education Grant Agency (commission Nr. 2)
Aleš Janota	Member of technical standardisation committee TK 104 Industrial process control, SÚTN Bratislava
	Member of Organising board - Workshop 'Quo Vadis Robotics and Intelligent Systems' within INES 2015, Bratislava, September 3-4, 2015
	Member of Programme board – 23th international symposium EU-

	RO-ŽEL 2015 "New challenges for railways" („Nové výzvy pre európske železnice") Žilina: June 2-3, 2015
	Honorary member of National robotic centre - FEI STU Bratislava
Karol Rástočný	Chairman of Programme board of the International conference of railway communication and interlocking technology, Vyhne, April 20-22, 2015
	Member of Programme board – 23th international symposium EU-RO-ŽEL 2015 "New challenges for railways" („Nové výzvy pre európske železnice") Žilina: June 2-3, 2015
	Member of Editorial board AT&P Journal, ISSN 1335-2237
	Member of Technical standardisation committee TK 83 railway applications, SÚTN Bratislava
Rastislav Pirník	Member of Programme board of ARTEP 2015 – conference of experts from technical universities and industrial praxis in the field of automation and industrial informatics
	Member of Scientific-programme board of journal Acta Tecnología, ISSN 2453-675X

Membership in University Boards

Juraj Spalek	Member of faculty branch commission of 5.2.14 Automation branch FEE UNIZA
	Member of faculty branch commission of 9.2.9 Applied informatics study branch FMI UNIZA
	Member of Scientific board FEE UNIZA
	Member of Scientific board FSE UNIZA
	Member of Academic senate FEE UNIZA
Mária Franeková	Member of faculty branch commission of 5.2.14 Automation branch FEE UNIZA
	Member of Scientific board FEE UNIZA
	Chairman of KAP- EF association
Emília Bubeníková	Member of Executive board KAP EF
	Member of Organising board of Electrotechnical Olympics organised in cooperation with ZEP
Aleš Janota	Member of faculty branch commission of 5.2.14 Automation branch FEE UNIZA
	Member of faculty branch commission of 9.2.9 Applied informatics study branch FMI UNIZA
	Member of Scientific board FEE UNIZA
Karol Rástočný	Chairman of faculty branch commission of 5.2.14 Automation

	branch FEE UNIZA
	Member of Scientific board FEE UNIZA
	Member of Academic senate FEE UNIZA
Juraj Ždánsky	Chairman of Organising board of Electrotechnical Olympics organised in cooperation with ZEP
Rastislav Pirník	Member of KAP EF
	Member of VTS at UNIZA
Jozef Hrbček	Member of Organising board of 11th international conference TRANSCOM 2015, Žilina, June 22-24, 2015
Marián Hruboš	Member of Organising board of 11th international conference TRANSCOM 2015, Žilina, June 22-24, 2015
Peter Vestenický	Member of faculty branch commission of 5.2.14 Automation branch FEE UNIZA

Awards

Mária Franeková	Certificate on excellent completed project KEGA Nr. 024 ŽU-4/2012: Modernisation of education technologies and methods with focus on the area of cryptology for safety critical applications (coordinator)
Karol Rástočný	UNIZA rector's credit for active work and a significant contribution to UNIZA's international cooperation

Contact Address

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SK

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