Faculty of Electrical Engineering
and Informatics

Annual Report 2022

Faculty of Electrical Engineering
and Informatics

Annual Report

2022

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 he second biggest city In Slovak Republic. The number of students currently attending nine TUKE faculties exceeds 11,000. Approximately 10,000 of them are full-time students, out of which there are 7,600 Bachelor students, 3,000 Master students and over 280 PhD students. Almost 670 teachers work here, and the same number of reearch 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. 3400 students and 153 teachers and research associates. We have 84 PhD students in our courses. We offer more than 11 courses for faculty education including Bc. (BSc.), Ing. (MSc.) and PhD in two main branches: Informatics and Electrical Engineering. In this publication can found more details about particular specialization. Our teachers and research associates are highly qualified persons and very active in educational and research projects mainly in international co-operation. Faculty takes active role in 9 educational and 6 research international projects granted by agencies from EEC countries and also participates on more than 48 research projects granted by Slovak agencies. All this activity brings very interesting and highly valuable results. There is a small community of 42 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 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

About Košice and Technical university

Košice - 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 kindin 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 9 000 Master's and Bachelor's degree students, about 350 PhD. students and 800 academic staff members.

FEI

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 nine departments, one Centre of IT and a computing centre. The departments of the Faculty are located in the campus of the Technical University, which is located in 10-min. walk distance from the city center. The Faculty is committed to providing its students with the best possible experience of education for their future career and leadership in their profession, for admission to advanced degree programs, and for lifelong learning. The faculty offers a wide variety of full-time and part-time courses, which are relevant to industry's needs. Graduates leave our departments well equipped to meet the needs of industry and development/research institutions and get their jobs with ease. Statistics: Present number of faculty staff members is 223 and among them 31 professors, 52 associate professors, 76 assistant professors, 6 research workers, 58 administrative staff and technicians. The number of BSc. students is approximately 1935, number of MSc. students is 620 and number of PhD students approximately 94, every year.relevant to industry's needs. Graduates leave our departments well equipped to meet Present number of faculty staff members is 223 and among them 31 professors, 52 associate professors, 76 assistant professors, 6 research workers, 58 administrative staff and technicians.

Number students in academic year 2022-2023

Number of Bachalerous students (Bc.) (Slovak /foreign students)

1. year	*2. year*	*3.year*	*Sum*
1299 / 618	*634 /158*	*586 / 112*	*2519 / 888*

Number of Master of Science students (Ing.)

1. year	*2. year*	*Sum*
443 / 36	*428 / 34*	*871 / 70*

Total number of students

Bachelor level	*Master level*	*PhD. level*	*Total number*
2519 / 888	*871 / 70*	*83 / 7*	*3,473*

The student numbers by study programs area (Slovak /foreign students).

Branch of study	*Bc.*	*Ing.*	*PhD.*	*Total*
Informatics	*1054 / 353*	*381 / 34*	*39 / 3*	*1474*
Cybersecurity	*273 / 167*	*21 / 4*	*-*	*294*
Intelligent Systems	*205 / 99*	*52 / 11*	*13 / 0*	*270*
Business informatics	*245 / 60*	*82 / 2*	*-*	*327*
Applied Electrical Engineering	*118 / 14*	*-*	*-*	*118*
Electrical Power Engineering	*132 / 17*	*94 / 2*	*-*	*226*
Computer networks	*257 / 77*	*102 / 4*	*-*	*359*
Physical Engineering of Advanced Materials	*5 / 0*	*1 / 0*	*10 / 3*	*16*
Automotive Electronics	*99 / 39*	*30 / 3*	*-*	*129*
Computer Modelling	*89 / 62*	*15 / 6*	*-*	*104*
Industrial Electrical Engineering	*42 / 0*	*93 / 4*	*21 / 1*	*156*

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. Alena Pietriková, CSc.** responsible for research and development and doctoral studies

doc. Ing. Mária Gamcová, PhD. responsible for the Faculty promotion and International Relationships

doc. Ing. Ľubomír Beňa, PhD. responsible for Bachelor and Master's studies

doc. Ing. František Babič, PhD. responsible for development and External Relations

Faculty Secretary: **JUDr. Mária Girmanová 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 February 1st, 2007 and prepared references for dean of faculty.

Faculty Organization and Resources

DEPARTMENTS

The faculty consists from the following departments (abbr. in Slovak language):

Department of Computers and Informatics	**KPI**
Department of Cybernetics and Artificial Intelligence	**KKUI**
Department of Electric Power Engineering	**KEE**
Department of Electrical Engineering and Mechatronics	**KEM**
Department of Electronics and Multimedia Telecommunications	**KEMT**
Department of Physics	**KF**
Department of Mathematics and Theoretical Informatics	**KMTI**
Department of Theoretical and Industrial Electrical Engineering	**KTPE**
Department of Technologies in Electronics	**KTE**

CENTRES OF EXCELLENCE

The faculty has two Centres of Excellence:

1. **Centre 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 Automobil 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 Organization and Resources

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 in SW. It also is responsible for maintenance and operation of the faculty computer network and networks information services, four PC laboratories with more than 50 personal computers that are working 24 hours/ day and is responsible for the faculty information system. Each student of the Faculty has a free access to the Internet.

Education and Course's

EDUCATION AND COURSE'S

Courses offered

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

- *Bachelor's Degree courses (3 years) 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 courses lasts in daily form 3 years. The graduates get more-or-less practical skills in mastering

Informatics
Intelligent Systems
Applied Electrical Engineering
Computer Networks
Automotive Electronics
Automated Electrical System
Cybersecurity
Business Informatics
Electric Power Engineering
Physical Engineering of Advance Materials
Computer Modeling

Master's Degree courses

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

Informatics
Intelligent Systems
Electric Power Engineering
Physical Engineering of Advanced Materials
Computer Modeling
Cybersecurity
Business Informatics
Computer networks
Automotive Electronics
Industrial Electrical Engineering

Ph.D. courses

Ph.D. courses lasts in daily form 4 years:

Business Informatics
Computer Networks
Electronic systems and Signal processing
Industrial Electrical Engineering
Physical Engineering of Advanced materials
Computer Modeling
Electric Power Engineering
Informatics
Intelligent Systems

Education and Course's

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. A number of credits (usually 4-7) evaluates each subject.

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 givenin the Program of Study.

Faculty of Electrical Engineering
and Informatics

Department of Computers and Informatics

Department of Computers and Informatics

Essential information:

Head of Department: ***prof. Ing. Jaroslav Porubän, PhD.***
Email: ***jaroslav.poruban@tuke.sk***
Web: ***http://kpi.fei.tuke.sk/***
Phone/Fax: ***+421 55 602 2576, 2577***

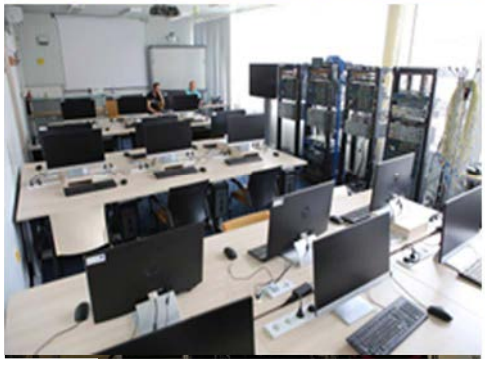
DEPARTMENT'S PROFILE

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 Informatics study program. In addition, DCI provides a new study program Cybersecurity for bachelor and master levels. DCI consists of 5 laboratories:

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






Department of Computers and Informatics

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,
- modelling and simulation of systems,
- advanced database and information technologies,
- information systems security,
- e-learning systems, intelligent tutoring systems,
- internet of things,
- 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.

STAFF

Professors:	**prof. Ing. Peter Drotár, PhD.**
	prof. Ing. Juraj Gazda, PhD.
	prof. RNDr. Valerie Novitzká, PhD.
	prof. Ing. Jaroslav Porubän, PhD.
	prof. Ing. Liberios Vokorokos, PhD.
Associate Professors:	**doc. Ing. Norbert Ádám, PhD.**
	doc. Ing. Anton Baláž, PhD.
	doc. Ing. Peter Feciľak, PhD.

Department of Computers and Informatics

	doc. Ing. Ján Genči, PhD.
	doc. Ing. Zdeněk Havlice, CSc.
	doc. Ing. Eva Chovancová, PhD.
	doc. Ing. Martin Chovanec, PhD.
	doc. Ing. František Jakab, PhD.
	doc. Ing. Branislav Madoš, PhD.
	doc. Ing. Emília Pietriková, PhD.
	doc. Ing. Branislav Sobota, PhD.
	doc. Ing. William Steingartner, PhD.
	doc. Ing. Csaba Szabó, PhD.
	doc. Ing. Slavomír Šimoňák, PhD.
	doc. Ing. Martin Tomášek, PhD.
Assistant Professors:	**Ing. Michaela Bačíková, PhD.**
	Ing. Miroslav Biňas, PhD.
	Ing. Peter Gnip, PhD.
	Ing. Ján Hurtuk, PhD.
	Ing. Sergej Chodarev, PhD.
	Ing. Ondrej Kainz, PhD
	Ing. Štefan Korečko, PhD.
	Ing. Miroslav Michalko, PhD.
	Ing. Ján Perháč, PhD.
	JUDr. Ivana Semanová
	Ing. Matúš Sulír, PhD.
	Ing. Eugen Šlapak, PhD.
	Ing. Marcel Vološin, PhD.
Researchers:	**Ing. Ján Juhár, PhD.**
	prof. Ing. Štefan Hudák, DrSc.
	Ing. Dominik Lakatoš, PhD.
	doc. Ing. Milan Šujanský, CSc.
Technical staff:	**Ing. Zuzana Dubajová**
	Helena Švarcová
Project IT AKADEMIA:	
	Ing. Jana Neupauerová

Department of Computers and Informatics

Project UAV:

Ing. Daniel Gecášek, PhD.

Ing. Katarína Feciľaková, PhD.

Ph.D. Students:

Internal form: **Ing. Matúš Dopiriak**

Ing. Daniel Gecášek

Ing. Filip Gurbáľ

Ing. Martin Hasin

Ing. Martin Havrilla

Ing. Máté Hireš

Ing. Dávid Jozef Hreško

Ing. Michal Hulič

Ing. Tatiana Kuchčáková

Ing. Heidar Khorshidiyeh

Ing. Miriama Mattová

Ing. Jakub Palša

Ing. Peter Pekarčík

Ing. Róbert Rauch

Ing. Marek Ružička

Ing. Michal Solanik

Ing. Dávid Vaľko

Ing. Emira Mustafa

Moamer Alzeyani

External form: **Ing. Martin Nguyen**

Ing. Ivana Nováková

Ing. Peter Bugata

Ing. Róbert Kanász

Ing. Lukáš Vavrek

TEACHING

Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Algorithms and Programming	*1st*	*3/2*	*Chovancová, Biňas, Pietriková*

Department of Computers and Informatics

Computer engineering and secure hardware	*2nd*	*2/2*	*Madoš*
Cybersecurity	*2nd*	*2/2*	*Baláž*
Foundations of Software Engineering	*2nd*	*2/2*	*Havlice*
Principles of Computer Engineering	*2nd*	*2/2*	*Ádám, Madoš*
Programming	*2nd*	*2/2*	*Chovancová, Biňas*
Computer system architectures	*3rd*	*2/2*	*Ádám*
Data Structures and Algorithms	*3rd*	*2/2*	*Šimoňák*
Data structures and algorithms in secure software	*3rd*	*2/2*	*Šimoňák*
Object-Oriented Programming	*3rd*	*2/2*	*Tomášek*
Operating Systems	*3rd*	*3/2*	*Genči*
Operating systems and cybersecurity	*3rd*	*3/2*	*Genči*
Security management	*3rd*	*2/2*	*Baláž*
Component Programming	*4th*	*2/2*	*Porubän*
Computer Networks	*4th*	*2/2*	*Feciľak, Michalko*
Cryptography Basics	*4th*	*2/2*	*Tomášek*
Database Systems	*4th*	*3/2*	*Steingartner, Perháč*
Database systems and their security	*4th*	*3/2*	*Steingartner, Perháč*
Formal Languages	*4th*	*3/2*	*Steingartner*
Programming in .NET Environment	*4th*	*2/2*	*Porubän*
Security of computer networks	*4th*	*2/2*	*Feciľak, Michalko*
Application Development for Smart Devices	*5th*	*2/2*	*Tomášek, Biňas*
Application of the Network Technologies	*5th*	*2/2*	*Feciľak, Michalko*
Bachelor Project	*5th*	*2/6*	*Porubän*
CCNA Security	*5th*	*2/2*	*Chovanec, Kainz*
Computer network security applications	*5th*	*2/2*	*Chovanec, Michalko*
Development of secure applications for smart devices	*5th*	*2/2*	*Tomášek, Biňas*
Industrial and System Security	*5th*	*2/2*	*Chovancová*
SAP ABAP Programming	*2nd*	*2/2*	*Baláž*
Smart Systems in Informatics	*5th*	*2/2*	*Drotár, Gazda*

Department of Computers and Informatics

Software Projects Management	*5th*	*2/2*	*Szabó*
User Interfaces of Software Systems	*5th*	*2/2*	*Sobota, Chodarev*
Assembler	*6th*	*2/2*	*Šimoňák*
Assembler for Reverse Engineering	*6th*	*2/2*	*Šimoňák*
Bachelor Thesis	*6th*	*3/9*	*Porubän*
Computer Games Development and Design	*6th*	*2/2*	*Sobota, Pietriková*
Internet of Things Basics	*6th*	*2/2*	*Jakab, Biňas*
Legal issues of cyber security	*6th*	*2/2*	*Vokorokos, Semanová*
Security in Computer Systems	*6th*	*2/2*	*Vokorokos, Baláž*

Graduate study (Ing.)

Subject	**Semester**	**Lectures/exercises (hours per week)**	**Name of Lecturer**
Current Trends in Informatics 1	*1st*	*2/2*	*Gazda,Tomášek*
Distributed Systems	*1st*	*2/2*	*Tomášek*
Routing Algorithms in Computer Networks	*1st*	*2/2*	*Jakab, Feciľak*
Semantics of Programming Languages	*1st*	*3/2*	*Steingartner*
Team Project	*1st*	*2/2*	*Chovancová*
Computer Graphics	*1st, 3th*	*3/2*	*Sobota*
Data Processing Technologies and Systems	*1st, 3th*	*2/2*	*Genči*
Digital Systems Design Using VHDL	*1st, 3th*	*2/2*	*Chovancová*
Domain Specific Languages Development	*1st, 3th*	*2/2*	*Porubän*
Functional Programming	*1st, 3th*	*3/2*	*Šimoňák, Chodarev*
Modeling and Simulation	*1st, 3th*	*2/2*	*Sobota, Korečko*
Requirements Engineering	*1st, 3th*	*2/2*	*Havlice, Szabó*
Software Systems Evolution	*1st, 3th*	*2/2*	*Szabó*
Type Theory	*1st, 3th*	*2/2*	*Novitzká, Perháč*
Current Trends in Informatics 2	*2nd*	*2/2*	*Gazda, Tomášek*
Diploma Project 1	*2nd*	*2/6*	*Šimoňák, Porubän*
Logics for Informaticians	*2nd*	*2/2*	*Novitzká, Perháč*
Metaprogramming	*2nd*	*2/2*	*Porubän, Chodarev*
Modelling and Prototyping of Systems	*2nd*	*2/2*	*Havlice*
Parallel Computer Systems	*2nd*	*2/2*	*Ádám*
Stochastic modelling and data analysis	*2nd*	*2/2*	*Drotár, Gazda*

Department of Computers and Informatics

Technologies based on Switched Networks	*2nd*	*2/2*	*Jakab, Feciľak*
Verified System Development	*2nd*	*2/2*	*Šimoňák*
Virtual Reality Systems	*2nd*	*2/2*	*Sobota*
Diploma Project 2	*3rd*	*2/6*	*Ádám, Porubän*
Parallel Programming	*3rd*	*2/2*	*Madoš*
Information and Communication Security	*3rd*	*2/2*	*Chovancová, Baláž*
Solving Problems of Large Scale Infrastructures	*3rd*	*2/2*	*Jakab*
Diploma Thesis	*4th*	*9/9*	*Porubän*

LABORATORIES

- Laboratory of Intelligent 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

RESEARCH PROJECTS

- ***Predictive allocation of edge computing resources for autonomous driving***, *Slovak Research and Development Agency APVV SK-CZ-RD-21-0028, duration 2022–2025, coordinator: prof. Ing. Juraj Gazda PhD.*
- ***European Research Network on Formal Proofs, COST (European Cooperation in Science and Technology) CA20111,*** *duration 2021–2025, coordinator: Ing. Ján Perháč PhD.*
- ***Promoting Sustainability as a Fundamental Driver in Software Development Training and Education,*** *ERASMUS+ KA203 - Strategic partnership for higher education 2020-1-PT01-KA203-078646, duration 2020–2023, coordinator: doc. Ing. Csaba Szabó PhD.*
- ***Intelligent operating and processing systems for UAV, European Regional Development Fund,*** *OPVaI-VA/DP/2018/1.2.1-04, duration: 2019–2023, coordinator: doc. Ing. František Jakab PhD.*
- ***Research in the SANET network and possibilities of its further use and development,*** *European Regional Development Fund, OPVaI-VA/DP/2018/1.1.3-05, duration: 2020–2023, coordinator: doc. Ing. František Jakab PhD.*
- ***Methodological and content innovation of teaching selected subjects in the field of information and communication technologies oriented to the needs of practice based on the use of modern videoconferencing and collaboration tools,*** *Cultural and Educational Grant Agency, KEGA 035TUKE-4/2019, duration: 2021–2023,*

Department of Computers and Informatics

coordinator: doc. Ing. František Jakab PhD.

- ***Advanced flag selection methods for high dimensional data,*** *Research Grant Agency VEGA 1/0327/20, duration: 2020–2022, coordinator: prof. Ing. Peter Drotár PhD.*
- ***Implementation of modern methods and forms of teaching in the field of cybersecurity to the requirements of practice,*** *Cultural and Educational Grant Agency, KEGA 002TUKE-4/2021, duration: 2021–2023, coordinator: doc. Ing. Anton Baláž, PhD.*
- ***Development of new semantic technologies in the education of young IT experts,*** *Cultural and Educational Grant Agency, KEGA 011TUKE-4/2020, duration: 2020–2022, coordinator: doc. Ing. William Steingartner PhD.*
- ***Intelligent Management of 5G Mobile Network based on the Comprehensive Learning with deep learning,*** *Slovak Research and Development Agency APVV-18-0214, duration 2019–2022, coordinator: prof. Ing. Juraj Gazda PhD.*
- ***Dictionary of Slovak Neologisms (lexicographic, lexicological and comparative Slavic research),*** *Slovak Research and Development Agency APVV-18-0046, duration 2019–2022, coordinator: doc. Ing. Ján Genči, PhD.*
- ***Green heterogeneous network topologies with support of UAV mobile stations for 5G+ wireless communication systems****, Research Grant Agency VEGA 1/0268/19, duration 2019–2022, coordinator: prof. Ing. Juraj Gazda PhD.*
- ***Innovation in the education process of cyber security courses in the context of the requirements of practice,*** *Cultural and Educational Grant Agency, KEGA 060TUKE-4/2022, duration: 2022–2024, coordinator: Ing. Miroslav Michalko, PhD.*
- ***Collaborative virtual reality technologies in the educational process, Cultural and Educational Grant Agency,*** *KEGA 048TUKE-4/2022, duration: 2022–2024, coordinator: doc. Ing. Branislav Sobota, PhD.*
- ***Lowering Programmers' Cognitive Load Using Context-Dependent Dialogs,*** *Research Grant Agency VEGA 1/0630/22, duration: 2022–2024, coordinator: prof. Ing. Jaroslav Porubän, PhD.*
- *International Cooperation in Computer Science, CEEPUS No. CII-HU-0019-01-0506 (H81), duration: since 2005, coordinator: doc. 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 doc. Ing. Peter Feciľak, PhD.*

CO-OPERATION

Co-operation in Slovakia

- Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava

Department of Computers and Informatics

- 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
- Slovak Technical Museum, Košice

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
- Masaryk University, Brno, 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
- University of Salamanca, 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
- Czestochowa 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

Department of Computers and Informatics

- 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
- University of Amsterdam, Netherlands
- Radboud University Nijmegen, Netherlands
- University of Rijeka, Croatia
- University of Coimbra, Portugal

Visitors to the Department

- Andrzej Grzybowski, Politechnika Czestochova, University of Technology, Poland
- Wolfgang Schreiner, Johannes Kepler University Linz, Austria
- Hana Bučková, Palacký University Olomouc, Czech Republic
- Michal Sedlaček, Palacký University Olomouc, Czech Republic
- Davorka Radaković, University of Novi Sad, Serbia
- Jacek Wachowicz, University of Science and Technology in Bydgoszcz, Poland
- Paweł Kossecki, Polish National Film, Television and Theater School, Lodz, Poland

Department of Computers and Informatics

- Zoltán Porkoláb, Eötvös Loránd University, Budapest, Hungary
- Amos Huta, Canadian Institute of Technology, Canadian Institute of Technology, Tirana, Albania
- Filip Mackovic, Polytechnical Engineering College, Subotica, Subotica Tech - College of Applied Sciences Department of Mathematics and Computation Science, Serbia
- Małgorzata Kotlińska, University of Lodz, Faculty of Management, Poland
- Viktor Zhukovskyy, National University of Water and Environmental Engineering, Ukraine
- Anett Fekete, Eötvös Loránd University (ELTE), Budapest, Hungary
- Pavle Dakic, Slovak University of Technology in Bratislava, Faculty of Informatics and Information Technologies, Bratislava, Slovak Republic
- Igor Stupavský, Slovak University of Technology in Bratislava, Faculty of Informatics and Information Technologies, Bratislava, Slovak Republic
- Martin Vanko, Slovak Academy of Sciences, Bratislava, Slovak Republic
- Roman Rosipal, Slovak Academy of Sciences, Bratislava, Slovak Republic
- Zuzana Rošťáková, Slovak Academy of Sciences, Bratislava, Slovak Republic
- Renáta Cenková, Pavol Jozef Šafárik University in Košice, Košice, Slovak Republic
- Ján Lang, Slovak University of Technology in Bratislava, Faculty of Informatics and Information Technologies, Bratislava, Slovak Republic
- Endre Fülöp, Eötvös Loránd University (ELTE), Budapest, Hungary
- Richárd Szalay, Eötvös Loránd University (ELTE), Budapest, Hungary
- Michal Mrázek, Palacký University Olomouc, Czech Republic
- Jiří Dostál, Palacký University Olomouc, Czech Republic
- Urzsula Świerczyńska-Kaczor, Polish National Film, Television and Theater School, Lodz, Poland
- Karrar Al-Sabti, University of Kufa, Kufa, Iraq
- Sonja Ristic, SKY MULTICOM D.O.O., Novi Beograd, Serbia
- Altangerel Gereltsetseg, Eötvös Loránd University (ELTE), Budapest, Hungary
- Olga Siedlecka-Lamch, Czestochowa University of Technology, Poland
- Beāte Banga, Institute of Electronics and Computer Science, Riga, Latvia
- Valters Abolins, Institute of Electronics and Computer Science, Riga, Latvia
- Krisjanis Nesenbergs, Institute of Electronics and Computer Science, Riga, Latvia
- Stanisław Zakrzewski, Politechnika Łódzka, Wydział Fizyki Technicznej, Informatyki i Matematyki Stosowanej, Instytut Informatyki, Lodz, Poland
- Maksims Ivanovsk, Institute of Electronics and Computer Science, Riga, Latvia
- Ofer Avin, Tel Aviv University, Israel

Department of Computers and Informatics

- Ophir Almagor, Technion - Israel Institute of Technology, Haifa, Israel
- Gabor Sagi, Alfred Renyi Institute of Mathematics, Budapest, Hungary
- Anca-Maria Ilienescu, Politechnica University Timisoara, Romania
- Tomáš Vyčítal, University of Pardubice, Czech Republic
- Zuzana Káčereková, University of West Bohemia, Plzeň, Czech Republic
- Martin Červenka, University of West Bohemia, Plzeň, Czech Republic
- Alex König, University of West Bohemia, Plzeň, Czech Republic
- Ondřej Havlíček, University of West Bohemia, Plzeň, Czech Republic
- Bogdan Walek, University of Ostrava, Czech Republic
- Gabriela Nečasová, Faculty of Information Technology, Brno University of Technology, Czech Republic
- Miroslav Kvaššay, University of Žilina, Slovak Republic
- Michal Mrena, University of Žilina, Slovak Republic
- Peter Sedláček, University of Žilina, Slovak Republic
- Veronika Šalgová, University of Žilina, Slovak Republic
- Jozef Kostolný, University of Žilina, Slovak Republic
- Marek Kvet, University of Žilina, Slovak Republic
- Michal Kvet, University of Žilina, Slovak Republic
- Andrea Galadíková, University of Žilina, Slovak Republic
- Mirwais Ahmadzal, Slovak University of Technology in Bratislava, Slovak Republic
- Alžbeta Michalíková, Matej Bel University in Banská Bystrica, Slovak Republic
- Jarmila Škrinárová, Matej Bel University in Banská Bystrica, Slovak Republic
- Patrik Voštinár, Matej Bel University in Banská Bystrica, Slovak Republic
- Adam Dudáš, Matej Bel University in Banská Bystrica, Slovak Republic

Visits of Staff Members to Foreign Institutions

- prof. Ing. Jaroslav Porubän, PhD., Brno University of Technology, Faculty of Information Technology, Czech Republic
- doc. Ing. William Steingartner, PhD., Cardinal Stefan Wyszyński University in Warsaw, Poland
- doc. Ing. William Steingartner, PhD., Johannes Kepler University Linz, Austria
- prof. Ing. Peter Drotár, PhD., IGS 2022, University of Las Palmas de Gran Canaria, Spain
- Ing. Ján Perháč, PhD., Stockholm University, Department of Mathematics, Sweden
- doc Ing. William Steingartner, PhD., University of Szeged, Hungary
- prof. RNDr. Valerie Novitzká, PhD., University of Szeged, Hungary
- doc. Ing. William Steingartner, PhD., Politechnika Czestochova, University of Technology, Poland

Department of Computers and Informatics

- prof. RNDr. Valerie Novitzká, PhD., Politechnika Czestochova, University of Technology, Poland
- Ing. Ján Perháč, PhD., University of Nantes, France
- Ing. Ján Perháč, PhD., University of Iceland, Reykjavik, Iceland
- Ing. Ján Perháč, PhD., Heriot-Watt University, Edinburgh, United Kingdom
- Ing. Ján Perháč, PhD., Technion - Israel Institute of Technology, Haifa, Israel
- doc. Ing. Branislav Sobota, PhD., Faculty of Engineering, University of Rijeka, Rijeka, Croatia
- Ing. Štefan Korečko, PhD., Faculty of Engineering, University of Rijeka, Rijeka, Croatia
- Ing. Filip Gurbáľ, Faculty of Engineering, University of Rijeka, Rijeka, Croatia
- Ing. Miriama Mattová, Faculty of Engineering, University of Rijeka, Rijeka, Croatia
- Ing. Tatiana Kuchčáková, Faculty of Engineering, University of Rijeka, Rijeka, Croatia
- Ing. Dávid Jozef Hreško, MICCAI 2022, Singapore
- Ing. Dávid Jozef Hreško, RMIT University, Melbourne, Australia
- Ing. Ján Perháč, PhD., Ivane Javakhishvili Tbilisi State University, Georgia
- doc. Ing. William Steingartner, PhD., Ivane Javakhishvili Tbilisi State University, Georgia
- doc. Ing. William Steingartner, PhD., Politecnico di Torino, Italy
- doc. Ing. Csaba Szabó, PhD., University of Amsterdam, Netherlands
- doc. Ing. Martin Tomášek, PhD., University of Amsterdam, Netherlands
- doc. Ing. Martin Tomášek, PhD., IT SPY, Czech Technical University in Prague, Czech Republic

Membership in International Organizations and Societies

- Genči, J., Havlice, Z., Hudák, Š., Korečko, Š., Novitzká, V., Porubän, J., Sobota, B., Šujanský, M., Tomášek, M.: Members of the CSSS - Czech and Slovak Society for Simulation
- Genči, J.: 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
- Steingartner, W.: Member of the program committee of the international conference CECIIS – Central European Conference on Intelligent and Information Systems, Croatia
- Šujanský, M.: Member of CSSIM/Scientific Association

Department of Computers and Informatics

Membership in Slovak Organizations and Societies

- Ádám N., Bačíková M., Baláž A., Biňas M., Drotár P., Feciľak P., Gazda J., Genči J., Gnip P., Havlice Z., Hudák Š., Hurtuk J., Chodarev S., Chovancová E., Jakab F., Kainz O., Korečko Š., Madoš B., Michalko M., Novitzká V., Perháč J., Pietriková E., Porubän J., Steingartner W., Sobota B., Sulír M., Szabó Cs., Šimoňák S., Šlapak E., Šujanský M., Tomášek M., Vokorokos L., Vološin M.: Members of the SSAKI - „Slovak Society for Applied Cybernetics and Informatics"
- Genči, J., Havlice, Z., Novitzká, V., 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
- 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
- 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".

Department of Computers and Informatics

- 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

Contracts, International Scientific Projects

Cooperation with companies:

- Košice IT Valley
- AT&T Global Network Services Slovakia
- bart.sk
- Blue Lemons
- BSH Drives and Pumps
- Cisco (www.cnl.sk)
- Creative Industry Košice
- Deutsche Telekom IT Solutions Slovakia
- ELCOM
- Erste Digital
- ESET
- ESTEN
- Forvio
- FpT Slovakia
- GlobalLogic Slovakia
- Hotovo
- IBM Slovensko
- IEE Sensing Slovakia
- iiTeam
- Infobip
- JER

Department of Computers and Informatics

- LYNX
- matsuko
- NESS Košice
- Nordics.io
- NXT Soft
- ProWeb Consulting
- R-SYS
- Servo
- Senacor Technologies AG
- Siemens Healthcare Slovakia
- Slovensko IT
- Telegrafia
- TRUE Performance
- U.S. Steel Košice
- Vacuumlabs
- Visma Labs
- Východoslovenská distibučná
- Zoom International
- Cooperation with the Stredná priemyselná škola dopravná, Košice

THESES

Thesis Type	Bachelor	Master	Doctoral
Number	210	142	4

OTHER ACTIVITIES

Symposia, Workshops, Conferences, Seminars

- Informatics'2022 – 2022 IEEE 16th International Scientific Conference on Informatics, November 23–25, Poprad, Slovakia

Activities in cooperation with commercial partners

- Live IT Projects 2022, February 2, Košice – presentation of student projects developed in cooperation with IT companies
- KPI hack, April 2022 – a hackathon for students of IoT a Game Development courses
- Lab IT Creativity, September 19, Košice – presentation of projects developed by local high school students

Department of Computers and Informatics

in collaboration with university students and IT companies https://www.kosiceitvalley.sk/en/2022/07/08/project-lab-it-creativity/

- Erste Digital Hackathon 2022, November 4–5, Košice – a hackathon for the students of Technical University of Košice https://www.kosicehackathon2022.sk/

PUBLICATIONS

Books

- SOBOTA, Branislav: Počítačová grafika podklady k prednáškam - 1. vyd. - Košice : Technická univerzita v Košiciach - 2022. - 424 s.. - ISBN 978-80-553-4119-4.

Journals

- BOUKNIA, Lamine, Mohamed - ZEBIRI, Chemseddine - SAYAD, Djamel - ELFERGANI, Issa - MATIN, Mohammad - DESAI, Arpan - RODRIGUEZ, Jonathan - ADDEPALLI, Tathababu - ABOBAKER, A. Mustafa, Hasan: Effect analysis of the general complex reciprocal gyro-bianisotropic metamaterial medium on the input impedance of a printed dipole antenna / 2022. In: Alexandria Engineering Journal. Amsterdam (Holandsko): Elsevier Roč. 61, č. 5 (2022), s. 1-6. ISSN 1110-0168 Access by: http://dx.doi.org/10.1016/j.aej.2021.09.011.
- SIVÝ, Martin - SOBOTA, Branislav: Virtuálno-realitné technológie a inteligentné používateľské rozhrania / 2022. In: QuoVadis Research @ FEI. Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 1 (2022), s. 68-75 [print, online]. ISSN 2585-9587 Access by: http://quovadis.fei.tuke.sk/quovadis-v5-n1.pdf.
- GAZDA, Matej - HIREŠ, Máté - DROTÁR, Peter: Multiple-fine-tuned convolutional neural networks for parkinson's disease diagnosis from offline handwriting / 2022. In: IEEE Transactions on Systems, Man, and Cybernetics: Systems. Roč. 52, č. 1 (2022), s. 78-89 [print]. ISSN 2168-2216 Access by: http://dx.doi.org/10.1109/tsmc.2020.3048892.
- LUTSIV, Nazarii - MAKSYMYUK, Taras - BESHLEY, Mykola - LAVRIV, Orest - ANDRUSHCHAK, Volodymyr - SACHENKO, Anatoliy - VOKOROKOS, Liberios - GAZDA, Juraj: Deep semisupervised learning-based network anomaly detection in heterogeneous information systems / 2022. In: Computers, Materials & Continua. Henderson (USA): Tech Science Press Roč. 70, č. 1 (2022), s. 413-431 [print]. ISSN 1546-2218 Access by: http://dx.doi.org/10.32604/cmc.2022.018773.
- RUŽIČKA, Marek - VOLOŠIN, Marcel - GAZDA, Juraj - MAKSYMYUK, Taras - HAN, Longzhe - DOHLER, Mischa: Fast and computationally efficient generative adversarial network algorithm for unmanned aerial vehicle–based network coverage optimization / 2022. In: International Journal of Distributed Sensor Networks. Thousand Oaks (USA): SAGE Publications Roč. 18, č. 3 (2022), s. [1-9] [online]. ISSN 1550-1477 Access by: http://dx.doi.org/10.1177/15501477221075544.
- HIREŠ, Máté - GAZDA, Matej - DROTÁR, Peter - PAH, Nemuel Daniel - MOTIN, Mohammod Abdul - KUMAR, Dinesh Kant: Convolutional neural network ensemble for parkinson's disease detection from voice recordings / 2022. In:

Department of Computers and Informatics

Computers in Biology and Medicine: an international journal. Amsterdam (Holandsko): Elsevier Roč. 141 (2022), s. [1-9] [print, online]. ISSN 0010-4825 Access by: http://dx.doi.org/10.1016/j.compbiomed.2021.105021.

- NOVOTNÝ, Samuel - MICHALKO, Miroslav - PERHÁČ, Ján - NOVITZKÁ, Valerie - JAKAB, František: Formalization and Modeling of Communication within Multi-Agent Systems Based on Transparent Intensional Logic / 2022. In: Symmetry: Open Access Journal. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 14, č. 3 (2022), s. [1-24] [online]. ISSN 2073-8994 (online) Access by: http://dx.doi.org/10.3390/sym14030588.
- PERHÁČ, Patrik - ŠIMOŇÁK, Slavomír: Interactive System for Algorithm and Data Structure Visualization / 2022. In: Computer Science Journal of Moldova. Kishinev (Moldavská republika): Inst Mathematics & Computer Science Roč. 30, č. 1 (2022), s. 28-48. ISSN 1561-4042 Access by: http://www.math.md/en/publications/csjm/issues/v30-n1/13413/.
- GECÁŠEK, Daniel - BOBÍK, Pavol - GENČI, Ján - VILLIM, Ján - VAŠKO, Martin: Cor system: a tool to evaluate cosmic ray trajectories in the earth's magnetosphere / 2022. In: Advances in Space Research. [S.l.] (Veľká Británia): Elsevier Roč. 70, č. 4 (2022), s. 1153-1168 [print, online]. ISSN 0273-1177 Access by: http://dx.doi.org/10.1016/j.asr.2022.06.001.
- HERBOLD, Steffen - TRAUTSCH, Alexander - LEDEL, Benjamin - AGHAMOHAMMADI, Alireza - GHALEB, Taher A. MADEJA, Matej - SULÍR, Matúš: A fine-grained data set and analysis of tangling in bug fixing commits / 2022. In: Empirical Software Engineering: An International Journal. Cham (Švajčiarsko): Springer Nature, 1996 Roč. 27, č. 6 (2022), s. [1-49] [print, online]. ISSN 1382-3256 Access by: http://doi.org/10.1007/s10664-021-10083-5.
- PALŠA, Jakub - ÁDÁM, Norbert - HURTUK, Ján - CHOVANCOVÁ, Eva - MADOŠ, Branislav - CHOVANEC, Martin - KOCAN, Stanislav: MLMD-A Malware-Detecting Antivirus Tool Based on the XGBoost Machine Learning Algorithm / 2022. In: Applied sciences. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 12, č. 13 (2022), s. [1-24] [online]. ISSN 2076-3417 (online) Access by: https://doi.org/10.3390/app12136672.
- NOVITZKÁ, Valerie - STEINGARTNER, William - RICHNAVSKÁ, Viktória: Fuzzy Logic for Educational Purposes / 2022. In: IPSI Transactions on Internet Research. Belehrad (Srbsko): IPSI Roč. 18, č. 2 (2022), s. 81-86. ISSN 1820-4503 Access by: http://ipsitransactions.org/journals/papers/tir/2022jul/fullPaper.pdf.
- HIREŠ, Máté - BUGATA, Peter - GAZDA, Matej - HREŠKO, Dávid Jozef - KANÁSZ, Róbert - VAVREK, Lukáš - DROTÁR, Peter: Brief Overview of Neural Networks for Medical Applications / 2022. In: Acta Electrotechnica et Informatica. Košice (Slovensko): Fakulta elektrotechniky a informatiky Roč. 22, č. 2 (2022), s. 34-44 [print, online]. ISSN 1335-8243 Access by: https://sciendo.com/article/10.2478/aei-2022-0010#.
- ŠIMOŇÁK, Slavomír - HARVILÍK, Daniel: Practical examination of formal methods transformations properties / 2022. In: Acta Polytechnica Hungarica: An international peer-reviewed scientific journal of Óbuda University, Hungarian Academy of Engineering and IEEE Hungary Section: journal of applied sciences. Budapešť (Maďarsko): Óbudai Egyetem Roč. 19, č. 5 (2022), s. 43-67 [print, online]. ISSN 1785-8860 Access by: http://dx.doi.

Department of Computers and Informatics

org/10.12700/aph.19.5.2022.5.3.

- KOSAREVYCH, Rostyslav - LUTSYK, Oleksyi - RUSYN, Bohdan - Alokhina - MAKSYMYUK, Taras - GAZDA, Juraj: Spatial point patterns generation on remote sensing data using convolutional neural networks with further statistical analysis / 2022. In: Scientific Reports. Londýn (Veľká Británia): Nature Publishing Group, 2011 Roč. 12, č. 1 (2022), s. [1-9] [online, print]. ISSN 2045-2322 (online) Access by: https://doi.org/10.1038/s41598-022-18599-6.
- KAINZ, Ondrej - DOPIRIAK, Matúš - MICHALKO, Miroslav - JAKAB, František - NOVÁKOVÁ, Ivana: Traffic monitoring from the perspective of an unmanned aerial vehicle / 2022. In: Applied sciences. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 12, č. 16 (2022), s. [1-16] [online]. ISSN 2076-3417 (online) Access by: http://dx.doi.org/10.3390/app12167966.
- HAVLICE, Zdeněk - SZABÓOVÁ, Veronika - MADOŠ, Branislav: Testing of xtUML Models across Auto-Reflexive Software Architecture / 2022. In: Journal of Applied Technical and Educational Sciences - jATES. Subotica (Srbsko): ST Press Roč. 12, č. 2 (2022), s. 1-30. ISSN 2560-5429 (online) Access by: https://jates.org/index.php/jatespath/article/view/310.
- KAINZ, Ondrej - GERA, Marek - MICHALKO, Miroslav - JAKAB, František: Experimental solution for estimating pedestrian locations from uav imagery / 2022. In: Applied sciences. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 12, č. 19 (2022), s. [1-17] [online]. ISSN 2076-3417 (online) Access by: http://dx.doi.org/10.3390/app12199485.
- GECÁŠEK, Daniel - SOLANIK, Michal - GENČI, Ján: Which Data Format To Store Scientific Data Should I Use? A Performance Analysis / 2022. In: Acta Electrotechnica et Informatica. Košice (Slovensko): Fakulta elektrotechniky a informatiky Roč. 22, č. 3 (2022), s. 32-40 [print, online]. ISSN 1335-8243 Access by: https://doi.org/10.2478/aei-2022-0015.
- PALŠA, Jakub - HURTUK, Ján - CHOVANEC, Martin - CHOVANCOVÁ, Eva: Using Machine Learning Algorithms to Detect Malware by Applying Static and Dynamic Analysis Methods / 2022. In: Acta Polytechnica Hungarica: An international peer-reviewed scientific journal of Óbuda University, Hungarian Academy of Engineering and IEEE Hungary Section: journal of applied sciences. Budapešť (Maďarsko): Óbudai Egyetem Roč. 19, č. 7 (2022), s. 177-196 [print, online]. ISSN 1785-8860 Access by: http://acta.uni-obuda.hu/Palsa_Hurtuk_Chovanec_Chovancova_125.pdf.
- HASIN, Martin - CHOVANEC, Martin - PALŠA, Jakub - HAVRILLA, Martin: Analysis and Collection Data from IP Network / 2022. In: Acta Electrotechnica et Informatica. Košice (Slovensko): Fakulta elektrotechniky a informatiky Roč. 22, č. 3 (2022), s. 18-23 [print, online]. ISSN 1335-8243 Access by: https://sciendo.com/issue/AEI/22/3.
- MADOŠ, Branislav - CHOVANCOVÁ, Eva - CHOVANEC, Martin - ÁDÁM, Norbert: CSVO: Clustered Sparse Voxel

Department of Computers and Informatics

Octrees—A Hierarchical Data Structure for Geometry Representation of Voxelized 3D Scenes / 2022. In: Symmetry: Open Access Journal. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 14, č. 10 (2022), s. [1-19] [online]. ISSN 2073-8994 (online) Access by: http://dx.doi.org/10.3390/sym14102114.

Other publications

Publication Type	Journals		Textbooks	Conferences		Patents	Other
	Foreign	Home	Home	Foreign	Home	Domestic	
Number				17	17		27

Faculty of Electrical Engineering
and Informatics

Department of Cybernetics and Artificial Intelligence

Department of Cybernetics and Artificial Intelligence

Essential information:

Head of Department: ***doc Ing. Peter Papcun, PhD.***
Email: ***peter.papcun@tuke.sk***
Web: ***kkui.fei.tuke.sk***
Phone/Fax: ***+421 55 602 3195***

DEPARTMENT'S PROFILE

The main research topics at the DCAI are intelligent and cognitive robotics with the aim to develop learnable collaborative robot systems, interactive intelligent environment able to perceive and recognise activities and events, cloud computation, data science, knowledge management, semantic technologies, intelligent decision support systems, mobile technologies, pervasive computing, processing and analysis of the large volume and continuous data in real-time, Internet of things, Industry 4.0, modern control theory and fault tolerant control design, cyber-physical systems, under-actuated and actuated nonlinear dynamical systems, flexible manufacturing systems, collective intelligence and computer vision.

The predecessor of the Department was founded in 1964. Department of Cybernetics and Artificial Intelligence was adapted in 1989. Currently it has 24 staff members and 17 internal PhD. students. There are 3 research centers within the department: Center for Artificial Intelligence (http://www.cloudai.sk/), Center of Applied Cybernetics (http://kkui.fei.tuke.sk/info/cak) and Center of Business Information Systems (https://hi.kkui.fei.tuke.sk/). The Department is involved in a number of research and educational projects (see below).

Department of Cybernetics and Artificial Intelligence

STAFF

Professors: **prof. Ing. Dušan Krokavec, CSc.**
prof. Ing. Kristína Machová, PhD.
prof. RNDr. Eva Ocelíková, CSc.
prof. Ing. Ján Paralič, PhD.
prof. Ing. Ján Sarnovský, CSc.
prof. Ing. Peter Sinčák, CSc.
prof. Ing. Iveta Zolotová, CSc.

Associate Professors: **doc. Ing. František Babič, PhD.**
doc. Ing. Peter Bednár, PhD.
doc. Ing. Marek Bundzel, PhD.
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. Peter Papcun, PhD.
doc. Dr. Ing. Ján Vaščák

Assistant Professors: **Ing. Anna Biceková, PhD.**
Ing. Erik Kajáti, PhD.
Ing. Ján Magyar, PhD.
Ing. Martin Sarnovský, PhD.
Ing. Miroslav Smatana, PhD.
Ing. Martina Szabóova, PhD.

Researchers: **Ing. Maroš Hliboký**
Ing. Miroslav Jaščur, PhD.
Ing. Viera Maslej Krešňáková, PhD.

Technical Staff: **Tatiana Baňasová**
Ing. Lenka Ličková

Secretary: **Mgr. Alena Focková**

Internal Ph.D. Students: **Ing. Nikola Hrabovská**
Ing. Lenka Kališková
Ing. Maroš Krupáš

Department of Cybernetics and Artificial Intelligence

Ing. Miroslava Pavlusová
Ing. Ľubomír Ulbrík
Ing. Tomáš Adam
Ing. Alexander Brecko
Ing. Martin Durkáč
Ing. Dušan Herich
Ing. Maroš Hliboký
Ing. Stanislav Husár
Ing. Oliver Lohaj
Ing. Kristián Mičko
Ing. Zuzana Pugelová
Ing. Tomáš Tkáčik
Ing. Jakub Ivan Vanko
Ing. Dominik Vranay
Ing. Viera Anderková
Ing. Ivan Čík
Ing. Lukáš Hruška
Ing. Michal Kolárik
Andrinandrasana David Rasamoelina, MSc.
Ing. Juliana Ivančáková
Ing. Zuzana Pella
Ing. Pavol Šatala

External Ph.D. Students:
Ing. Dušan Zagata
Ing. Jozef Rešetár
Ing. Miroslava Hrešková
Ing. Ladislav Pomšár

TEACHING

Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Foundations of Intelligent Systems	*2nd*	*3/2*	*Bundzel, Papcun*
Introduction to Business Informatics	*2nd*	*1/2*	*Paralič, Babič*
Industry 4.0.	*2nd*	*2/2*	*Zolotová, Kajáti*

Department of Cybernetics and Artificial Intelligence

Programming in Python	2nd	2/2	Magyar
Basics of economics	2nd	2/2	Biceková
Industrial informatics in applications	3rd	2/2	Jadlovská
Intelligent Space and IoT	3rd	2/2	Papcun
Simulation Systems	3rd	2/2	Jadlovská
Project Management	3rd	2/2	Babič
Foundations of Python Language	3rd	2/2	Magyar
Applications of Web Technologies	3rd	2/2	Bednár
Analysis and Design of Information Systems 1.	3rd	2/2	Babič, Sarnovský M.
Artificial Intelligence	3rd	2/2	Sinčák, Machová
Programming in C#	3rd	2/2	Magyar
Application of database systems	4th	2/2	Kajáti
Analysis and Design of Information Systems 2.	4th	1/2	Bednár
Sensors and actuators	4th	2/2	Jadlovský
Knowledge-Based Systems	4th	2/2	Machová
Intelligent systems and mobile robotics	4th	2/2	Vaščák
Fuzzy Systems	4th	2/2	Vaščák
Neural Networks	4th	2/2	Sinčák
Supervision Systems and HMI	4th	2/2	Zolotová, Kajáti
Machine Learning	4th	2/2	Machová
Scheduling and Logistics	4th	2/2	Paralič
Languages for Data Analytics	4th	2/2	Butka
Intelligent Robotics	5th	2/2	Papcun
Business Analytics	5th	2/2	Butka
Application of logic in intelligent systems	5th	2/2	Mach
Computer Systems	5th	2/2	Jadlovský
Computer Vision	5th	2/2	Bundzel
Computer Systems in Control	5th	2/2	Jadlovský
Optimization in Economic Processes	5th	2/2	Filasová
Development of intelligent mobile solutions	5th	2/2	Babič, Butka

Department of Cybernetics and Artificial Intelligence

Business Informatics in practice	*6th*	*2/2*	*Babič*
Machine Learning II	*6th*	*2/2*	*Mach*
IT Management	*6th*	*2/2*	*Sarnovský M.*
Repetition of the field of study	*6th*	*2/2*	*Papcun, Szabóová*
Fundamentals of cloud technologies	*6th*	*1/2*	*Zolotová*

Graduate study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Team Project	*1st*	*0/3*	*Zolotová*
Multiagent and network control systems	*1st*	*2/2*	*Kajáti*
Architectures of Industrial Information Systems	*1st*	*2/2*	*Zolotová, Papcun*
Knowledge Discovery	*1st*	*2/2*	*Paralič*
Fundamentals of Deep Learning	*1st*	*2/2*	*Sinčák*
Heuristic Optimization Processes	*1st*	*2/2*	*Mach*
Mathematics for intelligent systems	*1st*	*2/2*	*Szabóová*
Engineering Econometrics	*1st*	*2/2*	*Krokavec*
Control and Artificial Intelligence	*2nd*	*2/2*	*Jadlovská*
Technologies for Big Data Processing	*2nd*	*2/2*	*Bednár, Sarnovský M.*
Hybrid Computational Intelligence	*2nd*	*2/2*	*Vaščák*
Evolutionary Algorithms	*2nd*	*2/2*	*Mach*
Distributed Control Systems	*2nd*	*2/2*	*Jadlovský*
Hybrid Computational Intelligence	*2nd*	*2/2*	*Vaščák*
Machine Learning	*2nd*	*2/2*	*Machová*
Current trends in Business Informatics	*2nd*	*2/1*	*Babič, Paralič*
Knowledge Management	*3rd*	*2/2*	*Paralič, Bednár*
Management Information Systems	*3rd*	*2/2*	*Jadlovský*
Navigation methods in robotics	*3rd*	*2/2*	*Vaščák*
Advanced Methods of Computer Vision	*3rd*	*2/2*	*Bundzel*
Semantic and Social Web	*3rd*	*2/2*	*Machová*
Languages for Intelligent Systems	*3rd*	*2/2*	*Mach*
Advanced Methods for Data Analysis	*3rd*	*1/2*	*Bednár*
Main Knowledge of the Field Intelligent Systems and Their Use	*4th*	*0/2*	*Zolotová*

Department of Cybernetics and Artificial Intelligence

Main Knowledge of the Field of Business Informatics and Their Use	*4th*	*0/2*	*Butka*

RESEARCH TEAMS

- ***Data science –*** primarily focused on methods and models for analysis of different types of data, including big data, various aspects of data analytic models and processes in different application domains. (https://hi.kkui.fei.tuke.sk/)
- ***Fault-tolerant and Robust Control –*** primarily focused on innovative control design techniques exploiting convex optimization problems with constraints and disturbance suppression, models and algorithms for processing and synthesis of robust control of dynamical systems working under system model uncertainties and severe failure conditions and design, implementation and experimental verification of methods guarantying system fault tolerance and reconfiguration structures of control.
- ***Modern Control Techniques and Industrial Informatics – p***rimarily focused on methods and developing resources for hybrid modeling and control of cyber-physical systems, new methods and algorithms for modeling, identification, control and diagnostics of under-actuated and actuated nonlinear dynamical systems, research and development of flexible manufacturing systems, automated and robotic production lines and the design of diagnostic systems focused on diagnostics of vibration and chatter for the cyber systems. (http://kyb.fei.tuke.sk/laben/)
- ***Intelligent Cybernetic Systems –*** primarily focused on machine learning algorithms, collective intelligence, and optimalization, and computer vision, intelligent and cognitive robotics, smart living, intelligent space topics, sensors nets, intelligent gateways and processing with IoT/IoE and cloud technologies in smart industry, and multi-robotics systems and navigation.(http://ics.fei.tuke.sk/)
- ***Intelligent Technologies and Systems –*** primarily focused on intelligent robotics (to develop learnable collaborative robot systems), interactive intelligent environment able to perceive and recognise activities or events, and cloud computation (AI bricks – modular services providing functionality of selected artificial intelligence methods).(http://www.cloudai.sk/)

RESEARCH PROJECTS

- ***LifeBots Exchange – creating a new reality of care and welfare through the inclusion of social robots***, H2020-MSCA-RISE-2018 project 824047, duration: 2019-2023, project leader for TUKE: Marek Bundzel
- ***Determinants of increased cardiovascular risk and their prognostic significance analyzed by machine learning in the detection of high-risk individuals***. Slovak Research and Development Agency project no. APVV-17-0550, duration: 2018-2022, coordinated by Daniel Pella, Faculty of Medicine, P.J. Šafárik University in Košice, members from our department: Ján Paralič (Team leader for TUKE), František Babič, Peter Butka, Zuzana Pella, Ľudmila Pusztová, Juliana Ivančáková, Pavol Šatala, Viera Anderková, Michal Kolárik, Oliver Lohaj

Department of Cybernetics and Artificial Intelligence

- ***Processing and analysis of ultrasonography video sequences using artificial intelligence methods.*** Slovak Research and Development Agency project no. APVV-20-0232, duration: 2021-2024, members: František Babič (project leader), Marek Bundzel, Martina Szaboová, Ján Magyar, Maroš Hliboký, Miroslav Jaščur, Ján Paralič, Viera Anderková, Michal Kolárik, Martin Sarnovský, Tomáš Adam.
- ***Intelligent platform for managing the supply-customer chain for retail***, ITMS2014+: 313012Q957, duration: 2020 – 2022, members: František Babič, Peter Bednár, Martin Sarnovský, Miroslav Smatana.
- ***ASPIS - Feasibility study of data-driven Autonomous Service for Prediction of Ionospheric Scintillations.*** ESA (European Space Agency) grant project, 6th PECS call, duration: 2022-2023, FEI TUKE as subcontractor, members (TUKE team) : Peter Butka (TUKE team leader), Viera Maslej Krešňáková.
- ***SK-S2P-Edu - Proposal for Slovak universities curriculum adaptation toward S2P market.*** ESA (European Space Agency) grant project, 7th PECS call, duration: 2022-2023, FEI TUKE as prime contractor, members (TUKE team) : Peter Butka (project leader), Martin Sarnovský, Viera Maslej Krešňáková.
- ***Intepretable data analysis models to support decision making,*** Scientific Grant Agency project No. 1/0685/21, duration: 2021 – 2024, members: Ján Paralič (project leader), František Babič, Kristína Machová, Peter Butka, Peter Bednár, Martin Sarnovský, Miroslav Smatana, Viera Maslej Krešňáková, Anna Biceková, Zuzana Pella, Ľudmila Pusztová, Juliana Ivančáková, Michal Kolárik, Viera Anderková, Oliver Lohaj, Jakub Ivan Vanko, Tomáš Adam, Miroslava Pavlusová, Lenka Kališková
- ***Intelligent Health Lab - Siemens Heathineers Space***, duration: 2019–2023, members: Iveta Zolotová (project leader), Peter Papcun, Ladislav Pomšár, Alexander Brecko, Erik Kajáti, Ján Vaščák
- ***Edge-enabled inteligentné snímanie a výpočty,*** APVV-20-0247, duration: 2021-2025, members: Iveta Zolotová (project leader), Ladislav Pomšár, Alexander Brecko, Peter Papcun, Erik Kajáti, Ján Vaščák, Ľubomír Urblík, Kristián Mičko and coperating organisation Betamont
- ***EDEN: EDge-Enabled inteligeNtné systémy,*** 1/0480/22, Scientific Grant Agency project, duration: 2022 – 2025, members: Peter Papcun (project leader), Iveta Zolotová, Ladislav Pomšár, Alexander Brecko, Erik Kajáti, Ján Vaščák, Kristián Mičko, Ľubomír Urblík, Maroš Krupáš
- ***AAIE - Acceleration of artificial intelligence at the edge of networks***, 07/TUKE/2022, duration: 2022, members: Alexander Brecko (project leader), Dušan Herich, Melvin Alexis, Lara de León
- ***Computer Vision in Intelligent Space,*** FEI grant, duration: 2022, members: Peter Papcun (project leader), Erik Kajáti, Dušan Herich, Kristián Mičko, Alexander Brecko
- ***ArtiPark 2 - Artificial Parkinson,*** Tatra Banka Foundation, duration: 2022/2023, members: Michal Podžuban (project leader), Alexander Brecko, Ladislav Pomšár, Maryna Tsvietaieva, Iveta Zolotová
- ***RoboSwarmNET,*** Tatra Banka Foundation, duration: 2022/2023, members: Dušan Herich (project leader), Kristián Mičko, Peter Papcun, Yaroslav Nosenko, Gabriel Nagy, Patrik Mačinga, Ján Vaščák, Iveta Zolotová

Department of Cybernetics and Artificial Intelligence

- ***ALICE experiment at the CERN LHC: The study of strongly interacting matter under extreme conditions (Experiment ALICE na LHC v CERNe: Štúdium silno interagujúcej hmoty v extrémnych podmienkach)***, ALICE TUKE - No. 0410/2022, Agreement for the co-financing of the ALICE CERN research and development project for duration: 2022 - 2026, members: Ján Jadlovský (project leader), Anna Jadlovská, Slávka Jadlovská, MilanTkáčik, Zuzana Pugelová, Tomáš Tkáčik, Dominika Lišková, Filip Pazdič, Martin Kopecký
- ***Basic Research of Deep Learning Methods for Image Processing (DL4VISION),*** Scientific Grant Agency project No. 1/0394/22, duration: 2022 – 2025, members: Peter Sinčák (project lead), Marek Bundzel, Marián Mach, Ján Magyar, Martina Szabóová, Lukáš Hruška, Miroslav Jaščur, Fouzia Adjailia, Ivan Čík, Andrinandrasana David Rasamoelina
- ***Intelligent Operation and Management Systems for UAV (Inteligentné operačné a spracovateľské systémy pre UAV)***, ITMS2014+: 313011V422, duration: 2019 – 2023, members: Peter Sinčák, Marek Bundzel, Marián Mach, Ján Magyar, Ivan Čík, Andrinandrasana David Rasamoelina, Maroš Hliboký
- ***Intelligent Rehabilitation of Upper Limb Tremors,*** FEI grant No. FEI-2022-83, duration: 2022, members: Stanislav Husár (project lead), Maroš Hliboký, Dominik Vranay, Ivan Čík, Andrinandrasana David Rasamoelina
- ***Modular Teaching of Artificial Intelligence in English (Modulárna výučba Umelej inteligencie v anglickom jazyku),*** Ministry of Education, Science, Research and Sport of the Slovak Republic, duration: 2021 – 2022, members: Peter Sinčák (project lead), Ján Paralič, Marek Bundzel, Peter Bednár, Martin Sarnovský, Ján Magyar

CO-OPERATION

Co-operation in Slovakia

- Department of Automatic Control Systems Bratislava, Slovak University of Technology, Bratislava
- Faculty of Informatics and Information Technologies, Slovak University of Technology in Bratislava
- Institute of Computer Science, University of P.J. Šafárik, Košice
- Kempelen Institute of Intelligent Technologies, Bratislava
- Institute of Computer Science, Slovak Academy of Sciences in Bratislava
- Department of Biophysics IEP Slovak Academy of Science
- 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
- Department of Control and Information Systems, Faculty of Electrical Engineering, University of Zilina
- Accenture Košice
- Americká obchodná komora na Slovensku
- bart.sk Košice
- Betamont Slovakia

Department of Cybernetics and Artificial Intelligence

- Control Systems Slovakia
- Elcom Prešov
- Erste Group IT International GmbH Bratislava
- Exponea Bratislava
- Fpt Slovakia: FPT Group
- Freundenberg IT
- GlobalLogic Slovakia
- Gymbeam Košice
- IBM Slovakia
- IT Valley Košice
- Microsoft Slovakia
- Ness Košice Development Center
- Promiseo Košice
- Siemens Heatheeners, Košice
- US Steel Košice
- ui42 Bratislava
- VSE Holding, člen Innogy
- Východoslovenská distribučná, člen Innogy

International Co-operation

- Department of Software Engineering and Interactive Systems, Vienna University of Technology, Austria
- Dept. for Technical & Operational Information Systems (Data & Knowledge Engineering Group), Otto-von-Guericke-University Magdeburg, Germany
- 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
- University Pablo de Olavide of Seville, Spain
- 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 Cybernetics and Artificial Intelligence

- Department of Control Systems and Instrumentation, Faculty of Mechanical Engineering Technical University Ostrava, Czech Republic
- Department of Cybernetics and Biomedical Engineering, Technical University 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
- Faculty of Informatics and Management, University of Hradec Králové, Czech Republic
- Dept. of Computer Science and Engineering, Faculty of Applied Sciences, University of West Bohemia, Plzeň
- The Technical Faculty of IT and Design, Aalborg University, Denmark
- 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
- Laboratory for Industry 4.0 Smart Manufacturing Systems (LI4.0) , University of Auckland, New Zealand
- Center for Innovation in Design and Technology, Monterrey, Mexico
- Ulysseus, the European University for the citizens of the Future, university alliance
- CERN, LHC, ALICE: European Organization for Nuclear Research, Large Hadron Collider, A Large Ion Collider Experiment, Geneva, Switzerland

Membership in International Organizations and Societies

- Bundzel M.: IEEE, Computational Intelligence Society
- Krokavec, D.: Member of the International Federation of Automatic Control IFAC Technical Committee TC 1.4 Stochastic Systems and TC 6.4 Fault Detection, Supervision & Safety of Technical Processes
- IEEE Student Branch – Lojka, Miškuf, Hvizdoš, Mocnej, Ferenčík, Kajáti
- Ocelíková, E.: CSSSCzech and Slovak Society for Simulation
- Machová, K.: ACM – Association of Computer Machinery
- Papcun P.: IEEE, Automation and Robotic Society
- Paralič, J.: IEEE – senior member, ACM – Association for Computing Machinery,
- Sabol, T.: Information Society Technologies Program Committee (IST PC), 5th Framework Program, Brussels

Department of Cybernetics and Artificial Intelligence

- Sarnovský, J.: INESInternational Network of Engineers and Scientists for Global Responsibility
- Sarnovský, J.: Principia Cybernetica Web PRNCYB-L
- Sarnovský, J.: SWIISSuplementary Ways for Improving International Stability
- Sinčák P.: European Society of Neural Networks
- Sinčák P.: IEEE, Computational Intelligence Society
- Vaščák, J.: IEEE – senior member, Computational Intelligence Society
- Zolotová, I.: IEEE – senior member, IEEE SMC Society, IEEE Educational Society

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
- Jadlovská, A; Ocelíková, E.; Sarnovský, J.: Slovak Society for Cybernetics and Informatics
- Paralič, J.: Slovak Society for Computer Science

International Networks and Exchange Programs

- Erasmus+ programme agreement between TU of Košice and University of Auckland, New Zealand, contact person: Iveta Zolotová
- SocratesErasmus 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 University Pablo de Olavide, Sevilla, Spain. Contact person: Ján Vaščák
- SocratesErasmus agreement between TU of Košice and University Hradec Kralove, Czech Republic. Contact person: Ján Vaščák

Visits of Staff Members to Foreign Institutions

- P. Sinčák: Miškolc, Maďarsko, 10.2.
- P. Sinčák: Miškolc, Maďarsko, 2.3.
- M. Tkáčik: Ženeva, Švajčiarsko, 13.-27.3.
- P. Bednár: Plzeň, ČR, 5.4.
- P. Sinčák: Miškolc, Maďarsko, 1. 4.
- P. Sinčák: Soul, Južná Kórea, 27.5.-8.7.
- P. Papcun: Soul, Južná Kórea, 5.-12.6.
- F. Babič: Helsinki, Fínsko, 6-10.6

Department of Cybernetics and Artificial Intelligence

- M. Bundzel: Praha, ČR, 8.-10. 6.
- J. Magyar: Praha, ČR, 8.-10.6.
- F. Babič: Viedeň, Rakúsko, 23.-26.8.
- T. Tkáčik: Ženeva, Švajčiarsko, 8.-20.7.
- M. Bundzel: Caritas, Coimbra, Portugalsko 9.8.-10.9.
- J. Magyar: Pisa, Taliansko, 31.8.-2.10.
- T. Tkáčik: Ženeva, Švajčiarsko, 7.-21.9.
- F. Pazdič: Ženeva, Švajčiarsko, 7.-21.9.
- D. Lišková: Ženeva, Švajčiarsko, 7.-21.9.
- P. Papcun: Visegrad, Maďarsko, 11.-14.9.
- J. Vaščák: Visegrad, Maďarsko, 11.-14.9.
- P. Papcun: Doksy, ČR, 6.-8. 9.
- J. Jadlovský: Doksy, ČR, 6.-8.9.
- F. Babič: Praha, ČR, 7.-9.9.
- M. Sarnovský: Lisabon, Portugalsko, 3.10.-3.11.
- M. Szabóová: Helsinky, Fínsko, 20.-24.9.
- M. Bundzel: Nice, Francúzsko, 3.-7.10.
- F. Babič: Olomouc, ČR, 2.-5.11.
- P. Bednár: Budapešť, Maďarsko, 12.-14. 10.
- K. Machová: Corfu, Grécko, 18.-22.10.
- M. Krupáš: Budapešť, Maďarsko, 28.-30.10.
- A. Brecko: Ostrava, ČR, 22.-24.11.
- D. Herich: Ostrava, ČR, 22.-24.11.
- I. Zolotová: Ostrava, ČR, 23.-24.11.
- E. Kajáti: Ostrava, ČR, 23.-24.11.
- M. Sarnovský: Budapešť, Maďarsko, 21.-23.11.
- M. Kolárik: Budapešť, Maďarsko, 22.11.
- T. Tkáčik: Ženeva, Švajčiarsko, 21.11.-4.12.
- D. Lišková: Ženeva, Švajčiarsko, 21.11.-4.12.
- F. Pazdič: Ženeva, Švajčiarsko, 21.11.-4.12.
- M. Kopecký: Ženeva, Švajčiarsko, 21.11.-4.12.
- P. Sinčák: Budapešť, Maďarsko, 18.11.
- M. Kolárik: Budapešť, Maďarsko, 22.11.

Department of Cybernetics and Artificial Intelligence

- P. Sinčák: Miškolc, Maďarsko, 16.12.
- J. Magyar: Miškolc, Maďarsko, 16.12.
- M. Szabóová: Miškolc, Maďarsko, 16.12.
- D. Vranay: Miškolc, Maďarsko, 16.12.

THESES

Thesis Type	Bachelor	Master	Doctoral
Number	91	74	5

PUBLICATIONS

Journals

- BABIČ, František BUREŠ, Vladimír ČECH, Pavel HUSÁKOVÁ, Martina MIKULECKÝ, Peter MLS, Karel NACHÁZEL, Tomáš PONCE, Daniela ŠTEKEROVÁ, Kamila TRIANTAFYLLOU, Ioanna TUČNÍK, Petr ZANKER, Marek: Review of Tools for Semantics Extraction: Application in Tsunami Research Domain. In: Information. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 13, č. 1 (2022), s. [1-30] [online]. ISSN 2078-2489 (online)
- MACHOVÁ, Kristína MACH, Marián VASILKO, Matej: Comparison of machine learning and sentiment analysis in detection of suspicious online reviewers on different type of data. In: Sensors. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 22, č. 1 (2022), s. [1-18] [online, print]. ISSN 1424-3210
- MASLEJ KREŠŇÁKOVÁ, Viera BUTKA, Peter: Metódy hlbokého učenia v analytických úlohách a rozhodovaní. In: QuoVadis Research @ FEI. Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 1 (2022), s. 105-111 [print, online]. ISSN 2585-9587
- BRECKO, Alexander KAJÁTI, Erik ZOLOTOVÁ, Iveta: Industry 5.0 – technológie: interakcie medzi človekom a strojom (3). In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 1 (2022), s. 40-41 [print, online]. ISSN 1335-2237
- BRECKO, Alexander KAJÁTI, Erik PAPCUN, Peter: Industry 5.0 – technológie: bio-inšpirované technológie a inteligentné materiály (4). In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 2 (2022), s. 48-49 [print, online]. ISSN 1335-2237
- HERICH, Dušan MIČKO, Kristián KAJÁTI, Erik: Industry 5.0 – technológie: digitálne dvojča a simulácie v reálnom čase (5). In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 3 (2022), s. 46-47 [print, online]. ISSN 1335-2237

Department of Cybernetics and Artificial Intelligence

- HERICH, Dušan BRECKO, Alexander POMŠÁR, Ladislav: Industry 5.0 technológie: umelá inteligencia (7). In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 5 (2022), s. 50-51 [print, online]. ISSN 1335-2237
- PAPCUN, Peter MIČKO, Kristián KAJÁTI, Erik: Industry 5.0 – technológie: bezpečný prenos, ukladanie a analýza údajov (6). In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 4 (2022), s. 52-53 [print, online]. ISSN 1335-2237
- KROKAVEC, Dušan FILASOVÁ, Anna: On some ways to implement state-multiplicative fault detection in discrete-time linear systems. In: International Journal of Applied Mathematics and Computer Science. Zielona Góra (Poľsko): Politechnika Zielonogorska Roč. 32, č. 2 (2022), s. 229-240 [print]. ISSN 1641-876X
- SARNOVSKÝ, Martin MASLEJ KREŠŇÁKOVÁ, Viera IVANCOVÁ, Klaudia: Fake news detection related to the COVID-19 in Slovak language using deep learning methods. In: Acta Polytechnica Hungarica: An international peer-reviewed scientific journal of Óbuda University, Hungarian Academy of Engineering and IEEE Hungary Section: journal of applied sciences. Budapešť (Maďarsko): Óbudai Egyetem Roč. 19, č. 2 (2022), s. 43-57 [print, online]. ISSN 1785-8860
- ŠATALA, Pavol BUTKA, Peter: Využitie smart zariadení v medicínskej oblasti. In: QuoVadis Research @ FEI. Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 2 (2022), s. 116-123 [print, online]. ISSN 2585-9587
- HERICH, Dušan PAPCUN, Peter ZOLOTOVÁ, Iveta: Industry 5.0 – technológie: energetická efektívnosť a dôveryhodná autonómia (8). In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 6 (2022), s. 50-51 [print, online]. ISSN 1335-2237
- VAŠČÁK, Ján KAJÁTI, Erik PAPCUN, Peter ZOLOTOVÁ, Iveta: Industry 5.0 – transformačná vízia pre Európu (9). In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 7 (2022), s. 32-33 [print, online]. ISSN 1335-2237
- KOSKA, Lukáš JADLOVSKÁ, Anna JADLOVSKÁ, Slávka: Návrh metodiky pre modelovanie, analýzu a simuláciu efektívne kráčajúcich robotických systémov. In: QuoVadis Research @ FEI. Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 1 (2022), s. 41-60 [print, online]. ISSN 2585-9587
- MAGYAR, Ján SINČÁK, Peter: Reinforcement Learning-Based Study Scheduling for Optimal Learning. In: QuoVadis Research @ FEI. Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 1 (2022), s. 29-1 [print, online]. ISSN 2585-9587

Department of Cybernetics and Artificial Intelligence

- PELLA, Daniel TÓTH, Štefan, jr. PARALIČ, Ján GONSORČÍK, Jozef FEDAČKO, Ján JARČUŠKA, Peter PELLA, Dominik PELLA, Zuzana SABOL, František JANKAJOVÁ, Monika VALOČIK, Gabriel PUTRYA, Alina KIRSCHOVÁ, Andrea PLACHÝ, Lukáš RABAJDOVÁ, Miroslava HUŇAVÝ, Mikuláš KAFKOVÁ, Bibiana DÓCI, Ivan TIMKOVÁ, Silvia DVOROŽŇÁKOVÁ, Marianna BABIČ, František BUTKA, Peter DIMUNOVÁ, Lucia MAREKOVÁ, Mária PARALIČOVÁ, Zuzana MAJERNÍK, Jaroslav LUCZY, Ján JÁNOŠÍK, Jakub KMEC, Martin: The possible role of machine learning in detection of increased cardiovascular risk patients – KSC MR Study (design). In: Archives of Medical Science. Poznan (Poľsko): Termedia Publishing House Ltd. Roč. 18, č. 4 (2022), s. 991-997 [print]. ISSN 1734-1922
- PELLA, Zuzana PARALIČ, Ján: Metódy strojového učenia pre tvorbu klasifikačných modelov zameraných na kardiovaskulárne ochorenia. In: QuoVadis Research @ FEI. Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 2 (2022), s. 102-116 [print, online]. ISSN 2585-9587
- DANYS, Lukas ZOLOTOVÁ, Iveta ROMERO, David PAPCUN, Peter KAJÁTI, Erik JAROS, Rene KOUDELKA, Petr KOZIOREK, Jiří MARTINEK, Radek: Visible Light Communication and localization: A study on tracking solutions for Industry 4.0 and the Operator 4.0. In: Journal of manufacturing systems = Manufacturing systems. Dearborn (USA): Society of Manufacturing Engineers Roč. 64 (2022), s. 535-545 [print, online]. ISSN 0278-6125
- MASLEJ KREŠŇÁKOVÁ, Viera SARNOVSKÝ, Martin JACKOVA, Júlia: Use of data augmentation techniques in detection of antisocial behavior using deep learning methods. In: Future Internet. Basel (Švajčiarsko): Multidisciplinary Digital Publishing Institute, 2009 Roč. 14, č. 9 (2022), s. [1-15] [online]. ISSN 1999-5903 (online)
- BRECKO, Alexander KAJÁTI, Erik KOZIOREK, Jiří ZOLOTOVÁ, Iveta: Federated Learning for Edge Computing: A Survey. In: Applied sciences. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 12, č. 18 (2022), s. [1-36] [online]. ISSN 2076-3417 (online)
- MACHOVÁ, Kristína MACH, Marián ADAMIŠÍN, Kamil: Machine learning and lexicon approach to texts processing in the detection of degrees of toxicity in online discussions. In: Sensors. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 22, č. 17 (2022), s. [1-17] [online, print]. ISSN 1424-3210
- MACHOVÁ, Kristína MACH, Marián VASILKO, Matej: Recognition of toxicity of reviews in online discussions. In: Acta Polytechnica Hungarica: An international peer-reviewed scientific journal of Óbuda University, Hungarian Academy of Engineering and IEEE Hungary Section: journal of applied sciences. Budapešť (Maďarsko): Óbudai Egyetem Roč. 19, č. 4 (2022), s. 7-26 [print, online]. ISSN 1785-8860
- KROKAVEC, Dušan FILASOVÁ, Anna: On the Separation Principle in Dynamic Output Controller Design for Uncertain Linear Systems. In: Symmetry: Open Access Journal. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 14, č. 11 (2022), s. [1-12] [online]. ISSN 2073-8994 (online)

Department of Cybernetics and Artificial Intelligence

- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan: ( )Measurement of Prompt D-0, Lambda(+)(c), and Sigma(0,++)(c) (2455) Production in Proton-Proton Collisions at root s=13 TeV. In: Physical Review Letters. College Park (USA): American Physical Society Roč. 128, č. 1 (2022), s. [1-13] [print, online]. ISSN 0031-9007
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich: Charm-quark fragmentation fractions and production cross section at midrapidity in pp collisions at the LHC. In: Physical Review D. College Park (USA): American Institute of Physics Roč. 105, č. 1 (2022), s. [1-14] [print, online]. ISSN 2470-0010
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Production of light (anti)nuclei in pp collisions at root s=13 TeV. In: Journal of High Energy Physics = JHEP. New York (USA): Springer International Publishing AG č. 1 (2022), s. [1-31] [online, print, CD-ROM]. ISSN 1126-6708
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Measurement of inclusive charged-particle b-jet production in pp and p-Pb collisions at root S-NN =5.02 TeV. In: Journal of High Energy Physics = JHEP. New York (USA): Springer International Publishing AG č. 1 (2022), s. [1-40] [online, print, CD-ROM]. ISSN 1126-6708
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Prompt D-0, D+, and D*(+) production in Pb-Pb collisions at root S-NN=5.02 TeV. In: Journal of High Energy Physics = JHEP. New York (USA): Springer International Publishing AG č. 1 (2022), s. [1-48] [online, print, CD-ROM]. ISSN 1126-6708
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. AGLIERI-RINELLA, Gianluca AGNELLO, M. JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan: Measurement of the Groomed Jet Radius and Momentum Splitting Fraction in pp and Pb-Pb Collisions at root S-NN=5.02 TeV. In: Physical Review Letters. College Park (USA): American Physical Society Roč. 128, č. 10 (2022), s. [1-14] [print, online]. ISSN 0031-9007
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ,

Department of Cybernetics and Artificial Intelligence

Zuzana VAĽA, Martin VRLÁKOVÁ, Janka: Prompt and non-prompt J/psi production cross sections at midrapidity in proton-proton collisions at root s=5.02 and 13 TeV. In: Journal of High Energy Physics = JHEP. New York (USA): Springer International Publishing AG č. 3 (2022), s. [1-34] [online, print, CD-ROM]. ISSN 1126-6708

- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan: Production of Lambda and K-S(0) in jets in p-Pb collisions at root s(NN)=5.02 TeV and pp collisions at root s=7 TeV. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 827 (2022), s. [1-15] [print, online]. ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan: Nuclear modification factor of light neutral-meson spectra up to high transverse momentum in p-Pb collisions at root S-NN=8.16 TeV. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 827 (2022), s. [1-12] [print, online]. ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Production of light (anti)nuclei in pp collisions at root s=5.02 TeV. In: European Physical Journal C: Particles and Fields. Berlín (Nemecko): Springer International Publishing AG Roč. 82, č. 4 (2022), s. [1-16] [print, online]. ISSN 1434-6044
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich: Measurement of prompt D-s(+)-meson production and azimuthal anisotropy in Pb-Pb collisions at root s(NN)=5.02 TeV. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 827 (2022), s. [1-17] [print, online]. ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Investigating charm production and fragmentation via azimuthal correlations of prompt D mesons with charged particles in pp collisions at root s=13 TeV. In: European Physical Journal C: Particles and Fields. Berlín (Nemecko): Springer International Publishing AG Roč. 82, č. 4 (2022), s. [1-28] [print, online]. ISSN 1434-6044

Department of Cybernetics and Artificial Intelligence

- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan: Polarization of Lambda and (Lambda)over-bar Hyperons along the Beam Direction in Pb-Pb Collisions at root s(NN)=5.02 TeV. In: Physical Review Letters. College Park (USA): American Physical Society Roč. 128, č. 17 (2022), s. [1-13] [print, online]. ISSN 0031-9007
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján KOSKA, Lukáš TKÁČIK, Milan DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich: Measurement of K*(892)(+/-) production in inelastic pp collisions at the LHC. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 828 (2022), s. [1-16] [print, online]. ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Forward rapidity J/psi production as a function of charged-particle multiplicity in pp collisions at root s=5.02 and 13 TeV. In: Journal of High Energy Physics = JHEP. New York (USA): Springer International Publishing AG č. 6 (2022), s. [1-32] [online, print, CD-ROM]. ISSN 1126-6708
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Multiplicity dependence of charged-particle jet production in pp collisions at root s=13 TeV. In: European Physical Journal C: Particles and Fields. Berlín (Nemecko): Springer International Publishing AG Roč. 82, č. 6 (2022), s. [1-30] [print, online]. ISSN 1434-6044
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan KOSKA, Lukáš: Investigating the role of strangeness in baryon-antibaryon annihilation at the LHC. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 829 (2022), s. [1-15] [print, online]. ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ,

Department of Cybernetics and Artificial Intelligence

Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: Observation of a multiplicity dependence in the p(T)-differential charm baryon-to-meson ratios in proton-proton collisions at root s=13 TeV. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 829 (2022), s. [1-15] [print, online]. ISSN 0370-2693

- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan KOSKA, Lukáš: Hypertriton Production in p-Pb Collisions at root S-NN =5.02 TeV. In: Physical Review Letters. College Park (USA): American Physical Society Roč. 128, č. 25 (2022), s. [1-13] [print, online]. ISSN 0031-9007
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca AGNELLO, M. MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan KOSKA, Lukáš: Exploring the N Lambda-N Sigma coupled system with high precision correlation techniques at the LHC. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 833 (2022), s. [1-12] [print, online]. ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: General balance functions of identified charged hadron pairs of (pi, K, p) in Pb-Pb collisions at root s(NN)=2.76 TeV. In: Physics Letters B: Particle Physics, Nuclear Physics and Cosmology. Amsterdam (Holandsko): Elsevier č. 833 (2022), s. [1-13] [print, online]. ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan KOSKA, Lukáš: Measurements of the groomed and ungroomed jet angularities in pp collisions at root s=5.02 TeV, ALICE Collaboration - 2022.In: Journal of High Energy Physics = JHEP. - New York (USA) : Springer International Publishing AG č. 5 (2022), s. [1-42] [online, print, CD-ROM]. - ISSN 1126-6708
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan KOSKA, Lukáš: Direct observation of the dead-cone effect in quantum

Department of Cybernetics and Artificial Intelligence

chromodynamics, ALICE Collaboration - 2022.In: Nature. - London (Veľká Británia): Nature Publishing Group Roč. 605, č. 7910 (2022), s. 440-446 [print]. - ISSN 0028-0836

- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan KOSKA, Lukáš: Inclusive, prompt and non-prompt J/psi production at midrapidity in p-Pb collisions at root s(NN)=5.02 TeV, ALICE Collaboration - 2022.In: Journal of High Energy Physics = JHEP. - New York (USA) : Springer International Publishing AG č. 6 (2022), s. [1-36] [online, print, CD-ROM]. - ISSN 1126-6708
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan KOSKA, Lukáš BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka: Study of very forward energy and its correlation with particle production at midrapidity in pp and p-Pb collisions at the LHC, ALICE Collaboration - 2022.In: Journal of High Energy Physics = JHEP. - New York (USA) : Springer International Publishing AG č. 8 (2022), s. [1-27] [online, print, CD-ROM]. - ISSN 1126-6708
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich BOMBARA, Marek KRAVČÁKOVÁ, Adela REŠČÁKOVÁ, Zuzana VAĽA, Martin VRLÁKOVÁ, Janka JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan DURKÁČ, Martin: Neutral to charged kaon yield fluctuations in Pb - Pb collisions at root S-NN=2.76 TeV, ALICE Collaboration - 2022.In: Physics Letters B : Particle Physics, Nuclear Physics and Cosmology. - Amsterdam (Holandsko) : Elsevier č. 832 (2022), s. [1-12] [print, online]. - ISSN 0370-2693
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: First study of the two-body scattering involving charm hadrons, ALICE Collaboration - 2022.In: Physical Review D. - College Park (USA) : American Institute of Physics Roč. 106, č. 5 (2022), s. [1-16] [print, online]. - ISSN 2470-0010
- ACHARYA, Shreyasi ADAMOVÁ, Dagmar ADLER, A. ADOLFSSON, Jonatan AGLIERI-RINELLA, Gianluca AGNELLO, M. DŽALAIOVÁ, Natália MEREŠ, Michal PIKNA, Miroslav SITÁR, Branislav SZABÓ, Alexander SZARKA, Imrich JADLOVSKÁ, Slávka JADLOVSKÝ, Ján TKÁČIK, Milan: (KSKS0)-K-0 and (KSK +/-)-K-0 femtoscopy in pp collisions at root s=5.02and 13 TeV, ALICE Collaboration - 2022.In: Physics Letters B : Particle Physics, Nuclear Physics and Cosmology. - Amsterdam (Holandsko) : Elsevier č. 833 (2022), s.

Department of Cybernetics and Artificial Intelligence

[1-15] [print, online]. - ISSN 0370-2693

Other publications

Publication Type	Journals		Textbooks	Conferences		Patents	Other
	Foreign	Home	Home	Foreign	Home	Domestic	
Number				15	41		

Faculty of Electrical Engineering
and Informatics

Department of Electric Power Engineering

Department of Electric Power Engineering

ESSENTIAL INFORMATION:

Head of Department: ***Dr.h.c. prof. Ing. Michal Kolcun, PhD.***
Email: ***michal.kolcun@tuke.sk***
Web: ***https://kee.fei.tuke.sk***
Phone/Fax: ***+421 55 602 2592***

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 an independent science and research unit of the faculty. The most important structural changes of the department were:

- Integration of the 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 4 professors, 6 associate professors, 5 assistant professors, 2 scientific research employees and 6 internal PhD students.

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




Department of Electric Power Engineering

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

The department is responsible for the 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 Equipment, Unconventional Power Sources, Electro Heat and Lighting Engineering.

The department offers 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 the educational process 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 the 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
- Photovoltaic devices with optimal efficiency and photovoltaic system properties
- Diagnostics of electric power equipment
- 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.

STAFF

Professors:	**prof. Ing. Roman Cimbala, PhD.**
	Dr.h.c. prof. Ing. Michal Kolcun, PhD.
	prof. Ing. Iraida Kolcunová, PhD.
	prof. Ing. Juraj Kurimský, PhD.
Associate Professors:	**doc. Ing. Ľubomír Beňa, PhD.**
	doc. Ing. Zsolt Čonka, PhD. (until 24.06.2022)
	doc. Ing. Alexander Mészáros, PhD. (until 31.01.2022)
	doc. Dr. Ing. Bystrík Dolník

Department of Electric Power Engineering

	doc. Ing. Jaroslav Džmura, PhD.
	doc. Ing. Dušan Medveď, PhD.
	doc. Ing. Jaroslav Petráš, PhD.
Assistant Professors:	**Ing. Samuel Bucko, PhD. (since 1.2.2022)**
	Ing. Zsolt Čonka, PhD. (until 23.06.2022)
	Ing. Jozef Király, PhD.
	Ing. Marián Mešter, PhD. (since 1.10.2022)
	Ing. Marek Pavlík PhD.
	Ing. Ján Zbojovský, PhD.
Scientific-research staff:	**Dagmar Kramolišová**
	Ing. Jana Varnavčinová
Technical staff:	**Dagmar Kramolišová**
	Ing. Jana Varnavčinová
Ph.D. students:	**Ing. Peter Havran (until 23.08.2022)**
	Ing. Vladimír Kohan (until 23.08.2022)
	Ing. Rikin Jitendrakumar Tailor
	Ing. Ľuboš Šárpataky
	Ing. Miloš Šárpataky
	Ing. Róbert Štefko

TEACHING

Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Electrical Engineering	*1st*	*2/2*	*Cimbala*
Fundamentals of Algorithms and Programming	*1st*	*0/2*	*Zbojovský*
Introduction to Engineering	*1st*	*0/2*	*Kolcun*
Fundamentals of environmental engineering	*2nd*	*2/2*	*Pavlík*
Programming	*2nd*	*0/2*	*Petráš*
Power transmission	*3rd*	*2/2*	*Kurimský*
Fundamentals of designing in electric power engineering	*3rd*	*1/3*	*Zbojovský*
Faults in Electric Power System	*4th*	*2/2*	*Beňa*
Light – technology	*4th*	*2/2*	*Beňa*
Electric Power Plants	*4th*	*2/2*	*Kolcun*

Department of Electric Power Engineering

Database systems - SQL Oracle	*4th*	*2/2*	*Petráš*
Measurement in electric power engineering	*4th*	*2/2*	*Kurimský*
Conversion of Electrical Energy	*4th*	*2/2*	*Medveď*
Bachelor Project	*5th*	*0/8*	*(Supervisors)*
Electrical installation and substation	*5th*	*2/3*	*Džmura*
High Voltage Engineering	*5th*	*2/3*	*Kolcunová*
Operation of electric power plants	*5th*	*2/2*	*Džmura*
Economy in the electric power engineering	*5th*	*2/2*	*Zbojovský*
Professional experience in an enterprise	*5th*	*0/8*	*Džmura*
Bachelor Thesis	*6th*	*0/12*	*(Supervisors)*
Electrical relaying in the electric power system	*6th*	*2/3*	*Čonka*
Unconventional energy sources	*6th*	*2/2*	*Pavlík*
Prophylactics of power engineering equipment	*6th*	*2/2*	*Kolcunová*
Electrotechnical capability	*6th*	*2/2*	*Pavlík*

Graduate study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Automatization in Electric Power Engineering	*7th*	*2/2*	*Cimbala*
Quality and reliability of electric power delivery	*7th*	*2/2*	*Dolník*
Optimisation of Electric Power System Operation	*7th*	*2/3*	*Kolcun*
Overvoltages in Electric Networks	*7th*	*2/3*	*Dolník*
Electrical power network	*7th*	*2/2*	*Beňa*
Thesis project 1	*8th*	*0/4*	*(Supervisors)*
Electric power system operation control	*8th*	*2/3*	*Kolcun*
Transient stability of the power system	*8th*	*2/2*	*Džmura*
Electric power systems and the environment	*8th*	*2/2*	*Király*
Design of the illuminating systems	*8th*	*1/3*	*Beňa*
Thesis project 2	*9th*	*0/8*	*(Supervisors)*
Diagnostic in electric power engineering	*9th*	*2/2*	*Kolcunová*
Protection Systems in Electric Power System	*9th*	*2/2*	*Kurimský*

Department of Electric Power Engineering

Automated electrical installation systems	*9th*	*2/2*	*Petráš*
Electro-magnetic compatibility	*9th*	*2/3*	*Dolník*
Designing in the electrical power engineering	*9th*	*2/2*	*Király*
Master Thesis	*10th*	*0/18*	*(Supervisors)*
Management of Electric Power Enterprises	*10th*	*2/0*	*Cimbala*
Main Knowledge of Study Field of Electrical Engineering and its Use	*10th*	*0/4*	*(Supervisors)*

Postgraduate study (PhD..)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Theoretic electric power engineering (4)	*1st*	*2/2*	*Cimbala, Kolcun, Kolcunová, Kurimský, Beňa, Dolník, Džmura, Medveď, Petráš*
Scientific Activity 1 (4)	*1st*	*0/10*	*(Supervisors)*
Electricity supply system analysis (4)	*2nd*	*2/3*	*Cimbala, Kolcun, Kolcunová, Kurimský, Beňa, Dolník, Džmura, ,Medveď, Petráš*
Subject of specialised area (4)	*3rd*	*2/3*	*Cimbala, Kolcun, Kolcunová, Kurimský, Beňa, Dolník, Džmura, Medveď, Petráš*
Scientific Activity 2 (4)	*3rd*	*0/10*	*(Supervisors)*
Scientific Activity 3 (4)	*5th*	*0/10*	*(Supervisors)*
Scientific Activity 4 (4)	*6th*	*0/10*	*(Supervisors)*
Scientific Activity 5 (4)	*7th*	*0/10*	*(Supervisors)*

LABORATORIES

- Three PC Laboratories (LVT I, LVT II and LVT III)
- Laboratory of Electrical Relays
- Laboratory of Environmental Protection
- Laboratory of Electrical Power Network
- Laboratory of Lighting Engineering
- Laboratory of High Voltage Engineering
- Laboratory of Diagnostics and Prophylactics
- Laboratory of Electrostatics

Department of Electric Power Engineering

- Laboratory of Partial Discharges
- Laboratory of Smart Electrical Installations Systems
- Laboratory of Electric Power System Operation
- Laboratory of Electro-magnetic Compatibility
- Laboratory of Gas Insulators
- Laboratory of Photovoltaics
- Laboratory of Dielectric Spectroscopy
- Laboratory LAV6 – Measurement workstation of OZE
- Laboratory of Renewable Energy Sources
- Laboratory SMART INDUSTRY LAB
- EMC chamber

RESEARCH PROJECTS

- ***Radio-frequency interface in biology and ecology of ixodid ticks****. Slovak Research and Development Agency (APVV) No. APVV-17-0372, duration: 2018 - 2022, co-ordinator: Kurimský, J.*
- *Nanofluids in Electrical Engineering. Slovak Research and Development Agency (APVV) No. APVV-18-0160, duration: 2019 - 2023, co-ordinator: Cimbala, R.*
- ***Electricity self-sufficiency in conditions of liberalized electricity market.*** *Slovak Research and Development Agency (APVV) No. APVV-19-0576 duration: 2020 - 2024, co-ordinator: Kolcun, M.*
- ***Energy management improvement of hybrid photovoltaic systems of local objects with storage batteries.*** *Slovak Research and Development Agency (APVV) No. SK-UA-21-0024 duration: 2022 - 2023, co-ordinator: Kolcun, M.*
- ***Dynamic allocation of electricity capacities.*** *Slovak Research and Development Agency (APVV) No. APVV-21-0312 duration: 2022 - 2024, co-ordinator: Medveď, D.*
- ***Structure and dynamics of magnetic fluids in an electric field.*** *Scientific grant agency project (S.G.A.) No. 2/0011/20, duration: 2020-2023, co-ordinator: Kurimský, J.*
- ***Research into the possibilities of implementing Wide Area Monitoring Systems (WAMS) into the electricity system.*** *Scientific grant agency project (S.G.A.) No 1/0757/21, duration: 2021-2023, co-ordinator: Kolcun, M.*
- ***Research of changes in electrophysical properties of modern insulating materials for high-voltage technology during multifactor degradation.*** *Scientific grant agency project (S.G.A.) No 1/0154/21, duration: 2021-2023, co-ordinator: Cimbala, R.*
- ***New Energy Solutions in Carpathian Area.*** *The Hungary-Slovakia-Romania-Ukraine (HU-SK-RO-UA) European Neighbourhood Instrument (ENI) Cross Border Cooperation (CBC) Programme 2014-2020, HUSKROUA/1702/6.1/0014, duration: 2020 – 2022*
- ***Transfer of knowledge from the field of innovative human interfaces for smart building control into education process.*** *Cultural and Educational Grant Agency project (KEGA) No. 013TUKE-4/2021, duration: 2021 - 2023, co-ordinator: Petráš, J.*

Department of Electric Power Engineering

- ***Electromobility in smart grids.*** *Faculty of Electrical Engineering Technical University of Košice (FEI TUKE) No. FEI-2022-85, duration: 2022, co-ordinator: Király, J.*

CO-OPERATION

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
- VSD – Eastern Slovakia Distribution, 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.,

International Co-operation

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

Department of Electric Power Engineering

- Technical University of Riga, Latvia
- Technical University of Tallinn, Estonia
- COMTEST Ltd. Netherlands
- 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
- Rzeszów University of Technology, Poland

Visitors to the Department

- Dr. Ervin Rácz – ÓBUDA University Budapest, Hungary
- MSc. Zoltán Varga – ÓBUDA University Budapest, Hungary
- Dr. Ing. Wielawa Malska, PhD. – Rzeszow University of Technology, Poland
- Dr. Ing. Tomasz Binkowski, PhD. – Rzeszow University of Technology, Poland
- Prof. Dr. Eng. Iryna Shvedchykova – Kyiv National University of Technologies and Design, Ukraine
- Dr. inž. Dariusz Sobczynski– Rzeszow University of Technology, Poland

Visits of Staff Members to Foreign Institutions

- Šárpataky, M.: Brno University of Technology, Czech Republic, Czech Republic, 31.1.-30.6.2022
- Petráš, J.: Wroclaw University of Science and Technology, Poland, 27.-30.03.2022
- Zbojovský, J.: Wroclaw University of Science and Technology, Poland, 27.-30.03.2022
- Šárpataky, Ľ.: Graz University of Technology, Austria, 28.3.- 30.6.2022
- Kolcun, M.: University of West Bohemia, Plzeň, Czech Republic, 17.-20.05.2022
- Džmura, J.: University of West Bohemia, Plzeň, Czech Republic, 17.-20.05.2022
- Pavlík, M.: University of West Bohemia, Plzeň, Czech Republic, 17.-20.05.2022
- Medveď, D.: University of West Bohemia, Plzeň, Czech Republic, 17.-20.05.2022
- Čonka, Z.: University of West Bohemia, Plzeň, Czech Republic, 17.-20.05.2022
- Zbojovský, J.: University of West Bohemia, Plzeň, Czech Republic, 17.-20.05.2022
- Čonka, Z.: Intersolar Europe 2022 forum, Munich, Germany, 10.-13.05.2022
- Kolcun, M.: Intersolar Europe 2022 forum, Munich, Germany, 10.-13.05.2022
- Zbojovský, J.: Intersolar Europe 2022 forum, Munich, Germany, 10.-13.05.2022
- Pavlík, M.: Intersolar Europe 2022 forum, Munich, Germany, 10.-13.05.2022

Department of Electric Power Engineering

- Medveď, D.: ÓBUDA University Budapest, Hungary, 02.-06.05.2022
- Čonka, Z.: ÓBUDA University Budapest, Hungary, 02.-06.05.2022
- Zbojovský, J.: ÓBUDA University Budapest, Hungary, 02.-06.05.2022
- Medveď, D.: Conference EPE 2022 VŠB-Technical University of Ostrava, Czech Republic, 08.-10.06.2022
- Kohan, V.: Conference EPE 2022 VŠB-Technical University of Ostrava, Czech Republic, 08.-10.06.2022
- Štefko, R.: Conference EPE 2022 VŠB-Technical University of Ostrava, Czech Republic, 08.-10.06.2022
- Havran, P.: Conference EPE 2022 VŠB-Technical University of Ostrava, Czech Republic, 08.-10.06.2022
- Zbojovský, J.: INELS system training, Buchlovice, Czech Republic, 07.-10.06.2022
- Petráš, J.: INELS system training, Buchlovice, Czech Republic, 07.-10.06.2022
- Pavlík, M.: INELS system training, Buchlovice, Czech Republic, 07.-10.06.2022
- Džmura, J.: INELS system training, Buchlovice, Czech Republic, 07.-10.06.2022
- Čonka, Z.: Montáže Čakovice, s.r.o., Praha, Czech Republic, 19.-22.09.2022
- Bucko, S.: Montáže Čakovice, s.r.o., Praha, Czech Republic, 19.-22.09.2022
- Štefko, R.: Brno University of Technology, Czech Republic, 15.9.-10.06.2022
- Zbojovský, J.: University of West Bohemia, Plzeň, Czech Republic, 20.-17.12.2022
- Pavlík, M.: University of West Bohemia, Plzeň, Czech Republic, 20.-24.09.2022
- Petráš, J.: University of West Bohemia, Plzeň, Czech Republic, 20.-24.09.2022
- Kolcun, M.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Zbojovský, J.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Pavlík, M.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Čonka, Z.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Medveď, D.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Bucko, S.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Kolcunová, I.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Varnavčinová, J.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Kramolišová, D.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Király, J.: ÓBUDA University Budapest, Hungary, 21.-23.11.2022
- Cimbala, R.: University of Miskolc, Hungary, 10.11.2022
- Beňa, Ľ.: Rzeszow University of Technology, Poland, 29.-30.11.2022
- Kolcun, M.: Rzeszow University of Technology, Poland, 29.-30.11.2022
- Király, J.: Rzeszow University of Technology, Poland, 29.-30.11.2022
- Medveď, D.: Rzeszow University of Technology, Poland, 29.-30.11.2022
- Čonka, Z.: Rzeszow University of Technology, Poland, 29.-30.11.2022

Department of Electric Power Engineering

- Pavlík, M.: Rzeszow University of Technology, Poland, 29.-30.11.2022
- Bucko, S.: Rzeszow University of Technology, Poland, 29.-30.11.2022

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 Budapest, Hungary
- Kolcunová, I.: Honorary Professor of Sankt - Petersburg Power Education Institute of Power Engineering, State Department of Russian Federation, Russia
- Kolcun, M.: nomination of Dr.h.c. Czestochowa University of Technology, Poland
- 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
- Čonka, Z.: Member of AD&TE research group at Óbuda University in Budapest
- Zbojovský, J.: Member of Scientific Board CANDO EPE Óbuda University in Budapest
- Kolcun, M.: Member of Editorial Board Journal Vestnik KGEU, Kazan, Russia
- Kolcun, M.: Member of Editorial Board Journal Problemy Energetiky, Kazan, Russia

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

Department of Electric Power Engineering

- 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
- Beňa, Ľ.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Cimbala, R.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Čonka, Z.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Dolník, B.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Džmura, J.: Chairman 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
- Pavlík, M.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Petráš, J.: Member of Slovak Electrotechnical Society, TU FEI Košice
- Zbojovský, J.: Member of Slovak Electrotechnical Society, TU FEI Košice

THESES

Bachelor's Theses

- Adamčák, M.: Electrical insulating properties of nanofluids, (Kurimský, J.)
- Andraško, E.: Self-sufficiency of electric power engineering of Slovakia, (Medveď, D.)
- Balatoni, L.: 3D design of electrical installation of a family house, (Špak, E.)
- Baran, G.: Open-source platforms for power purposes, (Medveď, D.)
- Barnišin, M.: Modernization of public lighting in the village of Turany nad Ondavou, (Pavlík, M.)
- Binar, M.: Design of a non-standardized energy source and its practical use, (Medveď, D.)

Department of Electric Power Engineering

- Bončik, P.: Design of the reconstruction of the lighting of the cultural house in Snina, (Beňa, Ľ.)
- Černý, B.: Network expansion proposal for the site in question, (Pavlík, M.)
- Čižmár, P.: Current technological possibilities of establishing hight voltage substations and own electricity consumption as part of very high voltage/hight voltage energy sites, (Hotový, M.)
- Drotár, D.: Influence of voltage polarity on the flashover of a solid dielectric, (Kolcunová, I.)
- Dzúr, D.: Monitoring the parameters of photovoltaic cells, (Pavlík, M.)
- Eliáš, K.: Design of electrical installation and lightning protection system for school, (Pavlík, M.)
- Gaššo, P.: The usage of Wavelet transform for partial discharge signal evaluation, (Petráš, J.)
- Hovanec, M.: Non - traditional energy sources, (Kolcun, M.)
- Charka, A.: Analysis of photovoltaic systems, (Pavlík, M.)
- Iľaš, R.: Design of Public Lighting in a Revitalized Park, (Beňa, Ľ.)
- Ircha, Š.: Measurements during the reconstruction of low and high voltage networks, (Varga, P.)
- Klein, M.: Design of electrical installation in the Eplan software, (Zbojovský, J.)
- Knapík, K.: Implementation of intelligent lighting, (Medveď, D.)
- Grešák, M.: Smart electricity meters and their use, (Pavlík, M.)
- Lenčič, M.: Sustainable energy management, (Zbojovský, J.)
- Mazur, M.: Insulating Fluids for Power Transformers, (Kurimský, J.)
- Nazarej, M.: Design of electrical installations in the BIM environment, (Király, J.)
- Nemec, T.: Parametrization of MV protection, (Čonka, Z.)
- Obrin, S.: Microgrid systems, (Čonka, Z.)
- Olšinár, D.: Comparison of different designs of photovoltaic systems for a family house, (Pavlík, M.)
- Pacovský, D.: Design of reactive power compensation of a multifunctional building, (Király, J.)
- Palko, M.: Specification of technical benefits of using RES in the electricity system and their economic evaluation, (Čonka, Z.)
- Popovič, M.: Aging of the combined oil and magnetic particles insulation system, (Cimbala, R.)
- Rovder, A.: Impedance spectroscopy of magnetic fluids, (Cimbala, R.)
- Rusnáček, D.: Influence of voltage polarity on the value of breakdown strength of liquid dielectrics, (Kolcunová, I.)
- Senderák, E.: Design of photovoltaic power plant for family house, (Čonka, Z.)
- Sitáš, R.: Modelling the electromagnetic field in Ansys Electronic desktop 2021 software, (Zbojovský, J.)
- Timura, T.: Overview of economic analyzes for the electric power engineering, (Zbojovský, J.)
- Tomko, G.: Increasing the efficiency of cooling by magnetic fluids, (Cimbala, R.)
- Varháč, M.: The future of renewable energy sources, (Kolcun, M.)

Department of Electric Power Engineering

- Zarzycki, W.: Reconstruction of gas station lighting, (Beňa, Ľ.)
- Zuštin, T.: Determination of the Optimal Composition of a Hybrid System for Powering an Industrial Building, (Beňa, Ľ.)
- Kozák, Š.: Energy Performance Contracting, (Mészáros, A.)
- Kozák, V.: Impedance spectroscopy of insulation materials in the time domain, (Cimbala, R.)
- Lelko M.: Innovative methods of KNX/EIB system control, (Petráš, J.)
- Lipka, T.: KNX/EIB automated electric installation system, (Petráš, J.)
- Lonc, Š.: Lighting and technical project of public lighting, (Pavlík, M.)

Master's Theses

- Daduľák, P.: Raspberry Pi and Arduino platforms and their use in electric power engineering, (Zbojovský, J.)
- Endrizal, M.: Influence of 5G networks on living organisms, (Džmura, J.)
- Gadušová, Z.: Analysis of the effect of non-ionizing radiation, (Medveď, D.)
- Katis Gedeon, A.: Dielectric spectroscopy of fulleren based nanoliquids, (Cimbala, R.)
- Chovan, B.: Specification of impacts adversely affecting PS of SR and their elimination, (Medveď, D.)
- Janke, J.: Innovative methods of KNX/EIB system control, (Petráš, J.)
- Jurenka, V.: Possibilities of increasing the transmission capacity of overhead power lines using high-temperature conductors, (Beňa, Ľ.)
- Klučár, V. Utilization of WAMS in the power system, (Kolcun, M.)
- Kolembus, P.: Electrical breakdown strength of liquid dielectrics, (Kolcunová, I.)
- Mačejovský, B.: Design of intelligent electrical installation of a family house, (Beňa, Ľ.)
- Majovský, S.: Influence of humidity on electrical breakdown strength of liquid dielectrics, (Kolcunová, I.)
- Matej, J.: Smart methods of KNX/EIB system control, (Petráš, J.)
- Matik, M.: Economical and technical comparison of conventional and modern digital control of electrical substations, (Kolcun ml, M.)
- Miháliková, A.: The impact of RES on operation of the power system and the design of a microgrid, (Kolcun, M.)
- Miller, A.P.: Design and economic evaluation of photovoltaic design, (Pavlík, M.)
- Onofrej, J.: Risk management and lightning protection design for different types of places, (Pavlík, M.)
- Pajtáš, P.: Study of electrophysical properties of progressive insulating materials for power engineering, (Dolník, B.)
- Polčan, M.: Study of electrophysical properties of ferroelectrics during degradation by accelerated aging, (Dolník, B.)
- Rudňanský, R.: Formation of electrostatic charges during shielding of electromagnetic fields, (Zbojovský, J.)
- Stančák, P.: Modeling of liquid cooling with nanomaterials, (Cimbala, R.)

Department of Electric Power Engineering

- Straka, M.: Cross - border electricity trading, (Čonka, Z.)
- Šefčík, I.: Modeling of auxiliary system of Electrical Substation in software ETAP, (Patúš, R.)
- Šoltis, A.: Automated electric installation system KNX/EIB, (Petráš, J.)
- Vangor, B.: Economic and environmental aspects of distributed electricity generation, (Bucko, S.)
- Venglarčík, I.: Insulator pollution analysis, (Džmura, J.)
- Vico, M.: Assessment of wind park influence on HV electric network stability, (Fabián, Ľ.)
- Záviš, G.: Dynamics of breakdown in magnetic fluids, (Kurimský, J.)

Doctoral Theses

- Kohan, V. Research of utilization of WAMS for power system control. TU Košice, 2022, pp. 153 (Kolcun, M.) (In Slovak)
- Havran, P.: Analysis of Changes in Electro-physical Structure of Insulation Materials Using Dielectric Spectroscopy. TU Košice, 2022, pp. 131 (Cimbala, R.) (In Slovak)

Inaugural Dissertation

- Čonka, Z. The use of WAMS technology in the management of electric power systems. TU Košice, 2022, pp. 104 (Kolcun, M.) (In Slovak)

OTHER ACTIVIES

Conferences, Seminars

- Symposium: Elektroenergetika 2022, 12.-14.9.2022, Stará Lesná- High Tatras, Slovak Republic
- Scientific and technical colloquium for APVV-17-0372 project "Spolupráca výskumných pracovísk a smerovanie výskumu rozhraní technických a biologických systémov", 01.-03.06.2022, Stará Lesná - High Tatras, Slovak Republic
- Scientific and technical colloquium for APVV-19-0576 and APVV-21-0312 project "Sebestačnosť a udržateľnosť elektroenergetiky", 12.-14.10.2022, Stará Lesná - High Tatras, Slovak Republic
- Specialized Seminar: Current problems of electric power engineering in SR, 3.- 4.11.2022, Poráč, Slovak Republic.

Projects for Industry Companies

- Cimbala, R.: CLARE A303J AC/DC Flash tester calibration, Stroptel, s.r.o., Inc. 2022, Slovak Republic
- Kolcun, M.: Advertising contract for trade name presentation during the XI. International scientific symposium EE 2022, SE, Inc. 2022, Slovak Republic
- Kolcun, M.: The study of connectivity according to SSD, Inc. requirements, 2022, Slovak Republic
- Kolcun, M.: Technical and economic study, VSD, Inc. 2022, Slovak Republic
- Kolcun, M.: Preparation of hybrid systems for testing, VSD, Inc., 2022, Slovak Republic
- Kolcun, M.: Deed of gift for support of XI. International scientific symposium EE 2022, VSD, Inc. 2022, Slovak

Department of Electric Power Engineering

Republic

- Kolcun, M.: Order contract for trade name presentation during the XI. International scientific symposium EE 2022, SEPS, Inc., Slovak Republic
- Kolcun, M.: Provision contract Nadácia VSE, Inc. 2022, Slovak Republic
- Kolcun, M.: Provision contract, SEPS, a.s. Inc. 2022, Slovak Republic
- Kolcun, M.: Provision contract Grant Nadácia PONTIS, Inc. 2022, Slovak Republic
- Kolcun, M.: Provision contract Grant Nadácia PONTIS, Inc. 2022, Slovak Republic
- Kolcun, M.: Contract of cooperation, VSD, Inc. 2022, Slovak Republic

Compositions for Dissertation Examinations

- Šárpataky, Ľ.: Research and diagnostics of standard and progressive electrical insulating materials for insulator (Dolník, R.)
- Šárpataky, M.: Research on alternative liquid dielectrics for high voltage applications (Kurimský, J.)
- Štefko, R.: Protection and fault management system for microgrids and active distribution networks (Kolcun, M.)
- Rikin J. T.: Design of a smart network in an industrial zone (Beňa, Ľ.)

PUBLICATIONS

Journals

- MARGITOVÁ, Anastázia - KOLCUN, Michal - KANÁLIK, Martin: Zvyšovanie prenosovej schopnosti vonkajších elektrických vedení výpočtom dynamickej ampacity / - 2021. In: QuoVadis Research @ FEI. - Košice (Slovensko): Technical University of Košice, 2018 Vol. 4, No. 2 (2021), pp. 4-16 [print, online]. - ISSN 2585-9587, http://quovadipp.fei.tuke.sk/quovadis-v4-n2.pdf.
- MEDVEĎ, Dušan - KOLCUN, Michal - PAVLÍK, Marek - BEŇA, Ľubomír - MEŠTER, Marián: Analysis of Prosumer Behavior in the Electrical Network / - 2021. In: Energies. - Basel (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 14, No. 24 (2021), pp. [1-20] [online]. - ISSN 1996-1073 (online) Accessible online: http://dx.doi.org/10.3390/en14248212.
- ŠÁRPATAKY, Miloš - KURIMSKÝ, Juraj - RAJŇÁK, Michal: Dielectric fluids for power transformers with special emphasis on biodegradable nanofluids / - 2021. In: Nanomaterials. - Basel (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 11, No. 11 (2021), pp. [1-28] [online]. - ISSN 2079-4991 (online) Accessible online: https://doi.org/10.3390/nano11112885.
- KOHAN, Vladimír - ČONKA, Zsolt - KOLCUN, Michal - HAVRAN, Peter - ŠTEFKO, Róbert: Regulácia výkonu veterných elektrární / - 2021. In: Elektroenergetika: International Scientific and Professional Journal on Electrical Engineering: Medzinárodný vedecký a odborný časopis pre elektroenergetiku. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 14, No. 2 (2021), pp. 10-17 [print]. - ISSN 1337 -6756 Accessible online: http://jeen.fei.tuke.sk/index.php/jeen/article/view/502/571.

Department of Electric Power Engineering

- PAVLÍK, Marek - MEDVEĎ, Dušan: Measuring shielding effectiveness of electromagnetic field for degradation shielding paint / - 2021. In: Przegląd Elektrotechniczny = Electrotechnical Review. - Warszawa (Poland): Stowarzyszenie Elektrykow Polskich, 1919 Vol. 97, No. 12 (2021), pp. 226-229 [print, online]. - ISSN 0033-2097 Accessible online: https://doi.org/10.15199/48.2021.12.47.
- MEDVEĎ, Dušan - ZBOJOVSKÝ, Ján: Influence of the position of the electrical contact on the size of the temperature distribution / - 2021. In: Przegląd Elektrotechniczny = Electrotechnical Review. - Warszawa (Poland): Stowarzyszenie Elektrykow Polskich, 1919 Vol. 97, No. 12 (2021), pp. 230-233 [print, online]. - ISSN 0033-2097 Accessible online: https://doi.org/10.15199/48.2021.12.48.
- ŠÁRPATAKY, Ľuboš - DOLNÍK, Bystrík: Measurement of leakage current in wet and polluted conditions using different sensing electrodes / - 2021. In: Acta Electrotechnica et Informatica. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 21, No. 1 (2021), pp. 24-29 [print, online]. - ISSN 1335-8243 Accessible online: https://doi.org/10.2478/aei-2022-0004.
- ZBOJOVSKÝ, Ján - DŽMURA, Jaroslav - KURIMSKÝ, Juraj - PAVLÍK, Marek - CIMBALA, Roman: Analýza parametrov prostredia v okolí vybraných telekomunikačných vysielačov v lokalite Košice a okolie / - 2021. In: Fyzikálne faktory prostredia = FFP: časopis o problematike fyzikálnych faktorov prostredia. - Košice (Slovakia): IbSolve Vol. 11, No. 1 (2021), pp. 52-56 [print]. - ISSN 1338-3922
- KARPETS, Maksym - RAJŇÁK, Michal - TIMKO, Milan - KOPČANSKÝ, Peter - PETRENKO, Viktor I. - GAPON, Igor V. - KOSIACHKIN, Yehor: Neutron reflectometry study of transformer oil-based magnetic fluid under electric field / - 2021. In: Acta Electrotechnica et Informatica. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 21, No. 4 (2021), pp. 23-29 [print, online]. - ISSN 1335-8243 Accessible online: https://sciendo.com/article/10.2478/aei-2021-0004.
- PÁL, Daniel - BEŇA, Ľubomír: Optimalizácia výkonových strát v smart sieťach / - 2022. In: QuoVadis Research @ FEI. - Košice (Slovakia): Technical University of Košice, 2018 Vol. 5, No. 1 (2022), pp. 13-21 [print, online]. - ISSN 2585-9587, Accessible online: http://quovadis.fei.tuke.sk/quovadis-v5-n1.pdf.
- HAVRAN, Peter - CIMBALA, Roman - KURIMSKÝ, Juraj - DOLNÍK, Bystrík - KOLCUNOVÁ, Iraida - MEDVEĎ, Dušan - KIRÁLY, Jozef - KOHAN, Vladimír - ŠÁRPATAKY, Ľuboš: Dielectric properties of electrical insulating liquids for high voltage electric devices in a time-varying electric field / - 2022. In: Energies. - Basel (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 15, No. 1 (2022), pp. [1-21] [online]. - ISSN 1996-1073 (online), Accessible online: http://dx.doi.org/10.3390/en15010391.
- OLIINYK, Maksym - DŽMURA, Jaroslav - KOLCUN, Michal - HUMENÍK, Jozef - KANÁLIK, Martin - PAVLÍK, Marek - PÁL, Daniel - MEDVEĎ, Dušan: Impact of electric vehicles and demand management systems on electrical distribution networks / - 2022. In: Electrical Engineering: Archiv für Elektrotechnik. - Berlin (Germany): Springer Science+Business Media B.V. Vol. 104, No. 2 (2022), pp. 667-680 [print]. - ISSN 0948-

Department of Electric Power Engineering

7921, Accessible online: http://dx.doi.org/10.1007/s00202-021-01327-0.

- PÁL, Daniel - BEŇA, Ľubomír - KOLCUN, Michal - ČONKA, Zsolt: Optimization of active power losses in smart grids using photovoltaic power plants / - 2022. In: Energies. - Basel (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 15, No. 3 (2022), pp. [1-14] [online]. - ISSN 1996-1073 (online), Accessible online: http://dx.doi.org/10.3390/en15030739.
- HOLCSIK, Peter - PÁLFI, Judith - ČONKA, Zsolt - KOCSIS, Bence István: Fault point location method, based on harmonics analysis of a distribution system / - 2022. In: Acta Polytechnica Hungarica: An international peer-reviewed scientific journal of Óbuda University, Hungarian Academy of Engineering and IEEE Hungary Section: journal of applied sciences. - Budapest (Hungary): Óbudai Egyetem Vol. 19, No. 4 (2022), pp. 147-164 [print, online]. - ISSN 1785-8860, Accessible online: http://dx.doi.org/10.12700/aph.19.4.2022.4.8.
- PAVLÍK, Marek - ZBOJOVSKÝ, Ján: Determination of effect of photovoltaic cells defect on electricity produce by use mathematical model / - 2022. In: Przegląd Elektrotechniczny = Electrotechnical Review. - Warszawa (Poland): Stowarzyszenie Elektrykow Polskich, 1919 Vol. 98, No. 1 (2022), pp. 200-203 [print, online]. - ISSN 0033-2097, Accessible online: https://doi.org/10.15199/48.2022.01.44.
- ZBOJOVSKÝ, Ján - ŠÁRPATAKY, Ľuboš - ŠÁRPATAKY, Miloš: Shielding effectiveness of concrete in dependence of his electric properties / - 2022. In: Przegląd Elektrotechniczny = Electrotechnical Review. - Warszawa (Poland): Stowarzyszenie Elektrykow Polskich, 1919 Vol. 98, No. 1 (2022), pp. 204-207 [print, online]. - ISSN 0033-2097, Accessible online: https://doi.org/10.15199/48.2022.01.44.
- DOLNÍK, Bystrík - ŠÁRPATAKY, Ľuboš - KOLCUNOVÁ, Iraida - HAVRAN, Peter: Sensing method using multiple quantities for diagnostic of insulators in different ambient conditions / - 2022. In: Sensors. - Basel (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 22, No. 4 (2022), pp. [1-16] [online, print]. - ISSN 1424-3210, Accessible online: http://dx.doi.org/10.3390/s22041376.
- DIAHOVCHENKO, Illia - DOLNÍK, Bystrík - KANÁLIK, Martin - KURIMSKÝ, Juraj: Contemporary electric energy meters testing under simulated nonsinusoidal field conditions / - 2022. In: Electrical Engineering: Archiv für Elektrotechnik. - Berlin (Germany): Springer Science+Business Media Vol. 104, No. 2 (2022), pp. 1077-1092 [print]. - ISSN 0948-7921, Accessible online: https://doi.org/10.1007/s00202-021-01365-8.
- KATUNSKÝ, Dušan - DOLNÍKOVÁ, Erika - DOLNÍK, Bystrík - KRAJNÍKOVÁ, Katarína: Influence of Light Reflection from the Wall and Ceiling Due to Color Changes in the Indoor Environment of the Selected Hall /- 2022. In: Applied sciences. - Warszawa (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 12, No. 10 (2022), pp. [1-19] [online]. - ISSN 2076-3417 (online), Accessible online: http://dx.doi.org/10.3390/app12105154.
- KOLCUNOVÁ, Iraida - ZBOJOVSKÝ, Ján - CIMBALA, Roman - DOLNÍK, Bystrík - DŽMURA, Jaroslav - KURIMSKÝ, Juraj - PETRÁŠ, Jaroslav - PAVLÍK, Marek: Accumulation of spatial charge on the surface of protecting coatings

Department of Electric Power Engineering

used against the penetration of high frequency electromagnetic fields / - 2022. In: Journal of Electrostatics. - Amsterdam (Netherlands): Elsevier No. 115 (2022), pp. 1-5 [print]. - ISSN 0304-3886, Accessible online: http://dx.doi.org/10.1016/j.elstat.2021.103655.

- RAJŇÁK, Michal - FRANKO, Marek - PAULOVIČOVÁ, Katarína - KARPETS, Maksym - PAREKH, Kinari - UPADHYAY, Ramesh - KURIMSKÝ, Juraj - DOLNÍK, Bystrík - CIMBALA, Roman - HAVRAN, Peter - TIMKO, Milan - KOPČANSKÝ, Peter: Effect of ferrofluid magnetization on transformer temperature rise / - 2022. In: Journal of Physics D: Applied Physics. - Bristol (UK): IOP Publishing Vol. 55, No. 34 (2022), pp. 1-13 [print, online]. - ISSN 0022-3727, Accessible online: http://dx.doi.org/10.1088/1361-6463/ac7425.
- DOLNÍKOVÁ, Erika - DOLNÍK, Bystrík: Comparison of different roof types in terms of lighting conditions in an industrial hall / - 2022. In: e-GFOS: Elektronički časopis Građevinskog Fakulteta Osijek: Electronic Journal of the Faculty of Civil Engineering Osijek. - Osijek (Croatia): Faculty of Civil Engineering and Architecture Osijek No. 24 (2022), pp. 23-31 [online]. - ISSN 1847-8948 (online), Accessible online: http://dx.doi.org/10.13167/2022.24.3.
- NIKOLIĆ, Violeta N. - RAJŇÁK, Michal - MARIANO, Jose Fernando Morais Lopes - LAZAROV, Nenad Dj.: Magnetic Hysteresis Loops Revisited: Step Closer to Understand the Role of Exterior Angles / - 2022. In: Journal of Superconductivity and Novel Magnetism. - Cham (Switzerland): Springer Nature Vol. 35, No. 5 (2022), pp. 1353-1373 [print, online]. - ISSN 1557-1939, Accessible online: http://dx.doi.org/10.1007/s10948-021-06118-z.
- CIMBALA, Roman - HAVRAN, Peter - KIRÁLY, Jozef - RAJŇÁK, Michal - KURIMSKÝ, Juraj - ŠÁRPATAKY, Miloš - DOLNÍK, Bystrík - PAULOVIČOVÁ, Katarína: Dielectric response of a hybrid nanofluid containing fullerene C-60 and iron oxide nanoparticles / - 2022. In: Journal of Molecular Liquids. - Amsterdam (Netherlands): Elsevier No. 359 (2022), pp. [1-9] [print, online]. - ISSN 0167-7322, Accessible online: http://dx.doi.org/10.1016/j.molliq.2022.119338.
- ŠTEFKO, Róbert - ŠÁRPATAKY, Miloš - ŠÁRPATAKY, Ľuboš - ČONKA, Zsolt - KOLCUN, Michal - PAVLÍK, Marek - MEDVEĎ, Dušan - KIRÁLY, Jozef: Výstavba a vývoj mikrosietí vo svete / - 2022. In: Elektroenergetika: International Scientific and Professional Journal on Electrical Engineering: Medzinárodný vedecký a odborný časopis pre elektroenergetiku. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 15, No. 1 (2022), pp. 16-19 [print]. - ISSN 1337-6756, Accessible online: https://jeen.fei.tuke.sk/index.php/jeen/article/view/512/579.
- KARPETS, Maksym - RAJŇÁK, Michal - PETRENKO, Viktor I. - GAPON, Igor V. - AVDEEV, Mikhail V. - BULAVIN, Leonid A. - TIMKO, Milan - KOPČANSKÝ, Peter: Electric field-induced assembly of magnetic nanoparticles from dielectric ferrofluids on planar interface / - 2022. In: Journal of Molecular Liquids. - Amsterdam (Netherlands): Elsevier Vol. 362 (2022), pp. [1-9] [print, online]. - ISSN 0167-7322, Accessible online: http://

Department of Electric Power Engineering

dx.doi.org/10.1016/j.molliq.2022.119773.

- MEDVEĎ, Dušan - KOLCUN, Michal - PAVLÍK, Marek - KIRÁLY, Jozef: Nabíjacie stanice s konštantným výkonom v spolupráci s fotovoltickou elektrárňou / - 2022. In: Elektroenergetika : International Scientific and Professional Journal on Electrical Engineering : Medzinárodný vedecký a odborný časopis pre elektroenergetiku. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 15, No. 1 (2022), pp. 8-10 [print]. - ISSN 1337-6756, Accessible online: http://jeen.fei.tuke.sk/index.php/jeen/article/view/515/577.
- VARGOVÁ, Blažena - MAJLÁTH, Igor - KURIMSKÝ, Juraj - CIMBALA, Roman - ZBOJOVSKÝ, Ján - TRYJANOWSKI, Piotr - MAJLÁTHOVÁ, Viktória: Locomotor activity of Ixodes ricinus females in 900 MHz electromagnetic field / - 2022. In: Life. - Bazilej (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 12, No. 6 (2022), pp. [1-11] [online]. - ISSN 2075-1729 (online), Accessible online: https://www.mdpi.com/2075-1729/12/6/884.
- SHAVOLKIN, Olexandr - SHVEDCHYKOVA, Iryna - KOLCUN, Michal - MEDVEĎ, Dušan: Improvement of the grid-tied solar-wind system with a storage battery for the self-consumption of a local object / - 2022. In: Energies. - Basel (Switzerland): Multidisciplinary Digital Publishing Institute Vol. 15, No. 14 (2022), pp. [1-18] [online]. - ISSN 1996-1073 (online), Accessible online: http://dx.doi.org/10.3390/en15145114.
- DIAHOVCHENKO, Illia - OLSEN, Robert G. - ZALOTOV, Viacheslav - CHUPRUN, Anastasiia - DOLNÍK, Bystrík - BOIKO, Oleksandr: Development of effective shielding against electricity meters tampering with strong magnetic fields / - 2022. In: Electric power systems research: an international journal devoted to research and new applications in generation, transmission, distribution and utilization of electric power. - Amsterdam (Netherlands): Elsevier Vol. 213 (2022), pp. [1-18] [print]. - ISSN 0378-7796, Accessible online: http://dx.doi.org/10.1016/j.epsr.2022.108722.
- ŠTEFKO, Róbert - ŠÁRPATAKY, Miloš - ŠÁRPATAKY, Ľuboš - KOHAN, Vladimír - HAVRAN, Peter - KOLCUN, Michal: Modeling of Protection Relays and Renewable Energy Sources for Microgrid Systems / - 2022. In: Acta Electrotechnica et Informatica. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 22, No. 3 (2022), pp. 9-17 [print, online]. - ISSN 1335-8243, Accessible online: https://sciendo.com/article/10.2478/aei-2022-0012.
- ŠTEFKO, Róbert - JAROLIN, Miroslav - ČONKA, Zsolt - KOLCUN, Michal - PAVLÍK, Marek - MEDVEĎ, Dušan - KIRÁLY, Jozef - KURIMSKÝ, Juraj: Chránenie a prevádzka obnoviteľných zdrojov energie v distribučných sieťach / - 2022. In: Elektroenergetika : International Scientific and Professional Journal on Electrical Engineering : Medzinárodný vedecký a odborný časopis pre elektroenergetiku. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 15, No. 2 (2022), pp. 8-11 [print]. - ISSN 1337-6756, Accessible online: https://jeen.fei.tuke.sk/index.php/jeen/article/view/518.
- RAJŇÁK, Michal - KURIMSKÝ, Juraj - PAULOVIČOVÁ, Katarína - FRANKO, Marek - DOLNÍK, Bystrík - CIMBALA, Roman - TIMKO, Milan - KOPČANSKÝ, Peter - GIRMAN, Vladimír - LISNICHUK, Maksym: Dielectric and thermal

Department of Electric Power Engineering

performance of a C60-based nanofluid and a C60-loaded ferrofluid / - 2022. In: Physics of Fluids. - Maryland (USA): American Institute of Physics Vol. 34, No. 10 (2022), pp. [1-13] [print, online]. - ISSN 1070-6631, Accessible online: https://aip.scitation.org/doi/full/10.1063/5.0117899.

- ŠÁRPATAKY, Miloš - KURIMSKÝ, Juraj - RAJŇÁK, Michal - ADAMČÁK, Marek: Striedavé preskokové napätie v biodegradovateľných olejoch s prímesou fulerénu / - 2022. In: Elektroenergetika : International Scientific and Professional Journal on Electrical Engineering : Medzinárodný vedecký a odborný časopis pre elektroenergetiku. - Košice (Slovakia): Faculty of Electrical Engineering and Informatics Vol. 15, No. 2 (2022), pp. 5-7 [print]. - ISSN 1337-6756, Accessible online: http://eejournal.fei.tuke.sk/index.php/jeen/article/view/517.

Textbooks

- ŠTEFKO, Róbert - KOHAN, Vladimír - TAILOR, Rikin Jitendrakumar - ČONKA, Zsolt - KOLCUN, Michal: Protection system with energy management for smart building / - 2021. In: Building Smart Communities for the Future: SMART solutions for energy: the proceedings of papers. - Košice (Slovakia): Technical University of Košice pp. 93-98. ISBN 978-80-553-3840-8
- KOHAN, Vladimír - ČONKA, Zsolt - KOLCUN, Michal - HAVRAN, Peter - ŠTEFKO, Róbert - TAILOR, Rikin Jitendrakumar: The impact of RES on a transmission system / - 2021. In: Building Smart Communities for the Future: SMART solutions for energy: the proceedings of papers. - Košice (Slovakia): Technical University of Košice pp. 43-50. - ISBN 978-80-553-3840-8
- DOLNÍK, Bystrík - PITOŇÁK, Ján - BEŇA, Ľubomír: Kvalita a spoľahlivosť dodávky elektrickej energie / - 1st ed. Košice: Technical University of Košice - 2022. - 216 pp. - ISBN 978-80-553-4107-1.
- DOLNÍK, Bystrík: Elektromagnetická kompatibilita / - 1st ed. - Košice: Technical University of Košice - 2021. - 280 pp. - ISBN 978-80-553-3827-9.
- CIMBALA, Roman - MAJLÁTHOVÁ, Viktória - PEŤKO, Branislav: Rádiofrekvenčné rozhranie v biológii a ekológii ixodidových kliešťov, EMITICK22 Zborník príspevkov prednesených na vedeckom seminári EMITICK22/ - 1st ed. - Košice: Technical University of Košice - 2022. - 60 pp. [print, CD-ROM]. - ISBN 978-80-553-4154-5.

Conferences

- LIPTAI, Pavol - DOLNÍK, Bystrík - VINDT, Tomáš - NAGY, Šimon - ORÁČ, Dušan: Zhodnocovanie priemyselných odpadov v polovodičových produktoch / - 2021. In: Recyklácia odpadov 2021. - Bratislava (Slovakia): Kongres STUDIO pp. 80-85 [print]. - ISBN 978-80-89565-47-4
- MEDVEĎ, Dušan - HRIVNIAK, Patrik: Open-source Platform Utilization for Electricity Measuring / - 2021. In: IEEE 4th International Conference and Workshop in Óbuda on Electrical and Power Engineering. - Danvers (USA): Institute of Electrical and Electronics Engineers pp. 125-130 [online, DVD]. - ISBN 978-1-6654-2023-5 Accessible online: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9667923.

Department of Electric Power Engineering

- MEDVEĎ, Dušan - GENČÚR, Branislav: Utilization of Thermoelectric Effect / - 2021. In: IEEE 4th International Conference and Workshop in Óbuda on Electrical and Power Engineering. - Danvers (USA): Institute of Electrical and Electronics Engineers pp. 107-112 [online, DVD]. - ISBN 978-1-6654-2023-5, Accessible online: https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9667842.
- DOLNÍK, Bystrík: Emi pre-compliance measurements reveal sources of interference / - 2021. In: Recent Topics in Electromagnetic Compatibility. - London (UK): IntechOpen pp. 167-182 [online]. - ISBN 978-1-83969-669-5, Accessible online: http://dx.doi.org/10.5772/intechopen.99754.
- KOHAN, Vladimír - ČONKA, Zsolt - KOLCUN, Michal - KARABINOŠ, Matej - HAVRAN, Peter - ŠTEFKO, Róbert - TAILOR, Rikin Jitendrakumar: Use of Flexible Alternating Current Transmission System to improve power system operation – damping oscillation and power flow control / - 2021. In: IEEE 4th International Conference and Workshop in Óbuda on Electrical and Power Engineering. - Danvers (USA): Institute of Electrical and Electronics Engineers pp. 13-17 [online, DVD]. - ISBN 978-1-6654-2023-5, Accessible online: http://dx.doi.org/10.1109/cando-epe54223.2021.9667892.
- ČONKA, Zsolt - KOLCUN, Michal - KURIMSKÝ, Juraj - KOHAN, Vladimír - SINA, Ali Mohhamad - MORVA, György - PÁLFI, Judith - HOLCSIK, Peter - RACZ, Ervin: Problems related with designing of relay protection for a distribution network containing a local generation unit / - 2021. In: IEEE 4th International Conference and Workshop in Óbuda on Electrical and Power Engineering. - Danvers (USA): Institute of Electrical and Electronics Engineers pp. 95-100 [online, DVD]. - ISBN 978-1-6654-2023-5, Accessible online: http://dx.doi.org/10.1109/cando-epe54223.2021.9667849.
- TAILOR, Rikin Jitendrakumar - BEŇA, Ľubomír - ČONKA, Zsolt - KOLCUN, Michal: Design of management systems for smart grid / - 2021. In: 2021 Selected Issues of Electrical Engineering and Electronics. - New York (USA): Institute of Electrical and Electronics Engineers pp. [1-13]. ISBN 978-1-6654-2164-5, Accessible online: http://dx.doi.org/10.1109/wzee54157.2021.9576919.
- BEŇA, Ľubomír - NOWAK, Marek - KUSINSKI, Michal: Analysis of the impact of micro photovoltaic installations on the voltage in the low voltage distribution network / - 2021. In: 2021 Selected Issues of Electrical Engineering and Electronics. - New York (USA): Institute of Electrical and Electronics Engineers pp. [1-6]. ISBN 978-1-6654-2164-5, Accessible online: http://dx.doi.org/10.1109/wzee54157.2021.9577036.
- HUMENÍK, Jozef: Data exchange and the emergence of new participants in the electricity market in the Slovak Republic / - 2022. In: 22st Scientific Conference of Young Researchers: proceedings from conference. Košice (Slovakia): Technical University of Košice pp. 96-97 [CD-ROM, print]. - ISBN 978-80-553-4061-6, Accessible online: http://scyr.kpi.fei.tuke.sk/wp-content/scyr-files/proceedings/SCYR_2022_Proceedings.pdf.
- ŠTEFKO, Róbert: Design of energy source models for a microgrid system / - 2022. In: 22nd Scientific Conference of Young Researchers: proceedings from conference. - Košice (Slovakia): Technical University of

Department of Electric Power Engineering

Košice pp. 18-19 [CD-ROM, print]. - ISBN 978-80-553-4061-6, Accessible online: http://scyr.kpi.fei.tuke.sk/wp-content/scyr-files/proceedings/SCYR_2022_Proceedings.pdf.

- ŠÁRPATAKY, Ľuboš: Measurement of leakage current in wet and polluted conditions using different sensing electrodes / - 2022. In: 22nd Scientific Conference of Young Researchers: proceedings from conference. - Košice (Slovakia): Technical University of Košice pp. 93-95 [CD-ROM, print]. - ISBN 978-80-553-4061-6, Accessible online: http://scyr.kpi.fei.tuke.sk/wp-content/scyr-files/proceedings/SCYR_2022_Proceedings.pdf.
- HAVRAN, Peter: Comparison of liquid insulating materials in the alternating electric field using dielectric spectroscopy / 2022. In: 22nd Scientific Conference of Young Researchers: proceedings from conference. Košice (Slovakia): Technical University of Košice pp. 20-21 [CD-ROM, print]. - ISBN 978-80-553-4061-6
- KOHAN, Vladimír: Utilization of Wide Area Monitoring System for power system control in real time measurement / - 2022. In: 22nd Scientific Conference of Young Researchers: proceedings from conference. - Košice (Slovakia): Technical University of Košice pp. 72-74 [CD-ROM, print]. - ISBN 978-80-553-4061-6, Accessible online: http://scyr.kpi.fei.tuke.sk/wp-content/scyr-files/proceedings/SCYR_2022_Proceedings.pdf.
- ŠÁRPATAKY, Miloš: Properties enhancement of dielectric fluids for power transformers / - 2022. In: 22nd Scientific Conference of Young Researchers: proceedings from conference. - Košice (Slovakia): Technical University of Košice pp. 90-92 [CD-ROM, print]. - ISBN 978-80-553-4061-6, Accessible online: http://scyr.kpi.fei.tuke.sk/.
- ŠTEFKO, Róbert - KOHAN, Vladimír - ŠÁRPATAKY, Ľuboš - ŠÁRPATAKY, Miloš - HAVRAN, Peter - ČONKA, Zsolt - KOLCUN, Michal: Prospective Direction of Development of Protection Systems for Microgrids / - 2022. In: EPE 2022: 22nd International scientific conference on electric power engineering. Kouty nad Desnou, Czech Republic. June 8-10, 2022. - Ostrava (Czech Republic): Technical University of Ostrava pp. 324-328, ISBN 978-1-6654-1057-1, Accessible online: https://ieeexplore.ieee.org/document/9814109/authors#authors.
- KOHAN, Vladimír - KOLCUN, Michal - ČONKA, Zsolt - HAVRAN, Peter - KARABINOŠ, Matej - TAILOR, Rikin Jitendrakumar - ŠTEFKO, Róbert: Improving the operation of power system control during disturbances using FACTS controllers / - 2022. In: EPE 2022: 22nd International scientific conference on electric power engineering. Kouty nad Desnou, Czech Republic. June 8-10, 2022. - Ostrava (Czech Republic): Technical University of Ostrava pp. 308-312. - ISBN 978-1-6654-1057-1, Accessible online: http://dx.doi.org/10.1109/epe54603.2022.9814108.
- KOLCUN, Michal - ČONKA, Zsolt - KOHAN, Vladimír - ŠTEFKO, Róbert - PAVLÍK, Marek - SARWARI, Mohammed, Dost: Application of capacitor to distribution system for minimization of power looses / - 2022. In: EPE 2022: 22nd International scientific conference on electric power engineering. Kouty nad Desnou, Czech Republic.

Department of Electric Power Engineering

June 8-10, 2022. - Ostrava (Czech Republic): Technical University of Ostrava pp. 171-176. - ISBN 978-1-6654-1057-1, Accessible online: http://dx.doi.org/10.1109/epe54603.2022.9814127.

- MARTINKO, Dávid: Modelling photovoltaic system power output based on historical Meteorological data / - 2022. In: 22nd Scientific Conference of Young Researchers: proceedings from conference. - Košice (Slovakia): Technical University of Košice pp. 81-82 [CD-ROM, print]. - ISBN 978-80-553-4061-6
- BARAN, Gabriel - MEDVEĎ, Dušan: Open-source platformy pre elektroenergetické účely / - 2022. In: Electrical Engineering and Informatics 13: Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice (Slovakia): Technical University of Košice pp. 42-47 [CD-ROM]. - ISBN 978-80-553-4120-0, Accessible online: http://eei.fei.tuke.sk/data/EEI-13.pdf.
- ANDRAŠKO, Erik - MEDVEĎ, Dušan: Sebestačnosť elektroenergetiky Slovenska / - 2022. In: Electrical Engineering and Informatics 13: Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice (Slovakia): Technical University of Košice pp. 97-101 [CD-ROM]. - ISBN 978-80-553-4120-0, Accessible online: http://eei.fei.tuke.sk/data/EEI-13.pdf.
- BINAR, Martin - MEDVEĎ, Dušan: Návrh netypizovaného energetického zdroja a jeho praktické využitie / - 2022. In: Electrical Engineering and Informatics 13: Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice, Košice (Slovakia): Technical University of Košice pp. 369-374 [CD-ROM]. - ISBN 978-80-553-4120-0, Accessible online: http://eei.fei.tuke.sk/data/EEI-13.pdf.
- HAVRAN, Peter - CIMBALA, Roman - BUCKO, Samuel - KIRÁLY, Jozef: Distribution of relaxation times during accelerated thermal aging of insulating nanofluids / - 2022. In: EPE 2022: 22nd International scientific conference on electric power engineering. Kouty nad Desnou, Czech Republic. June 8-10, 2022. - Ostrava (Czech Republic): Technical University of Ostrava pp. 71-75. - ISBN 978-1-6654-1057-1, Accessible online: http://dx.doi.org/10.1109/epe54603.2022.9814142.
- PAVLÍK, Marek - DZÚR, Dávid: Sledovanie Parametrov Fotovoltaických Článkov / 2022. In: Electrical Engineering and Informatics 13: Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice (Slovakia): Technical University of Košice pp. 362-368 [CD-ROM]. - ISBN 978-80-553-4120-0, Accessible online: http://eei.fei.tuke.sk/data/EEI-13.pdf.
- PAVLÍK, Marek - OLŠINÁR, Dávid: Porovnanie Návrhov Fotovoltaiky na Rodinný Dom / - 2022. In: Electrical Engineering and Informatics 13: Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice. - Košice (Slovakia): Technical University of Košice pp. 362-368 [CD-ROM]. - ISBN 978-80-553-4120-0, Accessible online: http://eei.fei.tuke.sk/data/EEI-13.pdf.
- ŠMIDOVIČ, Rastislav - KOHAN, Vladimír - ČONKA, Zsolt - KOLCUN, Michal - HAVRAN, Peter - ŠTEFKO, Róbert: The Use of WAMS in Solving Major Faults / - 2022. In: Proceedings of the 11th International Scientific Symposium on Electrical Power Engineering, ELEKTROENERGETIKA 2022. - Košice (Slovakia): Technical

Department of Electric Power Engineering

University of Košice pp. 230-234 [CD-ROM]. - ISBN 9788055341040

- *ŠTEFKO, Róbert - ŠÁRPATAKY, Ľuboš - ŠÁRPATAKY, Miloš - BEŇA, Ľubomír - ČONKA, Zsolt - DŽMURA, Jaroslav* - KOLCUN, Michal - PAVLÍK, Marek: Case Study of the Design of Renewable Energy Sources for Microgrid Systems / - 2022. In: Proceedings of the 11th International Scientific Symposium on Electrical Power Engineering, ELEKTROENERGETIKA 2022. - Košice (Slovakia): Technical University of Košice pp. 235-240 [CD-ROM]. - ISBN 9788055341040
- DŽMURA, Jaroslav - CIMBALA, Roman: Meranie stacionárnych magnetických polí / - 2022. In: Rádiofrekvenčné rozhranie v biológii a ekológii ixodidových kliešťov, EMITICK22: Zborník príspevkov prednesených na vedeckom seminári EMITICK22. - Košice (Slovakia): Technical University of Košice pp. 26-32 [print, CD-ROM]. - ISBN 978-80-553-4154-5

Other publications

- GAČA, Jakub - KURIMSKÝ, Juraj - CIMBALA, Roman: Prípravok na meranie tepelnej vodivosti kvapalín pri rôznych teplotách Dizajn/ - Banská Bystrica: [s.n.] - 2022. - 2 s. Accessible online: https://wbr.indprop.gov.sk/WebRegistre/Dizajn/Detail/27-2022.
- Polovodičová súčiastka (varistor) vyrobená zo ZnO získaného recykláciou priemyselných odpadov Prihláška úžitkového vzoru No. 50037-2022/ - Banská Bystrica: ÚPV SR - 2022. - 6 pp. Accessible online: https://wbrindprop.gov.sk/WebRegistre/UzitkovyVzor/Detail/50037-2022

Faculty of Electrical Engineering
and Informatics

Department of Electrical Engineering and Mechatronics

Department of Electrical Engineering and Mechatronics

Essential information:

Head of Department: ***prof. Ing. Daniela Perduková, PhD.***
Email: ***daniela.perdukova@tuke.sk***
Web: ***http://kem.fei.tuke.sk***
Phone/Fax: ***+421 55 602 2279 / 55 633 0115***

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 presents a continuation of 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 area of electrical engineering, namely in fields of power and industrial electronics, electrical machines and apparatuses, sensors, electromechanical systems, controlled drives, multi-motor drives, control systems, and industrial and automotive mechatronic systems up to drives of robots.

The Department offers all types of university courses: bachelor, master and Ph.D. courses.

Department of Electrical Engineering and Mechatronics

STAFF

Professors:	**prof. Ing. Jaroslav Dudrik, PhD.**
	prof. Ing. Pavol Fedor, PhD.
	prof. Ing. Daniela Perduková, PhD.
Associate Professors:	**doc. Ing. František Ďurovský, PhD.**
	doc. Ing. Želmíra Ferková, PhD.
	doc. Ing. Peter Girovský, PhD.
	doc. Ing. Ján Kaňuch, PhD.
	doc. Ing. Karol Kyslan, PhD.
	doc. Ing. Milan Lacko, PhD.
	doc. Ing. Marek Pástor, PhD.
	doc. Ing. Jaroslava Žilková, PhD.
Assistant Professors:	**Ing. Ján Bačík, PhD.**
	Ing. Peter Bober, PhD.
	Ing. Viktor Šlapák, PhD.
Senior Scientists:	**Ing. Peter Hajsák**
	doc. Ing. Viliam Fedák, PhD.
	doc. Ing. Michal Girman, PhD.
	doc. Ing. Michal Kostelný, CSc.
	prof. Ing. Jaroslav Timko, CSc.
	prof. Ing. Pavel Záskalický, PhD.
Technical Staff:	**Zuzana Olexová**
Full time Ph.D. Students:	**Ing. Stanislav Alexovič**
	Ing. Juraj Biľanský (till June 2022)
	Ing. Dávid Bodnár
	Ing. Jozef Ivan (till June 2022)
	Ing. Daniel Marcin (since September 2022)
	Ing. Adrián Marcinek
	Ing.Lukáš Pancurák (since September 2022)
	Ing. Viktor Petro
	Ing. Richard Olexa (till June 2022)

Department of Electrical Engineering and Mechatronics

Teaching

Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Electrical Engineering	*1st*	*2/2*	*Kaňuch*
Computer Applications	*3rd*	*2/2*	*Perduková*
Electrical Machines	*3rd*	*2/2*	*Záskalický*
Automotive Electrical Systems	*3rd*	*2/2*	*Ďurovský*
Industrial Electronics	*3rd*	*2/2*	*Kaňuch*
Electrical Drives	*3rd*	*2/2*	*Žilková*
Fundamentals of Microcomputer programming	*4th*	*2/2*	*Lacko*
Modeling and Simulation in Electrical Engineering	*4th*	*2/2*	*Fedák*
Power Electronics	*4th*	*3/3*	*Pástor*
Sensors and Measurement of Nonelectrical Quantities	*4th*	*2/2*	*Girovský*
Industrial Control Systems	*4th*	*2/2*	*Fedor*
Pneumatic and Hydraulics Systems	*4th*	*2/2*	*Bober*
Controlled Electrical Drives	*5th*	*2/2*	*Ďurovský*
Fundamentals of Robotics	*5th*	*2/2*	*Žilková*
ManMachine Interface	*5th*	*2/2*	*Perduková*
Bachelor Project	*5th*	*0/8*	*Supervisor*
Bachelor Thesis	*5th*	*3/9*	*Supervisor*
Simulation of Production Systems	*5th*	*2/2*	*Bober*
Modeling of Electromechanical Systems	*5th*	*2/2*	*Fedák*
Projecting of Electrical Systems	*6th*	*2/2*	*Lacko*

Graduate study (Ing.)

Subject	*Semester*	*Lectures/exercises (hours per week)*	*Name of Lecturer*
Power Semiconductor Systems	*1st*	*2/2*	*Dudrik*
Non-linear Electro-Mechanical Systems	*1st*	*2/2*	*Fedor*
Servosystems	*1st*	*2/3*	*Kyslan*
Dynamic Phenomena of Electrical Machines	*1st*	*2/2*	*Záskalický*

Department of Electrical Engineering and Mechatronics

Electrical Machines for Automation	*1st*	*2/2*	*Ferková*
Technology of Production in Electronics	*1st*	*2/2*	*Slosarčík*
Signal Processors	*1st*	*2/3*	*Lacko/Šlapák*
Applications of Digital Signal Microcontrollers	*2nd*	*2/3*	*Šlapák*
Vehicle Mechatronics	*2nd*	*2/2*	*Ďurovský*
Construction and Design of Converters	*2nd*	*2/2*	*Dudrik*
Control of Assembly Lines with Programming Controllers	*2nd*	*2/2*	*Fedor*
Diploma Project 1	*2nd*	*0/4*	*Supervisor*
Diploma Project 2	*2nd*	*2/6*	*Supervisor*
Mechatronic Production Systems	*3rd*	*2/2*	*Ďurovský*
Intelligent Control of Electrical Systems	*3rd*	*2/2*	*Žilková*
Three-Dimensional Modelling and Simulation	*3rd*	*2/2*	*Ferková*
Technology of Production in Electrotechnics	*3rd*	*2/2*	*Girman*
Design of Documentation in Electrical Engineering	*3rd*	*1/3*	*Lacko*
Diploma Thesis	*4th*	*9/9*	*Supervisor*

Postgraduate study (PhD..)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Power Electronics	*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*

Department of Electrical Engineering and Mechatronics

Scientific Activity	*5th*	*0/8*	*Supervisor*
Ph.D. Thesis	*5th*	*0/9*	*Supervisor*

LABORATORIES

- Power Electronics Laboratory
- Simulation Systems Laboratory (COSMOS, ProEngineer, MATLAB, PSpice, and applied SW, ABBRobotStudio, EPLAN, AVL)
- Laboratory of Industrial Automation
- Laboratory of Electrical Machines and Electrical Drives
- Laboratory of Controlled Electrical Drives
- Automotive Electrical Engineering Laboratory
- Laboratory of Electrical Devices and Applied Electronics
- Laboratory of Electric Drives Applications
- BSH Motor Control Laboratory
- Virtual Laboratory of Mechatronic Systems Control: http://andromeda.fei.tuke.sk

RESEARCH PROJECTS

- **Development of Modular Traction Battery and Optimization of Electrical Power Consumption in Electric Midibus**. Project supported by the Slovak Research and Development Agency under the contract No. APVV-18-0436. Principal investigator: LACKO, M. (2019-2023
- **HIL Emulator for Small Hydropower Plant Control.** Project supported by the Slovak Research and Development Agency under the contract No. APVV-19-0210. Principal investigator: PERDUKOVÁ, D. (2020-2023).
- **Dynamic Emulation of Mechanical Loads**, Project VEGA 1/0493/19, Scientific Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences. Principal investigator: KYSLAN, K. (2019 – 2022).
- **Experimental Validation of Sensorless Control of PMSM using Integrated Converter.** Project supported by the Faculty of Electrical Engineering and Informatics, Technical University of Kosice, Slovakia, under the Grant FEI-2022-86. Principal investigator: PETRO, V. (2022).

CO-OPERATION

Co-operation in Slovakia

- The Department co-operates with many industrial enterprises in Slovakia having joint projects 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, Embraco Slovakia Spišská Nová Ves, Slovak Union for Quality, Innovation

Department of Electrical Engineering and Mechatronics

and Design Q-IMPULZ, Košice, SEZ Krompachy, DATAKON Košice, SLOVRES Košice, STATON Turany, ROŠERO-P, Sp.N.Ves.

International Co-operation

- University of Zagreb, Croatia
- Brno University of Technology, Czech Republic
- Technical University of Liberec, Czech Republic
- VŠB -Technical University of Ostrava, Czech Republic
- West Bohemian University, Pilsen, Czech Republic
- University of Technology and Economy, Budapest, Hungary
- University of Miskolc, Hungary
- Silesian University of Technology, Gliwice, Poland
- Széchenyi István University, Győr, Hungary
- Delft University of Technology, The Netherlands
- Czech Academy of Science, Prague, Czech Republic.
- University of Oradea, Romania
- University of Maribor, Slovenia
- University of Zagreb, Croatia
- University of Novi Sad, Serbia
- CAG Electric Machinery, Český Brod, Czech Republic
- Wroclaw University of Technology, Wroclaw, Poland

Visits of Staff Members to Foreign Institutions

- BODNÁR, D.: TU Delft (NL). April 2022 – January 2023.
- ĎUROVSKÝ, F.: Technical University of Liberec (CZ), May 2022.
- FEDÁK, V., FERKOVÁ, Ž., KYSLAN, K., MARCINEK, A., PÁSTOR, M., PETRO, V.: PEMC 2022, Faculty of Electrical Eegineering and Computer science, Transilvania University of Brasov, Brasov (RO), September 2022.
- FERKOVÁ, Ž.: Technical University of Liberec (CZ), April 2022.
- FERKOVÁ, Ž.: Conference Ansys 2022, TechSoft Engineering Kurdějov (CZ). May 2022.
- FERKOVÁ, Ž.: University of Technology Brno (CZ), Oktober 2022.
- FERKOVÁ, Ž.: VSB-Technical University of Ostrava (CZ), november 2022.
- KAŇUCH, J.: KOMEL 2022, Katowice (PL), September 2022.
- PETRO, V.: Wroclaw University of Science and Technology (PL), April 2022 – July 2022.

Membership in International Organizations, Societies and Committees

- DUDRIK, J; FERKOVÁ, Ž, KYSLAN: IEEE members.

Department of Electrical Engineering and Mechatronics

- FEDÁK, V.: Power Electronics and Motion Control Council (PEMC). Vice chairman, AwardCom chair and Special session chair of the 20th IEEE-PEMC Power Electronics and Motion Control Conference, www.ieee-pemc2022.org, Brasov (RO) 25 - 28 September 2022.
- FEDÁK, V.: Member of an Expert evaluation jury for awarding products within the ZLATÝ AMPER competition for the most beneficial exhibit at the 30th International trade fair on electrical engineering, electronics, automation, communication and safety technology AMPER 2022. Brno (CZ). May 17-20, 2022.
- PERDUKOVÁ, D.: Member of Programme Committee: 17th International Conference on Soft Computing Models in Industrial and Environmental Applications – SOCO 2022, Salamanca, Spain, 5.-7. September 2022.

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.
- FERKOVÁ, Ž.: Member of Technical Standards Commission on Electrical Machines in Slovak Republic.
- PERDUKOVÁ, D.: Council of the Secondary Technical School for EE, Košice (delegate of the FEI TU Košice).
- PERDUKOVÁ, D.: Program Committee of 21th Scientific Conference of Young Researchers of the Faculty of Electrical Engineering and Informatics, Technical University of Košice – SCYR 2022.
- PERDUKOVÁ, D.: Member of board for the PhD. Study in Electrical Engineering at FEI TU Košice.

Editorial Boards

- BOBER, P.: Editorial board of 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.
- DUDRIK, J.: International Editorial Board of Power Electronics and Drives, Wroclaw, Poland, ISSN: 2451-0262, eISSN: 2543-4292.
- ĎUROVSKÝ, F.: Guest Editor of Special Issue "Applications of Modern Methods to Control of Electric Drives" published in Energies ISSN 1996-1073 (2022).
- FEDÁK, V.: Editorial board of the Journal "Przeglad Elektrotechniczny" (Polish Academy of Sciences, Warszaw, http://www.red.pe.org.pl/), ISSN 0033-2097, e-ISSN 2449-9544.
- FEDOR, P: Editorial board of Acta Electrotechnica et Informatica – AEI. Journal of the Faculty of Electrical Engineering and Informatics. ISSN 1335-8243.
- GIROVSKÝ, P: Topic Editor of journal „Electronics", MDPI, 2079-9292.
- KYSLAN, K.: Associate Editor of journal „Power Electronics and Drives", Wroclaw, Poland, ISSN 2543-4292.
- PERDUKOVÁ, D.: Editorial board of Elektroenergetika journal, ISSN 1337-6756.
- ZÁSKALICKÝ, P.: Editorial board of Acta Technica CSAV. Journal of Czech Academy of Sience, Praque. Czech

Department of Electrical Engineering and Mechatronics

Republic. ISSN 0001-7043.

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

THESES

Thesis type	Bachelor	Master	Doctoral
Number	34	16	

OTHER ACTIVITIES

Projects for Industry

- Basics of Electrical Engineering. For Siemens Healthcare s.r.o, Košice. Co-ordinator: Bober, P., 2022.
- Control of industrial water supply for U.S.Steel Košice. For Siemens Large Drives s.r.o., Košice. Co-ordinator: Ďurovský, F., 2022.

Student Competitions and Rewards

- PETRO, V.: SCYR 2022. Dean Prize for Progress, Electrical & Electronics Engineering Section, 2nd year PhD students.

Compositions for Dissertation Examinations

- ALEXOVIČ, S.: Drone autonomous control in non GPS signal environment. Supervisor: Lacko, M.
- MARCINEK, A.: Control of Multiport Power Converters. Supervisor: Ďurovský, F.
- PETRO, V.: Sensorless Control of Permanent Magnet Synchronous Machine for Low Speed Operation. Supervisor: Kyslan, K.

PUBLICATIONS

Books and book chapters

- FEDOR, Pavol - PERDUKOVÁ, Daniela - BOBER, Peter - FEDOR, Marek: New Stable Non-Vector Control Structure for Induction Motor Drive. 2022. In: Prime Archives in Applied Sciences (Editors: Helen Henninger and Andrey Suzdaltsev). Hyderabat, India: Vide Leaf. s. [1-34], Spôsob prístupu: https://videleaf.com/product/prime-archives-in-applied-sciences/, ISBN 978-93-92117-54-1

Scientific Journals

Journals indexed in Thomson Reuters "Current Contents" database

- KUCHAR, Martin - PALACKÝ, Petr - PERDUKOVÁ, Daniela - SOBEK, Martin: Compensation of torque-producing stator current error for vector-controlled induction motor drives. 2022. In: Energies. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute, Vol. 15, Issue 3 (2022), p. [1-14] [online]. ISSN 1996-1073 (online). Access: http://dx.doi.org/10.3390/en15030815.
- KELLNER, Jakub - KAŠČÁK, Slavomír - FERKOVÁ, Želmíra: Investigation of the properties of a five-phase induction motor in the introduction of new fault-tolerant control. 2022. In: Applied sciences. Bazilej

Department of Electrical Engineering and Mechatronics

(Švajčiarsko): Multidisciplinary Digital Publishing Institute. Vol. 12, Issue 4 (2022), p. [1-25] [online]. ISSN 2076-3417 (online). Access: https://doi.org/10.3390/app12042249.

- KYSLAN, Karol - LACKO, Milan - FERKOVÁ, Želmíra - PETRO, Viktor - PADMANABAN, Sanjeevikumar - PERDUKOVÁ, Daniela: Current limitation method for V/f control of five-phase induction machines. 2022. In: International Transactions on Electrical Energy Systems. Hoboken (USA): John Wiley & Sons (2022), p. [1-12] [online]. ISSN 20507038 (online) Access: http://dx.doi.org/10.1155/2022/5165666.
- ZGODAVOVÁ, Kristína - BOBER, Peter - URBANČÍKOVÁ, Nataša - SANTOS, Gilberto - SÜTŐOVÁ, Andrea: Forecasting the future excellence: 30 years of evaluating service organizations in Slovakia. 2022. In: Applied sciences. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Vol. 12, Issue 14 (2022), p. [1-15] [online]. ISSN 2076-3417 (online). Access: http://dx.doi.org/10.3390/app12146856.
- ŠLAPÁK, Viktor - IVAN, Jozef - KYSLAN, Karol - HRIC, Matúš - ĎUROVSKÝ, František - PAULIŠIN, Dušan - KOČIŠKO, Marek: Measurement and Modelling of a Cycloidal Gearbox in Actuator with Permanent Magnet Synchronous Machine. 2022. In: Machines. Basel (Švajčiarsko): Multidisciplinary Digital Publishing Institute. Vol. 10, Issue 5 (2022), p. [1-13] [online]. ISSN 2075-1702 (online). Access: http://dx.doi.org/10.3390/machines10050344.
- KYSLAN, Karol - PETRO, Viktor - BOBER, Peter - ŠLAPÁK, Viktor - ĎUROVSKÝ, František - DYBKOWSKI, Mateusz - HRIC, Matúš: A Comparative Study and Optimization of Switching Functions for Sliding-Mode Observer in Sensorless Control of PMSM. 2022. In: Energies. Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute. Vol. 15, Issue 7 (2022), p. [1-17] [online]. - ISSN 1996-1073 (online). Access: http://dx.doi.org/10.3390/en15072689.
- BOBER, Peter - FERKOVÁ, Želmíra: Firing angle adjustment for switched reluctance motor efficiency increasing based on measured and simulated data. 2022. In: Electrical Engineering: Archiv für Elektrotechnik. Berlin (Nemecko): Springer Science+Business Media B.V. Vol. 104, Issue 1 (2022), p. 191-202 [print]. ISSN 0948-7921. Access: http://dx.doi.org/10.1007/s00202-021-01346-x.

Foreign Journals

- PERDUKOVÁ, Daniela - FEDOR, Pavol - ĎURČANSKÝ, Dalibor: Concept of an energy system emulator. 2022. In: Mathematical modelling: international scientific journal. Sofia (Bulharsko): Scientific-technical union of mechanical engineering industry 4.0 Vol. 6, Issue 2 (2022), p. 59-62 [print, online]. ISSN 2535-0986
- KAŇUCH, Ján - GIROVSKÝ, Peter: Disc Switched Reluctance Motor with High Dynamics. 2022. In: Maszyny Elektryczne: Zeszyty Problemowe. Katowice (Poľsko): Łukasiewicz - Instytut Przemysłu Organicznego. Vol. 127, Issue 1 (2022), p. 59-66 [print]. ISSN 0239-3646.
- ZÁSKALICKÝ, Pavel - KAŇUCH, Ján: Electromagnetic torque ripple diminution of a five-phase asynchronous motor with one phase open circuit fault. 2022. In: Maszyny Elektryczne: Zeszyty Problemowe. Katowice

Department of Electrical Engineering and Mechatronics

(Poľsko): Łukasiewicz - Instytut Przemysłu Organicznego. Vol. 127, Issue 1 (2022), p. 51-57 [print]. ISSN 0239-3646.

- GIROVSKÝ, Peter - KAŇUCH, Ján: Analysis of the power supply influence on the universal motor. 2022. In: Power Electronics and Drives. Varšava (Poľsko): SCIENDO. Vol. 7, Issue 42 (2022), p. 103-111. ISSN 2543-4292 (online). Access: http://www.ped.pwr.edu.pl/pdf-150515-76369?filename=Analysis%20of%20the%20power.pdf.

Journals indexed in Web of Science or Scopus databases

- ALEXOVIČ, Stanislav - LACKO, Milan - BAČÍK, Ján ml. - PERDUKOVÁ, Daniela: Handheld 3D Scanner Based on Intel RealSense Depth and Tracking Cameras. 2022. In: Artificial Intelligence Trends in Systems. Cham (Švajčiarsko): Springer Nature p. 226-235 [online]. ISBN 978-3-031-09075-2, ISSN 2367-3370. Access: http://dx.doi.org/10.1007/978-3-031-09076-9_22.
- FEDOR, Marek - FEDOR, Pavol - PERDUKOVÁ, Daniela - FEDÁK, Viliam: Fuzzy model development for a continuous dynamic black-box system. 2022. In: 2022 IEEE 20th International Power Electronics and Motion Control Conference. Brašov (Rumunsko): Institute of Electrical and Electronics Engineers p. 225-228. ISBN 978-1-6654-9682-7. ISSN 2469-8741. Access: http://dx.doi.org/10.1109/pemc51159.2022.9962875.

National Journals

- PETRO, Viktor - KYSLAN, Karol: Sensorless control of PMSM in low speed region using HF pulse signal injection method. 2022. In: Acta Electrotechnica et Informatica. Košice (Slovensko): Fakulta elektrotechniky a informatiky Roč. 22, č. 1 (2022), s. 18-23 [print, online]. ISSN 1335-8243 Access: https://doi.org/10.2478/aei-2022-0003.
- FERKOVÁ, Želmíra - KAŇUCH, Ján - GIROVSKÝ, Peter - ĎUROVSKÝ, František - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (2). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 1 (2022), s. 26-29 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%201%202022.pdf#page=28.
- GIROVSKÝ, Peter - ĎUROVSKÝ, František - FERKOVÁ, Želmíra - KAŇUCH, Ján - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (3). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 2 (2022), s. 45-47 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%202%202022.pdf#page=47.
- GIROVSKÝ, Peter - ĎUROVSKÝ, František - FERKOVÁ, Želmíra - KAŇUCH, Ján - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (4). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 3

Department of Electrical Engineering and Mechatronics

(2022), s. 48-50 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%203%202022.pdf#page=50.

- GIROVSKÝ, Peter - ĎUROVSKÝ, František - FERKOVÁ, Želmíra - KAŇUCH, Ján - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (5). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 4 (2022), s. 54-57 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%204%202022.pdf#page=56.
- GIROVSKÝ, Peter - ĎUROVSKÝ, František - FERKOVÁ, Želmíra - KAŇUCH, Ján - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (6). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 5 (2022), s. 54-57 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%205%202022.pdf#page=56.
- GIROVSKÝ, Peter - ĎUROVSKÝ, František - FERKOVÁ, Želmíra - KAŇUCH, Ján - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (7). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 6 (2022), s. 43-45 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%206%202022.pdf#page=45.
- GIROVSKÝ, Peter - ĎUROVSKÝ, František - FERKOVÁ, Želmíra - KAŇUCH, Ján - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (8). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 7 (2022), s. 36-39 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%207%202022.pdf#page=38.
- GIROVSKÝ, Peter - ĎUROVSKÝ, František - FERKOVÁ, Želmíra - KAŇUCH, Ján - PÁSTOR, Marek: Asynchrónne motory v priemyselnej praxi (9). 2022. In: ATP journal: priemyselná automatizácia a informatika: odborný mesačník o priemyselnej automatizácii, informatike a robotike. Bratislava (Slovensko): HMH Roč. 29, č. 8 (2022), s. 44-47 [print, online]. ISSN 1335-2237. Access: https://www.atpjournal.sk/buxus/docs/casopisy_cele/ATP%20Journal%208%202022.pdf#page=46.
- IVAN, Jozef - ĎUROVSKÝ, František: Emulátor dynamických momentov. 2022. In: QuoVadis Research @ FEI. - Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 2 (2022), s. 70-83 [print, online]. ISSN 2585-9587. Access: http://quovadis.fei.tuke.sk/quovadis-v5-n2.pdf.
- BIĽANSKÝ, Juraj - IVAN, Jozef - BODNÁR, Dávid - LACKO, Milan: Analysis of Li-Ion Battery Cell Internal Impedance Changes Based on Temperature and Soh. 2022. In: Acta Electrotechnica et Informatica. Košice (Slovensko): Fakulta elektrotechniky a informatiky Vol. 22, Issue 3 (2022), p. 3-8 [print, online]. ISSN 1335-

Department of Electrical Engineering and Mechatronics

8243. Access: https://doi.org/10.2478/aei-2022-0011.

- BIĽANSKÝ, Juraj - LACKO, Milan: Modely batériových systémov elektrovozidiel. 2022. In: QuoVadis Research @ FEI. Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 2 (2022), s. 4-17 [print, online]. ISSN 2585-9587. Access: http://quovadis.fei.tuke.sk/quovadis-v5-n2.pdf.

Patents and Utility Models

- D1001 DUDRIK, Jaroslav - LACKO, Milan - PÁSTOR, Marek: Zapojenie spínača s mäkkým spínaním na sekundárnej strane transformátora v DC-DC meničoch so šírkovým riadením. Patent č. 288942. Banská Bystrica: ÚPV SR - 2022. 6 s. Access: https://wbr.indprop.gov.sk/WebRegistre/Patent/Detail/113-2015.
- D1002 DUDRIK, Jaroslav - LACKO, Milan - PÁSTOR, Marek - ŽATKOVIČ, Róbert: Bezstratový odľahčovací obvod pre nepriamy jednosmerný menič s riadeným usmerňovačom. Patent č. 289013. Banská Bystrica: ÚPV SR - 2022. 6 s. Access: https://wbr.indprop.gov.sk/WebRegistre/Patent/Detail/123-2017.

Other publications (papers in conference proceedings, etc.)

Publication Type	Journals		Textbooks	Conferences		Patents	Other
	Foreign	Home	Home	Foreign	Home	Domestic	
Number				3	36	2	0

Faculty of Electrical Engineering
and Informatics

Department of Electronics and Multimedia Telecommunications

Department of Electronics and Multimedia Telecommunications

Essential information:

Head of Department: *prof. Ing. Jozef Juhár, PhD.*
Email: *jozef.juhar@tuke.sk*
Web: *http://www.kemt.fei.tuke.sk/*
Phone/Fax: *+421 55 602 3333 / 55 632 3889*

DEPARTMENT'S PROFILE

The Department of Electronics and Multimedia Telecommunications was founded in 1969. The original name of department was Department of Electronics. The Department offers and guarantees 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

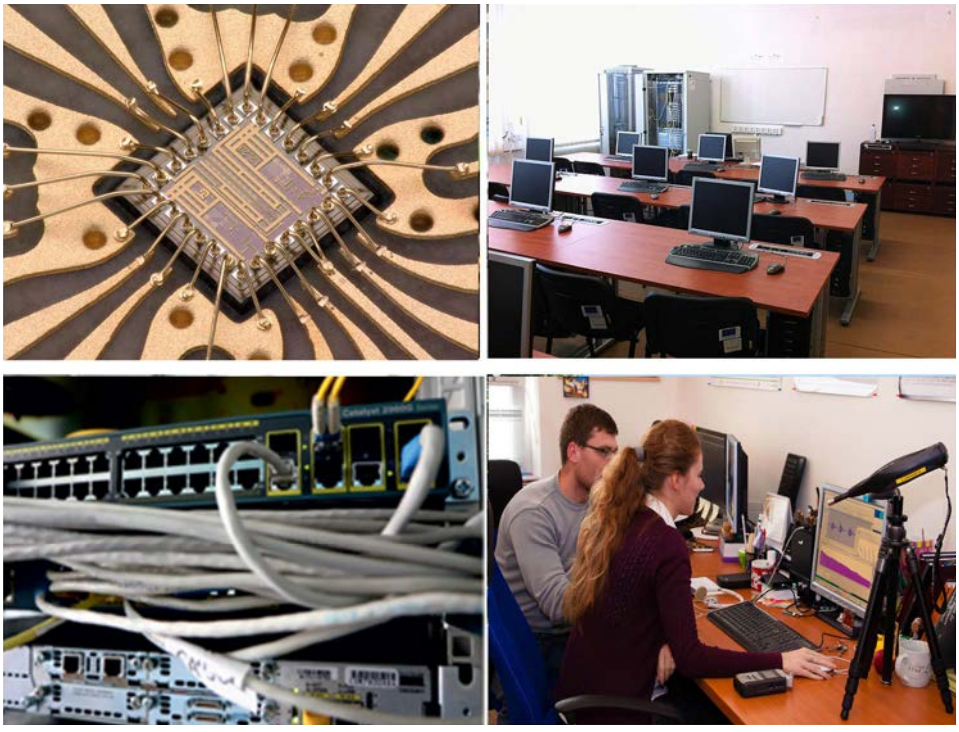
- Computer Networks.

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

- Computer Networks.

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

- Informatics.



Department of Electronics and Multimedia Telecommunications

The Department of Electronics and Multimedia Telecommunications together with Department of Technologies in Electronics offers one type of full-time courses in bachelor's and master's degree course: Automotive Electronics.

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

STAFF

Professors:	**Dr.h.c. prof. Ing. Anton Čižmár, CSc.**
	prof. Ing. Miloš Drutarovský, CSc.
	prof. Ing. Pavol Galajda, CSc.
	prof. Ing. Jozef Juhár, PhD.
	prof. Ing. Ján Mihalík, CSc.
	prof. Ing. Ján Šaliga, CSc.
Emeritus Professors:	**prof. Ing. Dušan Levický, CSc.**
	prof. Ing. Stanislav Marchevský, CSc.
	prof. Ing. Linus Michaeli, DrSc.
Associate Professors:	**doc. Ing. Gabriel Bugár, PhD.**
	doc. Ing. Ľubomír Doboš, CSc.
	doc. Ing. Ján Gamec, CSc.
	doc. Ing. Mária Gamcová, PhD.
	doc. Ing. Stanislav Ondáš, PhD.
	doc. Ing. Ľuboš Ovseník, PhD.
	doc. Ing. Ján Papaj, PhD.
	doc. Ing. Matúš Pleva, PhD.
Assistant Professors:	**Ing. Iveta Gladišová, CSc.**
	Ing. Jakub Oravec, PhD.
	Ing. Daniel Hládek, PhD.
	Ing. Ján Staš, PhD.
	Ing. Marianna Koctúrová, PhD.

Department of Electronics and Multimedia Telecommunications

Support staff: **Ing. Martina Dragošeková**

Viera Šumáková

Ph.D. students:

Internal form: **Ing. Samuel Andrejčík**

Ing. Maroš Baumgartner

Ing. Matúš Čavojský

Ing. Maroš Harahus

Ing. Patrik Jurík

Ing. Jozef Kromka

Ing. Natália Kurkina

Ing. Maroš Lapčák

Ing. Zuzana Sokolová

Ing. Norbert Zdravecký

TEACHING

Undergraduate Study (Bc.) - Automotive Electronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Basics of electronics	*2nd*	*3/2*	*Gamec, Gamcová*
Electronics I.	*3rd*	*3/2*	*Gamec, Gamcová*
Signals and systems	*3rd*	*3/2*	*Gamcová, Gladišová*
Electronics II.	*4th*	*3/2*	*Galajda*
Measurement in electronics	*4th*	*2/3*	*Šaliga*
Programming measurement systems	*5th*	*2/2*	*Šaliga*
Automotive electronics	*5th*	*3/2*	*Gamec*
Systems, processes and signals	*5th*	*2/2*	*Gamcová*
Electronics III.	*5th*	*2/2*	*Šaliga*
Optoelectronics	*6th*	*2/2*	*Ovseník*

Undergraduate Study (Bc.) - Automotive Electronics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Programming	*2nd*	*2/2*	*Juhár, Hládek*
Communication technologies basics	*2nd*	*2/2*	*Čižmár, Pleva*
Principles of the computer engineering	*2nd*	*2/2*	*Pleva*

Department of Electronics and Multimedia Telecommunications

Computer system architectures	*3rd*	*2/2*	*Drutarovský*
Data structures and algorithms	*3rd*	*2/2*	*Juhár, Hládek*
Operating systems	*3rd*	*2/2*	*Pleva*
Introduction to computer networks	*3rd*	*2/2*	*Bugár, Oravec*
Scientific project I.	*4th*	*0/6*	*Drutarovský*
Basics of electronics and logic circuits	*4th*	*2/2*	*Galajda*
Database systems	*4th*	*2/2*	*Ondáš*
Introduction to digital communications	*4th*	*2/2*	*Doboš*
Computer networks	*4th*	*2/2*	*Bugár, Oravec*
Transmission media	*4th*	*2/2*	*Ovseník*
Multimedia signals in communication networks	*4th*	*2/2*	*Gladišsová, Staš*
Bachelor project	*5th*	*2/6*	*Galajda*
Computer networks applications	*5th*	*2/2*	*Bugár, Oravec*
Object-oriented programming	*5th*	*2/2*	*Ondáš*
Programming of measuring systems	*5th*	*2/2*	*Šaliga*
Mobile technologies and services	*5th*	*2/2*	*Doboš*
Audio applications programming	*5th*	*2/2*	*Juhár*
Web technologies	*5th*	*2/2*	*Papaj*
Optoelectronics	*6th*	*2/2*	*Ovseník*
Security in computer systems	*6th*	*2/2*	*Drutarovský*
Speech interactive communication systems	*6th*	*2/2*	*Ondáš*
Basics of the software engineering	*6th*	*2/2*	*Ondáš*
Cloud technologies fundamentals	*6th*	*2/2*	*Juhár, Hládek, Staš*

Graduate study (Ing.) - Automotive Electronics

Subject	*Semester*	*Lectures/exercises (hours per week)*	*Name of Lecturer*
Digital signal processing	*1th*	*2/2*	*Gamcová, Gladišová*
Advanced measurement systems	*1th*	*2/2*	*Šaliga*
Microwave circuits and systems	*2nd*	*2/2*	*Gamec*
Active and passive safety systems	*2nd*	*2/2*	*Gamec*

Department of Electronics and Multimedia Telecommunications

Communication systems	*2nd*	*2/2*	*Šaliga, Gladišová*
Digital image processing	*3rd*	*2/2*	*Gamcová, Kováč*
Photonic systems	*3rd*	*2/2*	*Ovseník*
Radars in cars	*3rd*	*2/2*	*Gamcová*

Graduate study (Ing.) - Computer Networks

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Scientific project II	*1th*	*0/6*	*Drutarovský*
Digital signal processing	*1th*	*2/2*	*Juhár, Gladišová*
Digital systems and internet of things	*1th*	*2/2*	*Galajda*
Localization in the wireless and mobile networks	*1th*	*2/2*	*Doboš*
Technologies and systems for data processing	*1th*	*2/2*	*Ondáš, Staš*
Project management	*1th*	*2/2*	*Ondáš*
Routing algorithms in the computer networks	*1th*	*2/2*	*Bugár*
Diploma project 1	*2nd*	*2/4*	*Galajda*
Technologies based on switched networks	*2nd*	*2/2*	*Papaj, Bugár*
Microwave circuits and systems	*2nd*	*2/2*	*Gamec*
Speech and audio signal processing and transmission	*2nd*	*2/2*	*Juhár, Ondáš*
Optical communication systems and networks	*2nd*	*2/2*	*Ovseník*
Mobile communications	*2nd*	*2/2*	*Papaj*
Theory of the communication systems	*2nd*	*2/2*	*Čižmár, Papaj*
Designing tools for digital systems	*2nd*	*2/2*	*Galajda*
Diploma project 2	*3rd*	*2/6*	*Galajda*
Vehicular communication networks	*3rd*	*2/2*	*Gamec*
Biometric security systems	*3rd*	*2/2*	*Pleva*
Security of the information and communication systems	*3rd*	*2/2*	*Drutarovský*
Sensor networks	*3rd*	*2/2*	*Ovseník*
Cognitive networks	*3rd*	*2/2*	*Bugár*
Current trends in communication technologies	*3rd*	*2/2*	*Juhár*

Graduate study (PhD.) - Informatics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Theory of computer engineering and computer networks	*1th*	*0/10*	*Čižmár*

Department of Electronics and Multimedia Telecommunications

Research activities 1	*1th*	*0/10*	*Juhár*
Modern communication systems	*2nd*	*0/10*	*Čižmár*
Specialization subject	*3rd*	*0/10*	*Jzhár*
Research activities 2	*3rd*	*0/10*	*Juhár*
Research activities 3	*5th*	*0/10*	*Juhár*
Research activities 4	*6th*	*0/10*	*Juhár*
Research activities 5	*7th*	*0/10*	*Juhár*

RESEARCH PROJECTS

- **Multi3Generation: Multi-task, Multilingual, Multi-modal Language Generation** (COST Action IC CA18231)
- **Education of Future ICT Experts Based on Smart Society Needs** (Erasmus+ 2019-1-SK01-KA203-060789)
- **Network of IcT Robo Clubs** - NitroClubs.eu (Erasmus+ 2020-1-BG01-KA202-079200)
- **New Energy Solutions in Carpathian Area** (ENI Cross-border Cooperation Programme HUSKROUA/1702/6.1/0014)
- **Technologies to Support Response Generation for Multilingual Intelligent Agent** (Project of the Slovak Research and Development Agency, No. SK-TW-21-0002)
- **Robust UWB Sensor System for Persons Monitoring** (Project of the Slovak Research and Development Agency, No. APVV-18-0373)
- **Robust Speech Technologies Using Deep Learning** (Project of the Ministry of Education, Science, Research and Sport of the SR, No. VEGA 1/0753/20)
- **Automatic Speech Processing Technologies for Support in Crisis Situations** (Project of the Ministry of Education, Science, Research and Sport of the SR, No. VEGA 2/0165/21)
- **Research and Development of Compressed Sensing Methods for Sensoric and Test Applications** (Project of the Ministry of Education, Science, Research and Sport of the SR, No. VEGA 1/0413/22)
- **Data Processing Techniques in High Speed Transmission Systems** (Project of the FEI TUKE, No. FEI-2022-84)

CO-OPERATION

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.
- Deloitte Advisory, s.r.o., Bratislava
- ITMG, s.r.o., Senec

Department of Electronics and Multimedia Telecommunications

- Innovatrics, s.r.o., Bratislava
- Marelli Kechnec Slovakia s.r.o., Kechne

Visitors to the Department

• Patrick Bours, NTNU, Norway	April 20-22, 2022
• Milos Cernak, EPFL, Lausanne, Switzerland	April 20-22, 2022
• Luca De Vito, Un. Sannio-Benevento, Italy	April 20-22, 2022
• Roman Maršálek, VUT Brno, Cech republic	April 20-22, 2022
• Matthew Frohman, University of Maryland	Sept.18 – Nov. 11, 2022
• Patrick Bours, NTNU, Norway	October 19-21, 2022
• Nayden Chivarov, BAS, Bulgaria	October 20, 2022

International Co-operation

- Austrian Research Institute for Artificial Intelligence (OFAI) of the Austrian Society for Cybernetic Studies
- FTW Telecommunications Research Center Vienna, Austria
- Ingenieur Büro Ralf Klukas, Germany
- INESC Lisabon, Portugal
- Instituto Superior Técnico (IST), Lisbon, Portugal
- Statens Räddningsverk, Sweden
- ŠkodaAuto Mladá Boleslav, Czech Republic
- Second University of Naples, Italy
- Ilmenau University of Technology, Germany
- Ilmsens GmbH, 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
- 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

Department of Electronics and Multimedia Telecommunications

- University of Reggio Di Calabria, Italy
- University of Oulu, Finland
- University of Veliko Tarnovo, Bulgaria
- Gjøvik University College, Norway
- Mississippi State University, Starkville, USA
- Fraunhofer Institute for Integrated Circuits IIS (Wireless Distribution Systems / Digital Broadcasting Research Group), Germany
- European Polytechnical University, Pernik, Bulgaria
- Brunel University London, UK
- DigiRobotics, London, UK
- National Taipei University of Technology
- Institute for Information Industry (III), Taipei
- University of Applied Sciences (OAMK), Oulu, Finland
- Norwegian University of Science and Technology (NTNU), Gjøvik, Norway
- Joint Research Center (EC: DG-JRC), Ispra, Italy
- Universitatea politehnica din Bucuresti, Romania
- Soochow University, Taipei, Taiwan
- Crayonic B.V., Eindhoven, Netherlands

Visit of Staff Members to Foreign Institutions

- Galajda,P., Jičín, University Pardubice, Czech Republic — April 27-29, 2022
- Galajda,P., Varna, Bulgaria — June 23-27, 2022
- Galajda,P., Brno, VUT Brno, Czech Republic — June 28-29, 2022
- Haluška,R., Varna, Bulgaria — June 23-27, 2022
- Hládek,D., Varna, Bulgaria — June 23-27, 2022
- Hládek,D., Bucharest, Romania — November 4-6, 2022
- Hládek,D., Singapore, Singapore — December 8-17, 2022
- Jurík,P., TU Ilmenau, Germany — November 22 – December 3, 2022
- Kromka,J., University of Sannio, Benevento, Italy — March 10 – June 11, 2022
- Kromka,J., Brescia, Italy — September 11-15, 2022
- Michaeli,L., Brescia, Italy — September 11-15, 2022
- Ovseník,Ľ., Jičín, University Pardubice, Czech Republic — April 27-29, 2022
- Papaj,J., Ostrava, TU Ostrava, Czech Republic — September 23, 2022
- Pleva,M., Varna, Bulgaria — June 23-27, 2022

Department of Electronics and Multimedia Telecommunications

• Pleva,M., Prague, CVUT Prague, Czech Republic	October 12-14, 2022
• Pleva,M., Bucharest, Romania	November 4-6, 2022
• Pleva,M., Singapore, Singapore	December 8-17, 2022
• Sokol,M., Jičín, University Pardubice, Czech Republic	April 27-29, 2022
• Sokol,M., TU Ilmenau, Germany	Nov. 22 – Dec. 3, 2022
• Sokolová,Z., Jičín, University Pardubice, Czech Republic	April 27-29, 2022
• Šaliga,J., Brescia, Italy	September 11-15, 2022

Membership in International Organizations and Societies

- Čižmár, A.: Member IEEE Affiliate Computer Society, No. 41237162.
- Čižmár, A.: Member of Audio Engineering Society, New York, I.D. 44154.
- Galajda, P.: Member of Czech and Slovak Radioelectronics Engineering Society.
- Galajda, P.: Member of EUROPRACTICE IC Service.
- Gamcová, M., Member of Consortium TeamSoc2, The ICT Engineer of the 21st Century.
- Hládek, D.: Member of "Electronics" journal topics editorial board.
- Juhár, J.: Member of the ISCA (International Speech Communication Association).
- 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".
- Levický, D.: Member of Czech and Slovak Radioelectronics Society.
- Michaeli, L.: Co-ordinator of IMEKO Working Group "AD and DA metrology".
- Pleva, M.: Member of European Network on High Performance and Embedded Architecture and Compilation (HiPEAC).
- Pleva, M.: Member of the "COST Association Review Panel" for RP2 - Information Technologies and Mathematics to Provide Solutions to Society.
- Pleva, M.: Member of the H2020 Monitoring Review Panel and Rapporteur.
- Pleva, M.: Member of Association for Computing Machinery (ACM).
- Šaliga, J.: Member and chairman of the international board of IMEKO Technical Committee TC-4 "Measurement of Electrical Quantities".

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.

Department of Electronics and Multimedia Telecommunications

- 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.
- Levický, D.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Michaeli, L.: Member of the editorial board „Measurement Science Review", Issued by SAV, Bratislava.
- Michaeli, L.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".
- Staš, J.: Member of the Association for Computational Linguistics (ACL) Special Interest Group on Slavic Natural Language Processing (SIGSLAV).
- Staš, J.: Member of the Slovak Research Center for Artificial Intelligence – Slovak AI.
- Šaliga, J.: Member of Council for Technical Sciences of Slovak Research and Development Agency.
- Šaliga, J.: Member of the editorial board of the journal "Acta Electrotechnica et Informatica".

Contracts, International Scientific Projects

- Multi3Generation: Multi-task, Multilingual, Multi-modal Language Generation (COST Action IC CA18231)
- Education of Future ICT Experts Based on Smart Society Needs (Erasmus+ 2019-1-SK01-KA203-060789)
- Network of IcT Robo Clubs - NitroClubs.eu (Erasmus+ 2020-1-BG01-KA202-079200)
- New Energy Solutions in Carpathian Area (ENI Cross-border Cooperation Programme HUSKROUA/1702/6.1/0014)
- Technologies to Support Response Generation for Multilingual Intelligent Agent (Project of the Slovak Research and Development Agency, No. SK-TW-21-0002)

THESES

Thesis Type	Bachelor	Master	Doctoral
Number	57	36	0

OTHER ACTIVITIES

Conferences, seminars

On 21 to 22 of April 2022, the 32nd IEEE RADIOELEKTRONIKA 2022 international conference was held in Košice, Slovakia, which was organized by the Department of Electronics and Multimedia Telecommunications FEI TUKE in cooperation with the Association of Slovak Scientific and Technological Societies – Slovak Electrical Engineering Society.

The goal of the conference was to create a discussion forum for researchers, academics, people in industry, and students who are interested in the latest development in the area of electronics, signal processing, information technologies, microwave technology, their applications and related disciplines.

Student Competitions and Rewards

- The FEI Dean's Award for "Progress" in Computer Science (CS) at the Scientific Conference of Young Researchers

Department of Electronics and Multimedia Telecommunications

SCYR 2022 in the section "CS" was won by Ing Maroš Baumgartner for the paper "Use of Blockchain Technology in the Routing Process for Multi-hop Networks".

- The FEI Dean's Award for "Survey" in Electrical & Electronics Engineering (EEE) at the Scientific Conference of Young Researchers SCYR 2022 in the section "EEE" was won by Ing Jozef Kromka for the paper "An overview of Compressed Sensing and Sparse Signal Recovery Algorithms".

Compositions for Dissertation Examinations

- BAUMGARTNER,M.: Robust data transmission in 5G networks without infrastructure (Robustný prenos dát v 5G sieťach bez infraštruktúry). FEI TU Košice, Slovakia, March 2022. (supervisor: Papaj,J.)
- LAPČÁK,M.: Investigation the data transfer limitation in FSO/RF hybrid systems (Skúmanie obmedzení prenosu dát v hybridných FSO/RF systémoch). FEI TU Košice, Slovakia, March 2022. (supervisor: Ovseník,Ľ.)
- ZDRAVECKÝ,N.: Investigation the data transfer limitation in all optical transmission networks (Skúmanie obmedzení prenosu dát v plne optických prenosových sieťach). FEI TU Košice, Slovakia, March 2022. (supervisor: Ovseník,Ľ.)

PUBLICATIONS

Patents

- GAMEC,J.-GAMCOVÁ,M.-SCHNEIDER,J.: Low profile modulated sine-slit UWB antenna with coplanar excitation. In: Patent no. 288983, Slovakia, 2022.

Books

- LEVICKÝ,D.: Bezpečnosť digitálnych informácií. In: Košice: TU, Slovakia, 1st edition, 2022, 277 pp.
- ŠALIGA,J.: Základné meracie prístroje pre elektroniku. In: Košice: TU, Slovakia, 2nd edition, 2022, 190 pp.

Journals

- ČEŠKOVIČ,M.-KURDEL,P.-GECEJOVÁ,N.-LABUN,J.-GAMCOVÁ,M.-LEHOCKÝ,M.: A Reasonable Alternative System for Searching UAVs in the Local Area. In: Sensors, Basel (Switzerland), Vol. 22, no. 9 (2022), pp. 1-19. WOS:Q2,SCO:Q1
- FORTES,J.-ŠVINGÁL,M.-PORTELEKY,T.-JURÍK,P.-DRUTAROVSKÝ,M.: Positioning and Tracking of Multiple Humans Moving in Small Rooms Based on a One-Transmitter-Two-Receiver UWB Radar Configuration. In: Sensors, Basel (Switzerland), Vol. 22, no. 14 (2022), pp. 1-23. WOS:Q2,SCO:Q1
- KOCTÚROVÁ, M. - JUHÁR, J., Neural Network Architecture for EEG Based Speech Activity Detection. In:Acta Electrotechnica et Informatica, 21(4), pp.9-13.
- KUPCOVÁ, E. - DRUTAROVSKÝ, M., Number-Theoretic Transform with Constant Time Computation for Embedded Post-Quantum Cryptography. In: Acta Electrotechnica et Informatica, 22(4), pp.30-37.
- KURDEL,P.-ČEŠKOVIČ,M.-GECEJOVÁ,N.-ADAMČÍK,F.-GAMCOVÁ,M.: Local Control of Unmanned Air Vehicles in the Mountain Area. In: Drones, Basel (Switzerland), Vol. 6, no. 2 (2022), pp. 1-18. WOS: Q1

Department of Electronics and Multimedia Telecommunications

- KURDEL,P.-ČEŠKOVIČ,M.-GECEJOVÁ,N.-LABUN,J.-GAMEC,J.: The Method of Evaluation of Radio Altimeter Methodological Error in Laboratory Environment. In: Sensors, Basel (Switzerland), Vol. 22, no. 14 (2022), pp. 1-21. WOS:Q2,SCO:Q1
- LABAN,M.-DRUTAROVSKY,M.: Leakage Free Helper Data Storage in Microcontroller Based PUF Implementation. In: Microprocessors and Microsystems, Vol. 87, November 2021, 103369. WOS:Q2,SCO:Q2
- LAPČÁK,M.-OVSENÍK,Ľ.-ORAVEC,J.-ZDRAVECKÝ,N.: Investigation of Machine Learning Methods for Prediction of Measured Values of Atmospheric Channel for Hybrid FSO/RF System. In: Photonics, Basel (Switzerland), Vol. 9, no. 8 (2022), pp. 1-18. WOS:Q3,SCO:Q2
- MAKSYMYUK, T. - GAZDA, J. - BUGÁR, G. - GAZDA, V. - LIYANAGE M. - DOHLER, M. Blockchain-Empowered Service Management for the Decentralized Metaverse of Things, In: IEEE Access, vol. 10, pp. 99025-99037, 2022, doi: 10.1109/ACCESS.2022.3205739. WOS:Q2,SCO:Q1
- SKUDAL,M.H.–PLEVA,M.-KOREČKO,Š.–BOURS,P.-HLADEK,D.: Comparing Natural and Strong Typing Behavior for Keystroke Dynamics Multimodal Database Collection. In: Norsk Informasjonssikkerhetskonferanse (NISK), Tapir Akademisk Forlag, 2021, ISSN 1894-7735, pp. 1-4.
- SOKOLOVÁ, Z., - STAŠ, J. - JUHÁR, J., Review of Recent Trends in the Detection of Hate Speech and Offensive Language on Social Media. In: Acta Electrotechnica et Informatica, 22(4), pp.18-24.
- ŠALIGA,J.-ANDRÁŠ,I.-DOLINSKÝ,P.-MICHAELI,L.-KOVÁČ,O.-KROMKA,J.: ECG Compressed Sensing Method with High Compression Ratio and Dynamic Model Reconstruction. In: Measurement: Journal of the International Measurement Confederation, London (Great Britain), Vol. 183 (2021), pp. 1-11. SCO: Q1
- ZDRAVECKÝ,N.-OVSENÍK,Ľ.-ORAVEC,J.-LAPČÁK,M.: Performance Enhancement of DWDM Optical Fiber Communication Systems Based on Amplification Techniques. In: Photonics, Basel (Switzerland), Vol. 9, no. 8 (2022), pp. 1-14. WOS:Q3,SCO:Q2

Other publications

Publication Type	Journals		Textbooks	Conferences		Patents	Other
	Foreign	Home	Home	Foreign	Home	Domestic	
Number				26	35		

Faculty of Electrical Engineering
and Informatics

Department of Physics

Department of Physics

Essential information:

Head of Department: ***prof. RNDr. Jana Tóthová, PhD.***
Email: ***jana.tothova@tuke.sk***
Web: ***http://web.tuke.sk/feikf/sk/index.html***
Phone/Fax: ***+421 55 602 2484***

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 the study of non-metallic materials using nuclear magnetic resonance (NMR) and some other complementary methods. The department consists of three sections:

- Section of Physics of Magnetic Materials,
- Section of Physics of Macromolecular Systems,
- Section of Physics of Non-Metallic Materials.

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.

In 2013 the Laboratory for modification and testing of properties of advanced materials was established at the department within the project "Centre of Excellence for Integrated Research & Exploitation of Advanced Materials and Technologies in Automotive Electronics". The laboratory is equipped with apparatus for the study of the thermal and mechanical properties of materials and a desktop electron microscope for the study of the surface structure of materials.

The Department of Physics provides compulsory courses in basic physics as well as several optional courses in various

Department of Physics

fields of physics.

Since the academic year 2015/2016, the department offers bachelor, engineer and PhD. study programmes Physical Engineering of Advanced Materials. The graduates of this programme:

- acquire knowledge on the structure and physical properties of materials with emphasis on progressive materials,
- 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,
- acquire basic knowledge of information technologies, and will be skilled in using the computer in modelling and simulation of processes in the microstructure of materials.

The graduates can find positions in industry (product testing, controlling production processes), in research and development institutes, and 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.

STAFF

Professors:	**prof. RNDr. Jana Tóthová, PhD.**
	prof. RNDr. Vladimír Lisý, DrSc
	prof. RNDr. Ján Ziman, CSc.
Associate Professors:	**doc. RNDr. Oľga Fričová, PhD.**
	doc. RNDr. Mária Kladivová, PhD.
	doc. RNDr. Júlia Hlaváčová, CSc
	doc. RNDr. Mária Kovaľaková, PhD.
	doc. RNDr. Jozef Kravčák, PhD.
	doc. Ing. RNDr. Jozef Onufer, PhD.
Assistant Professors:	**RNDr. Anton Baran, PhD.**
	Mgr. Peter Duranka, PhD.
	RNDr. Peter Vrábel, PhD.
	RNDr. Natália Šmídová, PhD.
Associate Professors:	**doc. RNDr. Oľga Fričová, PhD.**
	doc. RNDr. Mária Kladivová, PhD.
	doc. RNDr. Júlia Hlaváčová, CSc
	doc. RNDr. Mária Kovaľaková, PhD.
	doc. RNDr. Jozef Kravčák, PhD.
	doc. Ing. RNDr. Jozef Onufer, PhD.

Department of Physics

TEACHING

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

- Faculty of Electrical Engineering and Informatics (FEI)
- Faculty of Materials, Metallurgy and Recycling (FMMR)
- Faculty of Civil Engineering (SvF)

Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Introduction to Physics (FEI)	*1st*	*0/2*	*Kovaľaková, Duranka, Baran, Šmídová, Kravčák, Kladivová*
Physics I (FEI)	*2nd*	*2/2*	*Baran, Fričová, Duranka, Kovaľaková, Šmídová,Kravčák, Onufer, Vrábel, Ziman, Bačkai, Samuhel, Karpets, Miakota,*
Physics 1 (FEI) – external study	*2nd*	*2/0*	*Fričová*
Physics I (FEI) – for foreign students	*2nd*	*2/2*	*Šmídová*
Physics (FEI)	*2nd*	*2/2*	*Ziman, Duranka, Kravčák, Karpets, Samuhel*
Physics 1 (FEI)	*2nd*	*2/2*	*Ziman, Kovaľaková, Miakota, Zolochevska*
Seminar in Physics 1.	*2nd*	*0/2*	*Kladivová*
Physics II (SvF)	*2nd*	*2/2*	*Onufer*
Physics I (FMMR)	*2nd*	*2/2*	*Kladivová*
Physics I (FMMR) – external study	*2nd*	*2/0*	*Baran*
Physics II (FEI)	*3rd*	*3/2*	*Hlaváčová, Onufer, Vrábel, Duranka*
Physics II (FEI) – external study	*3rd*	*2/0*	*Fričová*
Physics II (FMMR)	*3rd*	*2/2*	*Kladivová*
Physics II (FMMR) – external study	*3rd*	*2/0*	*Baran*
Physical Measurement	*3rd*	*2/3*	*Vrábel*
Selected Topics in Physics	*3rd*	*2/3*	*Onufer*
Physics II (FEI)	*4th*	*3/2*	*Hlaváčová*
Introduction to Quantum Mechanics – for foreign students	*5th*	*2/3*	*Kovaľaková*
Progressive Materials	*6th*	*2/0*	*Lisý, Tóthová*
Professional Experience	*6th*	*0/6*	*Onufer, Duranka*
Bachelor thesis	*th*	*3/9*	*Onufer, Duranka*

Graduate study (Ing.)

Department of Physics

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Theory of the Electromagnetic Field	1st	2/2	Kravčák
Quantum Physics	1st	2/3	Lisý, Tóthová
Polymer Based Materials	1st	2/2	Fričová
Main Findings of Study Field and Their Use	4th	0/4	Lisý
Diploma thesis	4th	9/9	Kovaľaková, Fričová

LABORATORIES

Teaching and Research Laboratories

- Laboratories of basic physics
- Solid state NMR laboratory
- Laboratory for magnetic measurements
- Laboratory of physics of macromolecular systems
- Laboratory of advanced materials
- PC laboratory

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
- Vibrational viscosimeter SV – 10
- Rotational modular compact rheometer (MCR 502)
- Capillary automated micro viscometer (AMVn)

RESEARCH PROJECTS

- ***Modern amorphous and polycrystalline functional materials for sensors and actuators,*** *Project APVV, No. APVV-16-0079. Principal investigator: prof. RNDr. Rastislav Varga, DrSc. (Faculty of Science, Pavol Jozef Šafárik University in Košice). Co-operating organisation: Technical University of Košice. Principal investigator: prof. RNDr. Ján Ziman, CSc.*
- ***Effect of external force fields on non-Markovian dynamics of condensed matter,*** *S.G.A. project No. 1/0353/22, Principal investigator: prof. RNDr. V. Lisý, DrSc.*

Department of Physics

- ***Influence of supramolecular structure on ultimate properties of blends of biodegradable polymers with thermoplastic starch,*** *S.G.A. project No.1/0751/21 Principal investigator: doc. RNDr. M. Kovaľaková, PhD.*
- ***Domain wall and magnetization processes in amorphous ferromagnetic microwires****, S.G.A. Project No. 1/0250/21, Principal investigator: doc. RNDr. Ing. Jozef Onufer, PhD.*
- ***Development of fully green synthesis protocols for synthesis of gold nanoparticles with surface plasmon resonance absorption in the near-infrared region,*** *S.G.A. project, No.1/0882/21, Principal investigator: doc. RNDr. Ruslan Mariychuk, PhD. (Faculty of Humanities and Natural Sciences, Prešov University in Prešov). Co-operating organisation: Technical University of Košice. Principal investigator: doc. RNDr. Oľga Fričová, PhD.*
- ***Study of dynamics of domain wall in rapidly-changing magnetic field,*** *Grant FEI-2022-89, Principal investigator: Ing. Jana Horniaková*

CO-OPERATION

Co-operation in Slovakia

- Institute of Experimental Physics of the Slovak Academy of Sciences, Košice
- Institute of Physics, Faculty of Science, P.J. Šafárik University in Košice
- Institute of Chemistry, Faculty of Science, P.J. Šafárik University in Košice
- Polymer Institute, Slovak Academy of Sciences, Bratislava
- Faculty of Humanities and Natural Sciences, Prešov University in Prešov
- Faculty of Electrical Engineering and Information Technology, University of Žilina
- RVmagnetics, a.s., Košice

Visitors to the Department

- Vasyl Vakulchak, PhD., Uzhhorod National University, Uzhhorod, Ukraine

International Co-operation

- Budapest University of Technology and Economics, Hungary
- Central Physical Research Institute, RMKI KFKI, Budapest, Hungary
- Uzhhorod National University, Ukraine

Membership in Slovak Organizations and Societies

- Fričová, O.: member of SFS
- Kladivová, M.: member of the Slovak Committee of Physics Olympiad, SFS, JSMF, and SMAGS
- Kovaľaková, M.: member of SFS (secretary)
- Kravčák, J.: member of SFS and SMAGS
- Lisý, V.: member of SFS
- Onufer, J.: member of SFS and vice-president of SMAGS
- Šmídová, N.: member of SFS

Department of Physics

- Tóthová, J.: member of SFS
- Ziman, J.: member of SFS and SMAGS

PUBLICATIONS

- KARPETS, Maksym - RAJŇÁK, Michal - TIMKO, Milan - KOPČANSKÝ, Peter - PETRENKO, Viktor I. - GAPON, Igor V. - KOSIACHKIN, Yehor: Neutron reflectometry study of transformer oil-based magnetic fluid under electric field. In: Acta Electrotechnica et Informatica. - Košice (Slovensko): Fakulta elektrotechniky a informatiky Roč. 21, č. 4 (2021), s. 23-29 [print, online]. - ISSN 1335-8243
- GAMAYUNOVA, N. V. – KUZMIAK, Marek - SZABÓ, Pavol - SAMUELY, Peter - NAIDYUK, Yu. G.: Superconductivity in hole-doped germanium point contacts. In: Low Temperature Physics = LTP. - New York (USA): AIP Publishing Roč. 48, č. 2 (2022), s. [1-10] [print]. - ISSN 1063-777X
- TÓTHOVÁ, Jana - LISÝ, Vladimír: External potential modifies memory of solute particles: a particle-viscous bath model. In: Journal of Molecular Liquids. - Amsterdam (Holandsko): Elsevier č. 346 (2022), s. [1-8] [print, online]. - ISSN 0167-7322
- RAJŇÁK, Michal - FRANKO, Marek - PAULOVIČOVÁ, Katarína - KARPETS, Maksym - PAREKH, Kinari - UPADHYAY, Ramesh - KURIMSKÝ, Juraj - DOLNÍK, Bystrík - CIMBALA, Roman - HAVRAN, Peter - TIMKO, Milan - KOPČANSKÝ, Peter: Effect of ferrofluid magnetization on transformer temperature rise. In: Journal of Physics D : Applied Physics. - Bristol (Veľká Británia): IOP Publishing Roč. 55, č. 34 (2022), s. 1-13 [print, online]. - ISSN 0022-3727
- KUZMIAK, Marek - KOPČÍK, Michal - KOŠUTH, Filip - VAŇO, Viliam - SZABÓ, Pavol - LATYSHEV, Vitalii - KOMANICKÝ, Vladimír - SAMUELY, Peter: Suppressed superconductivity in ultrathin mo2n films due to pair-breaking at the interface. In: Journal of Superconductivity and Novel Magnetism. - Cham (Švajčiarsko): Springer Nature Roč. 35, č. 7 (2022), s. 1775-1780 [print, online]. - ISSN 1557-1939
- HARDOŇ, Štefan - KÚDELČÍK, Jozef - BARAN, Anton - MICHAL, Ondrej - TRNKA, Pavel - HORNAK, Jaroslav: Influence of nanoparticles on the dielectric response of a single component resin based on polyesterimide. In: Polymers. - Bazilej (Švajčiarsko): Multidisciplinary Digital Publishing Institute Roč. 14, č. 11 (2022), s. [1-13] [online]. - ISSN 2073-4360 (online)
- ZIMAN, Ján - KLADIVOVÁ, Mária - ONUFER, Jozef: Estimation of changes in the length of a moving conical domain wall in bistable microwire. In: Journal of Applied Physics. - Maryland (USA): American Institute of Physics Roč. 131, č. 20 (2022), s. [1-13] [print, online]. - ISSN 0021-8979
- KARPETS, Maksym - RAJŇÁK, Michal - PETRENKO, Viktor I. - GAPON, Igor V. - AVDEEV, Mikhail V. - BULAVIN, Leonid A. - TIMKO, Milan - KOPČANSKÝ, Peter: Electric field-induced assembly of magnetic nanoparticles from dielectric ferrofluids on planar interface. In: Journal of Molecular Liquids. - Amsterdam (Holandsko): Elsevier Roč. 362 (2022), s. [1-9] [print, online]. - ISSN 0167-7322

Department of Physics

- HORNIAKOVÁ, Jana - ONUFER, Jozef: Dynamika doménových stien vo feromagnetických mikrodrôtoch. In: QuoVadis Research @ FEI. - Košice (Slovensko): Technická univerzita v Košiciach, 2018 Roč. 5, č. 2 (2022), s. 47-54 [print, online]. - ISSN 2585-9587
- FRIČOVÁ, Oľga - HUTNÍKOVÁ, Mária: Changes in molecular mobility of sorbitol plasticized starch during aging. In: Journal of Applied Polymer Science. - Hoboken (USA): John Wiley & Sons Roč. 139, č. 39 (2022), s. [1-10] [print, online]. - ISSN 0021-8995
- BARAN, Anton - FRIČOVÁ, Oľga - VRÁBEL, Peter - POPOVIČ, Ľuboš - PEIDAYESH, Hamed - CHODÁK, Ivan - HUTNÍKOVÁ, Mária - KOVAĽAKOVÁ, Mária: Effects of urea and glycerol mixture on morphology and molecular mobility in thermoplastic starch/montmorillonite-type nanofiller composites studied using XRD and NMR. In: Journal of Polymer Research. - Dordrecht (Holandsko): Springer Nature, 2004 Roč. 29, č. 7 (2022), s. [1-12] [print]. - ISSN 1022-9760
- GALDUN, Ladislav - VIDYASAGAR, Reddithota - HENNEL, Miroslav - VARGA, Michal - MILKOVIC, O. - RYBA, T. - NULANDAYA, Limpat - REIFFERS, Marián - KRAVČÁK, Jozef - VARGOVÁ, Zuzana - VARGA, Rastislav: Fe-Mn-Ga shape memory glass-coated microwire with sensing possibilities. In: Journal of Physics D : Applied Physics. - Bristol (Veľká Británia): IOP Publishing Roč. 55, č. 4 (2022), s. [1-7] [print, online]. - ISSN 0022-3727
- ONUFER, Jozef - ZIMAN, Ján - DURANKA, Peter - SAMUHEL, Simeon - HORNIAKOVÁ, Jana - KLADIVOVÁ, Mária: Dynamics of single domain wall propagating in bistable microwire in rapidly changing magnetic field. In: IEEE Transactions on Magnetics: a Publication of the IEEE Magnetics Society. - New York (USA): IEEE Magnetics Society Roč. 58, č. 11 (2022), s. 1-6 [print]. - ISSN 0018-9464
- TÓTHOVá, Jana – LISÝ, Vladimír: Overdamped and underdamped Langevin equations i the interpretation of experiments and simulations. In: European Journal of Physics Roč. 43 (2022) 065103, p. 1-14, IOP Publishing Bristol (England), Print ISSN: 0143-0807
- HORNIAKOVA, Jana – ONUFER, Jozef – SAMUHEL, Simeon – DURANKA, Peter – ZIMAN, Ján – KLADIVOVÁ, Mária: Tensile stress and low temperature influence changes in geometry of propagating domain wall in magnetic glass-coated bistable microwires. In: PHYSICA B-CONDENSED MATTER, 646, 414298 (2022)

Other publications

Publication Type	Journals		Textbooks	Conferences		Patents	Other
	Foreign	Home	Home	Foreign	Home	Domestic	
Number	1	13	0	0	0	0	0

The achievements of our students in 2022

In the academic year 2021/22, students of the 2nd year of engineering studies in our program successfully completed

Department of Physics

their studies and for excellent results received:

- *Ing. Simona Saparová* Rector's Award for excellent academic results
- *Ing. Leoš Ondriš* Commendation of the Dean of the FEEI for excellent academic results

In the final thesis competition announced by the Slovak Magnetic Society - SMAGS,
our students obtained the following prices:

- *Ing. Simona Saparová* Štefan Jedlík Award for the best thesis
- *Bc. Martin Eliáš* Štefan Jedlík Award for the best bachelor's thesis

At the 22nd scientific conference of young researchers - SCYR, held annually at our Faculty of Electrical Engineering and Informatics, the 3rd year doctoral student

- Ing. Bc. Marek Kuzmiak received Dean's Award for development in the Electrical Engineering and Electronics section

In the strong competition of young scientists, held at the Institute of Experimental Physics of the SAS in Košice, the 3rd place was shared by

- *Ing. Bc. Marek Kuzmiak*
- *Ing. Branislav Kunca, PhD.* graduate of all three levels of our study program Physical Engineering of Progressive Materials, currently employed as a researcher at ÚEF SAS.

Faculty of Electrical Engineering
and Informatics

Department of Mathematics and Theoretical Informatics

Department of Mathematics and Theoretical Informatics

Essential information:

Head of Department: *prof. RNDr. Ján Plavka, CSc.*
Email: *jan.plavka@tuke.sk*
Web: *http://www.tuke.sk/fei-km/index.html*
Phone/Fax: *+421 55 602 3250/ +421 55 633 0115*

KATEDRA MATEMATIKY A TEORETICKEJ INFORMATIKY

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: Mathematics 1, 2 and 3, Discrete Mathematics, Numerical Methods, Probability and Statictic, Coding theory. In addition to the basic courses, the programs of the courses for graduate study were adjusted in co-operation with special departments. 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
- Algebraic structures and graph algorithms in max-plus and max-min algebras
- Topological graph theory – crossing numbers of graphs
- E-learning of mathematical subjects.

Department of Mathematics and Theoretical Informatics

STAFF

Professors:	**prof. RNDr. Jozef Džurina, CSc.**
	prof. RNDr. Ján Plavka, CSc.
Associate Professors:	**doc. RNDr. Blanka Baculíková, PhD.**
	doc. RNDr. Marián Klešč, PhD.
	doc. RNDr. Helena Myšková, PhD.
Assistant Professors:	**RNDr. Štefan Berežný, PhD.**
	RNDr. Emília Draženská, PhD.
	Mgr. Jana Fortes, PhD.
	RNDr. Zuzana Gibová, PhD.
	RNDr. Anna Grinčová, PhD.
	RNDr. Mária Hutníková, PhD.
	RNDr. Monika Molnárová, PhD.
	RNDr. Michal Staš, PhD.
	RNDr. Mária Timková, PhD.
	RNDr. Juraj Valiska, PhD.
Technical staff:	**Bc. Lenka Ondejková**

The Department consists of two parts:

- Mathematics Section
- Section of Theoretical Informatics

TEACHING

Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Basics of Algorithmization and Programming	*1st*	*0/2*	*Gazda*
Mathematics I	*1s*	*2/0*	*Baculíková, Myšková*
Mathematics I	*1s*	*0/2*	*Draženská, Fortes, Gibová, Hutníková, Staš*
Mathematics I - EI	*1s*	*2/2*	*Molnárová*
Repetition of Mathematics	*1s*	*2/0*	*Myšková, Staš*
Computer Modeling	*2nd*	*2/2*	*Myšková, Staš*
Mathematics II	*2nd*	*2/0*	*Baculíková, Džurina, Staš*

Department of Mathematics and Theoretical Informatics

Mathematics II	*2nd*	*0/2*	*Baculíková, Draženská, Fortes, Gibová, Grinčová, Hutníková, Staš, Timková*
Mathematics II - EI	*2nd*	*2/2*	*Molnárová*
Discrete Mathematics	*3rd*	*3+1/0*	*Klešč, Plavka*
Discrete Mathematics	*3rd*	*0/2*	*Draženská, Timková, Valiska*
Mathematics III	*3rd*	*2/0*	*Džurina, Myšková*
Mathematics III	*3rd*	*0/2*	*Gibová, Grinčová, Hutníková, Staš*
Mathematics III - EI	*3rd*	*2/2*	*Grinčová*
Software Computing Resources	*3rd*	*2/0*	*Berežný*
Software Computing Resources	*3rd*	*0/2*	*Valiska*
Theory of Coding	*3rd*	*2/2*	*Plavka*
Applications of Differential Equations	*4th*	*2/2*	*Baculíková*
Numerical Methods, Probability and Statictic - EI	*4th*	*3/2*	*Klešč*
Numerical Methods, Probability and Statictic	*4th*	*3/0*	*Berežný, Myšková*
Numerical Methods, Probability and Statictic	*4th*	*0/2*	*Berežný, Draženská, Gibová, Hutníková, Myšková, Timková, Valiska*
Theoretical Informatics	*4th*	*3/1/2*	*Plavka*
Mathematical and Computing Modelling	*5th*	*2/2*	*Džurina*
Typographical System TEX	*5th*	*1/2/1*	*Berežný*
Financial Mathematics	*6th*	*2/2*	*Grinčová*
Operation Analysis	*6th*	*2/0*	*Berežný*
Operation Analysis	*6th*	*0/2*	*Valiska*

Graduate study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Applied Statistics	*7th*	*2/2*	*Fortes*
Differentional Equations and Variational Calculus	*7th*	*2/0*	*Baculíková*
Differentional Equations and Variational Calculus	*7th*	*0/2*	*Džurina*
Discrete Dynamic Systems	*7th*	*2/2*	*Molnárová*
Applied Mathematics	*7th*	*3/2*	*Klešč*

Department of Mathematics and Theoretical Informatics

Cryptography	*8th*	*2/2*	*Fortes*
Linear and Quadratic Programing	*8th*	*2/2*	*Staš*
Modeling of Physical Processes	*8th*	*2/2*	*Džurina*
Graph Algorithms and Discrete Optimization	*9th*	*2/2*	*Timková*
Queueing Theory	*9th*	*2/2*	*Berežný*
Mathematical Methods for Neural Networks and Time Series	*9th*	*2/2*	*Staš*

LABORATORIES

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

RESEARCH PROJECTS

- ***Robust UWB sensor system for persons monitoring.*** *APVV Slovak Grant Agency No. APVV-18-0373, duration 2018-2022, co-ordinator: Štefan Berežný*
- ***Application of the scientific results of difference equations into educations - creation of teaching materials.*** *KEGA Slovak Grant Agency No. 037TUKE-4/2020, duration 2020-2022, co-ordinator: Blanka Baculíková*
- ***UWB sensor systems for people monitoring working in real conditions.*** *VEGA Slovak Grant Agency No. 1/0584/20, duration 2020-2023, co-ordinator: Jana Fortes*
- ***Influence of supramolecular structure on ultimate properties of blends of biodegradable polymers with thermoplastic starch.*** *VEGA Slovak Grant Agency No. 1/0751/21, duration 2021-2024, co-ordinator: Mária Hutníková*

CO-OPERATION

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

Visitors to the Department

- Associate professor Dr. Béla Kovács, University of Miskolc, Faculty of Mechanical Engineering and Informatics, Institute of Mathematics, Hungary, 30.01.2022 - 05.02.2022
- Ing. Jan Broulím, PhD., Czech Technical University in Prague, 25.03.2022 - 05.04.2022

Department of Mathematics and Theoretical Informatics

- Prof. RNDr. Marie Demlová, CSc., Czech Technical University in Prague, Faculty of Electrical Engineering, Department of Mathematics, Czech Republic, 23.05.2022 - 28.05.2022
- PhD student Mgr. Roman Witasek, Palacký University Olomouc, Faculty of Science, 03.10.2022 - 31.10.2022
- Associate professor Dr. Béla Kovács, University of Miskolc, Faculty of Mechanical Engineering and Informatics, Institute of Mathematics, Hungary, 24.10.2022 - 28.10.2022

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
- Fraunhofer Institute for Integrated Circuits IIS, Ilmenau, Germany

Membership in International Organizations and Societies

- Klešč, M.: American Mathematical Society
- Plavka, J.: International Linear Algebra Society
- Berežný, Š. (coordinator for TUKE): Czechoslovak Association of TeX Users (CSTUG), z.s.

Membership in Slovak Organizations and Societies

- Berežný, Š.: Slovak Mathematical Society
- Draženská, E.: Slovak Mathematical Society
- Džurina, J.: Slovak Mathematical Society
- Grinčová, A.: Slovak Mathematical Society
- Klešč, M.: Slovak Mathematical Society
- Molnárová, M.: Slovak Mathematical Society

Contracts, International Scientific Projects

- CEEPUS – partner in CEEPUS III program CIII-HU-0028-16-2223 – Active Methods in Teaching and Learning Mathematics, Informatics and their Applications, coordinator: Berežný, Š.

PUBLICATIONS

Department of Mathematics and Theoretical Informatics

Books

- DRAŽENSKÁ Emília: Diskrétna matematika. 1. ed., TU Košice, 2022, 135 pp., ISBN 978-80-553-4151-4.
- GIBOVÁ Zuzana: Fyzika s apletmi. 1. ed., TU Košice, 2022, 80 pp., ISBN 978-80-553-4130-9.
- GIBOVÁ Zuzana: Fyzika po častiach. 1. ed., TU Košice, 2022, 92 pp., ISBN 978-80-553-4128-6.
- MOLNÁROVÁ Monika: Matematika 2 pre Hospodársku informatiku. 1. ed., TU Košice, 2022, 123 pp., ISBN 978-80-553-4052-4.

Journals

- BACULÍKOVÁ Blanka – DŽURINA Jozef: Oscillation of half-linear differential equations with mixed type of argument. Electronic Journal of Qualitative Theory of Differential Equations. Vol. 10 (2022), p. 1-8. ISSN 1417-3875.
- BACULÍKOVÁ Blanka – DŽURINA Jozef: New asymptotic results for half-linear differential equations with deviating argument. Carpathian journal of mathematics. Vol. 38 (2022), p. 325-335. ISSN 1584-2851.
- BACULÍKOVÁ Blanka – SUDHA B. – THANGAVELU K. – THANDAPANI Ethiraju: Oscillation of Second Order Delay Differential Equations with Nonlinear Nonpositive Neutral Term. Mathematica Slovaca. Vol. 72 (2022), p. 103-110. ISSN 0139-9918.
- BACULÍKOVÁ Blanka: Oscillation of even order linear functional differential equations with mixed deviating arguments. Opuscula Mathematica. Vol. 42 (2022), p. 549-560. ISSN 1232-9274.
- BALINTOVÁ Miriam - ŠVECOVÁ Mária - FORTES Jana: Moving person localization by cluster analysis using UWB sensor system. Radioelektronika 2022: 32nd International Conference. (2022), p. 1-4. ISBN 978-1-7281-8687-0.
- BARAN Anton - FRIČOVÁ Oľga - VRÁBEL Peter - POPOVIČ Ľuboš – PEIDAYESH Hamed – CHODÁK Ivan – HUTNÍKOVÁ Mária – KOVAĽAKOVÁ Mária: Effects of urea and glycerol mixture on morphology and molecular mobility in thermoplastic starch/montmorillonite-type nanofiller composites studied using XRD and NMR. Journal of Polymer Research. Vol. 29 (2022), p. 1-12. ISSN 1022-9760.
- BEREŽNÝ Štefan – STAŠ Michal: On the crossing number of the join of the wheel on six vertices with a path. Carpathian journal of mathematics. Vol. 38 (2022), p. 337-346. ISSN 1584-2851.
- FORTES Jana – ŠVINGÁL Michal - PORTELEKY Tamás - JURÍK Patrik - DRUTAROVSKÝ Miloš: Positioning and tracking of multiple humans moving in small rooms based on a one-transmitter–two-receiver UWB radar configuration. Sensors. Vol. 22 (2022), p. 1-23. ISSN 1424-3210.
- FRIČOVÁ Oľga – HUTNÍKOVÁ Mária: Changes in molecular mobility of sorbitol plasticized starch during aging. Journal of Applied Polymer Science. Vol. 139 (2022), p. 1-10. ISSN 0021-8995.
- GAZDA Matej - BUGATA Peter - GAZDA Jakub - HUBACEK David - HREŠKO Dávid Jozef - DROTÁR Peter: Mixup augmentation for kidney and kidney tumor segmentation. Kidney and Kidney Tumor Segmentation. (2022), p.

Department of Mathematics and Theoretical Informatics

90-97. ISBN 978-3-030-98384-0.

- GAZDA Matej - HIREŠ Máté - DROTÁR Peter: Multiple-fine-tuned convolutional neural networks for parkinson's disease diagnosis from offline handwriting. IEEE Transactions on Systems, Man, and Cybernetics: Systems. Vol. 52 (2022), p. 78-89. ISSN 2168-2216.
- GIBOVÁ Zuzana: Overenie pohybovej rovnice otáčavého pohybu pomocou videomerania. Matematika, fyzika, informatika: časopis pro výuku na základních a středních školách. Vol. 31 (2022), p. 34-45. ISSN 1210-1761.
- GRINČOVÁ Anna - ANDREJIOVÁ Miriam - MARASOVÁ Daniela: Failure analysis of the impact resistance of protective rubber panels. Engineering Failure Analysis. Vol. 139 (2022), p. 1-14. ISSN 1350-6307.
- HIREŠ Máté - GAZDA Matej - DROTÁR Peter - PAH Nemuel Daniel - MOTIN Mohammod Abdul - KUMAR Dinesh Kant: Convolutional neural network ensemble for parkinson's disease detection from voice recordings. Computers in Biology and Medicine: an international journal. Vol. 141 (2022), p. 1-9. ISSN 0010-4825.
- HIREŠ Máté - BUGATA Peter - GAZDA Matej - HREŠKO Dávid Jozef - KANÁSZ Róbert - VAVREK Lukáš - DROTÁR Peter: Brief Overview of Neural Networks for Medical Applications. Acta Electrotechnica et Informatica: Fakulta elektrotechniky a informatiky. Vol. 22 (2022), p. 34-44. ISSN 1335-8243.
- KELIJ Kristian - FORTES Jana: Matlab software designed for 3D localization by a multistatic UWB radar. SAMI 2022: IEEE 20th Jubilee World Symposium on Applied Machine Intelligence and Informatics. (2022), p. 443-448. ISBN 978-1-6654-9704-6.
- KLEŠČ Marián - STAŠ Michal: Cyclic Permutations in Determining Crossing Numbers. Discussiones Mathematicae Graph Theory. Vol. 42 (2022), p. 1163-1183. ISSN 1234-3099.
- KLEŠČ Marián - STAŠ Michal - PETRILLOVÁ Jana: The Crossing Numbers of Join of Special Disconnected Graph on Five Vertices with Discrete Graphs. Graphs and Combinatorics. Vol. 38 (2022), p. 1-19. ISSN 0911-0119.
- MARASOVÁ Daniela - ANDREJIOVÁ Miriam - GRINČOVÁ Anna: Dynamic model of impact energy absorption by a conveyor belt in interaction with the support system. Energies. Vol. 15 (2022), p. 1-16. ISSN 1996-1073.
- RAČKO Adam - FORTES Jana: Softvérová realizácia zobrazovacej jednotky UWB senzorovej siete. Electrical Engineering and Informatics 13: Proceedings of the Faculty of Electrical Engineering and Informatics of the Technical University of Košice (2022), p. 443-448. ISBN 978-80-553-4120-0.
- STAŠ Michal: On the Crossing Numbers of Join Products of Four Graphs of Order Six With the Discrete Graph. Azerbaijan Journal of Mathematics. Vol. 12 (2022), p. 80-97. ISSN 2218-6816.
- STAŠ Michal: Parity properties of configurations. Mathematics. Vol. 10 (2022), p. 1-14. ISSN 2227-7390.

Faculty of Electrical Engineering
and Informatics

Department of Theoretical and Industrial Electrical Engineering

Department of Theoretical and Industrial Electrical Engineering

ESSENTIAL INFORMATION:

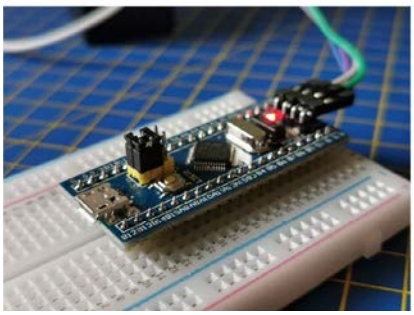
Head of Department:	**doc. Ing. Ján Molnár, PhD.**
Email:	**jan.molnar@tuke.sk**
Web:	**https://ktpe.fei.tuke.sk**
Phone/Fax:	***+421 55 602 2592***

DEPARTMENT'S PROFILE

Department of Theoretical and Industrial Electrical Engineering is a workplace, which guarantees the bachelor, master and doctoral study program Industrial Electrical Engineering. In addition to that, department's employers 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 industrial engineering where students learn basic information and skills regarding the construction and service of basic industrial systems and information technologies. 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:

- 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.
- Applied microcomputer, microcontrollers and smart information circuits in industrial systems.






Department of Theoretical and Industrial Electrical Engineering

Staff

Professors:	**prof. Ing. Dobroslav Kováč, PhD.**
	prof. Ing. Irena Kováčová, PhD.
Associate Professors:	**doc. Ing. Ján Dudáš, DrSc.**
	doc. Ing. Milan Guzan, PhD.
	doc. Ing. Miroslav Mojžiš, PhD.
	doc. Ing. Ján Molnár, PhD.
	doc. RNDr. Darina Špaldonová, PhD.
	doc. Ing. Tibor Vince, PhD.
Assistant Professors:	**Ing.Matej Bereš, PhD.**
	Ing. Jozef Dziak, PhD.
	Ing. Anna Hodulíková, PhD.
	Ing. Patrik Jacko, PhD.
	Ing. Branislav Fecko, PhD.
Technical staff:	**Jozef Lenart**
	Ing. Mgr. Monika Špernoga
PhD. Students:	**Ing. Šimon Gans**
	Ing. Simona Kirešová

Teaching

Undergraduate Study (Bc.)

Subject	*Semester*	*Lectures/exercises (hours per week)*	*Name of Lecturer*
Fundamentals of Electrical Engineering	*1st*	*2/2*	*Fecko, Hodulíková, Jacko, Kirešová, Guzan*
Electrotechnics	*2nd*	*3/2*	*Guzan, Hodulíková, Dziak, Fecko,Kirešová*
Electrotechnical Practical Lessons	*2nd*	*2/2*	*Hoduliková*
Programming of Industrial Applications I	*2nd*	*2/2*	*Vince*
Windows server I	*3rd*	*2/2*	*Vince*
Industrial Electrical Engineering	*3rd*	*2/2*	*Kováč, Bereš*
CAD systems in Electrotechnics	*3rd*	*2/2*	*Bereš*
Applied analog electronics	*3rd*	*2/2*	*Kováčová*
Metrology	*4rd*	*2/2*	*Guzan*
MS Office in Technical Practice	*4nd*	*2/2*	*Bereš*
Applied digital electronics	*4th*	*2/2*	*Kováčová*

Department of Theoretical and Industrial Electrical Engineering

Semestral Project	*4th*	*0/3*	*Kováč*
Sensors and Actuators	*4th*	*2/2*	*Molnar, Jacko*
Simulation software for electrical circuit analysis	*4th*	*2/2*	*Fecko*
Modelling and Measurement	*5th*	*2/2*	*Guzan*
Marketing and industry management	*5th*	*2/2*	*Kováčová*
Database Systems SQL ORACLE	*5th*	*2/2*	*Molnár*
Bachelor´s Project	*5th*	*0/6*	*Kováč,*
Microprocessor technology	*5th*	*2/2*	*Bereš*
Linux I	*6th*	*2/2*	*Molnár, Jacko*
Programmable Logic Controllers	*6th*	*2/2*	*Vince*
Bachelor´s Project	*6th*	*3/3*	*Kováč*

Graduate study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
DSP processors application	*7th*	*2/2*	*Jacko*
Unlinear electromechanic systems	*7th*	*2/2*	*Dziak, Gans*
Automated measurement systems and Internet-controlled systems	*7th*	*2/2*	*Molnár*
Project managment	*7th*	*2/2*	*Dziak*
Development of software applications in industrial electrical engineering	*7th*	*2/2*	*Vince*
Economic analyzes and accounting	*8th*	*2/2*	*Kováčová*
Linux II	*8th*	*2/2*	*Molnár, Jacko*
Regulatory systems	*8th*	*2/2*	*Kováč*
Control electronics	*8th*	*2/2*	*Kováčová*
Diploma´s Project I	*8th*	*3/3*	*Kováč*
Semestral Project II	*8th*	*0/3*	*Kováč*
Electromechanical production systems	*9th*	*2/2*	*Fecko*
Numerical methods at electronics	*9th*	*2/2*	*Bereš*
Visualization programs for control systems	*9th*	*2/2*	*Dziak*
Diploma´s Project II	*9th*	*2/2*	*Kováč*

LABORATORIES

Department of Theoretical and Industrial Electrical Engineering

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

RESEARCH PROJECTS

- **Design and implementation of a system intended for remote verification of the correct operation of the control program of microcontrollers.** FEI-2022-82, duration: 2022, co-ordinator: P. Jacko, members: J. Dziak, M. Bereš, B. Fecko, Š. Gans, S. Kirešová
- **Study of the effect of Wi-Fi radiation on the development of tissues and organs of the chicken embryo.** VEGA 1/0036/22 duration: 2022 - 2025, co-ordinator: K. Holovská, members: V. Almášiová, V. Cigánková, E. Sesztáková, D. Kováč, I. Kováčová, J. Molnár, T. Vince

CO-OPERATION

Co-operation in Slovakia

- Department of Experimental Physics, P.J. Šafárik University, Košice
- Faculty of Electrical Engineering and Information Technology, Slovak University of Technology, Bratislava
- Institute of Electrical Engineering, Slovak Academy of Science, 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 Material Research, Slovak Academy of Sciences, Košice
- Institute of Neurobiology, Slovak Academy of Sciences, Košice
- Volkswagen, Slovakia
- LVD II Slovakia - Unicorn Tornaľa
- Molex Slovakia, a.s.
- SPP, a.s.
- BSH Drives and Pumps, s.r.o., Michalovce
- Antik Telecommunications
- RV magnetics, a.s.
- Faculty of medicine, P.J. Šafárik University, Košice
- Institute of Geotechnics of Slovak Academy of Sciences, Košice

International Co-operation

- The Czech Academy of Science, Prague, Czech Republic

Department of Theoretical and Industrial Electrical Engineering

- 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 Institute of Physics, A.Mickiewicz University, Poznan, Poland Institute of Physics, A.Mickiewicz University, Poznan, Poland Institute of Physics, A.Mickiewicz University, Poznan, Poland
- Politechnika Czestochowska, Poland
- Stefan cel Mare University, Suceava, Romania
- Silesian University of Technology, Gliwice, Poland
- University, Budapest, Hungary
- University of Florence, Italy
- University of Applied Sciences, Harz, Germany
- University, Miskolc, Hungary
- University of West Bohemia, Pilsen, Czech Republic
- Magna Steyr, Graz, Austria
- Kremenchuk Mykhailo Ostrohradskyi National University, Ukraine

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”

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 Editorial Board of Journal “Acta Electrotechnica et Informatica”
- D. Kováč: Member of Scientific council of FEE&I TU of Košice
- M. Mojžiš: Member of Technical Standardization Committee

THESES

Thesis type	*Bachelor*	*Master*	*Doctoral*
Number	*13*	*9*	*0*

PUBLICATIONS

Journals indexed in Thomson Reuters “Current Contents” database

- JACKO, P. - BEREŠ, Matej - KOVÁČOVÁ, Irena - MOLNÁR, Ján - VINCE, Tibor - DZIAK, Jozef - FECKO, Branislav - GANS, Šimon - KOVÁČ, Dobroslav: Remote IoT Education Laboratory for Microcontrollers Based on the STM32 Chips, In: Sensors. Multidisciplinary Digital Publishing Institute Vol. 22, No. 4, pp. 1-22 - ISSN 1424-3210

Department of Theoretical and Industrial Electrical Engineering

- KOVÁČ, D . - VINCE, T. - BEREŠ, M. - MOLNAR, J. - DZIAK, J. - JACKO, P. - KOVÁČOVA, I.: A Universal PSpice Simulation Model of a Switched Buck Voltage Regulator, In: Energies, Vol 15, No 8209, 2022, DOI10.3390/en15218209

Other publications – foreign

- GUZAN, M - VINCE, T - MOLNÁR, J - BEREŠ, M- SOBOTA, B.: Acceleration of the Calculation of Boundary Surface Cross-Sections, In: Uncertainty and Imprecision in Decision Making and Decision Support: New Advances, Challenges, and Perspective, http://dx.doi.org/10.1007/978-3-030-95929-6_11
- KOVÁČOVÁ, I - MELNYKOV, V: Laboratory model of an electric vehicle charger based on the principle of energy transfer by air In: MEES 2021 : Proceedings of the 20th International Conference on Modern Electrical and Energy Systems. - New York (USA) : Institute of Electrical and Electronics Engineers pp. 470-476 . - ISBN 978-1-6654-2366-3, 2021
- KOVÁČ, D - MELNYKOV, V: Simulation and laboratory model of induction heating in comsol multiphysics In: MEES 2021 : Proceedings of the 20th International Conference on Modern Electrical and Energy Systems. - New York (USA) : Institute of Electrical and Electronics Engineers s. 516-522 . - ISBN 978-1-6654-2366-3, 2021
- KIREŠOVÁ, S. - GUZAN, M. - GALAJDA, P.: Measuring particulate matter (PM) using SPS30 In: Radioelektronika 2022 : 32nd International Conference. - Košice (Slovensko) : Institute of Electrical and Electronics Engineers s. 160-165, 2022, ISBN 978-1-7281-8687-0

Other publications

Publication Type	Journals		Textbooks	Conferences		Patents	Other
	Foreign	Home	Home	Foreign	Home	Domestic	
Number	3	65	26	3	1	1	0

Faculty of Electrical Engineering
and Informatics

Department of Technologies in Electronics

Department of Technologies in Electronics

Essential information:

Head of Department: *prof. Ing. Alena Pietriková, CSc.*
Email: *alena.pietrikova@tuke.sk*
Web: *http://www.tuke.sk/fei-kte/*
Phone/Fax: *+421 55 602 3195*

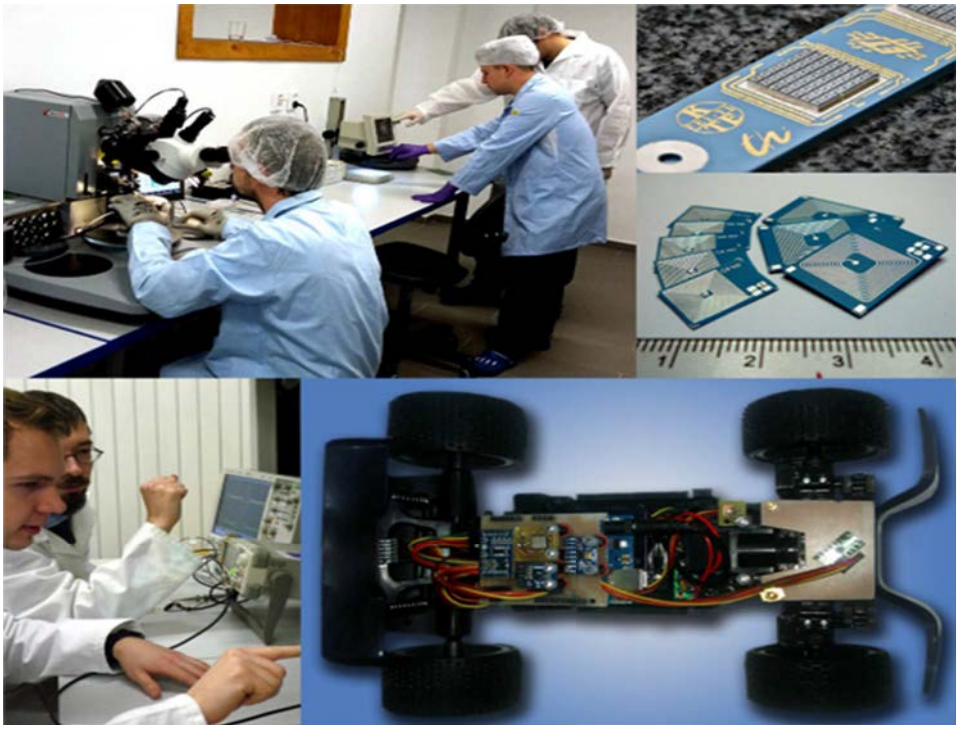
DEPARTMENT'S PROFILE

The Department of Technologies in Electronics (Katedra technológií v elektronike – KTE) was founded in 1991. Education at the Department of Technologies in Electronics is realized at three degrees of education and oriented very versatile to fulfill the core of the "Electronics" specialization.

The Department offers three types of full-time courses:

Bachelor's Degree courses "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 and has the ability to acquire and interpret facts in the brunch of electrical engineering.

Master's Degree course "Automotive Electronics" lasts in normal way 2 years and is leading to degree Ing. The graduates in "Automotive Electronics" get theoretical and practical skills around automotive electronic with the aspect on progressive materials and technologies and has comprehensive theoretical knowledge and developed analytic - synthetic engineering approach to solve the problems of design, development, research and production of electronic devices for a wide range of applications.



Department of Technologies in Electronics

PhD. course “Industrial Electrical Engineering” 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 intelligent electronics.

By its focus, the Department ranks among the unique scientific-research and teaching workplaces in Slovakia with a focus on layered electronics technologies, rigid and flexible printed circuit boards, surface mounting technologies (SMT), multi-chip MCM-C modules including LTCC, polymer technology, development and production of a wide variety of electronic elements and sensors, materials used in electrical engineering and, last but not least, CAD design systems. The laboratories of the Department of Technologies in Electronics have been gradually rebuilt in recent years and are currently equipped with new technological devices that meet the requirements for the practical implementation of project tasks, the implementation of final theses and the transfer of knowledge into practice. Teaching in technological laboratories for integrated research of electrophysical properties of progressive materials used in assembly technologies provides good prerequisites for the implementation of quality teaching. The core of the scope is research activity in the field of material - technological research based on the use of modern experimental methods and computer technologies. The basic research activities of the 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 in microelectronics as well as in power electronics, analyze of solderability and adhesion mechanism, analyze of surface finishes quality and their influence on defects and fracture resistivity,
- investigation of multilayer electronics structure with embedded components and development of specific packages based on Face-down technology applied in System-in-Package,
- research, development, and application in flexible electronics,
- development of specific polymer pastes based on Ag2O,
- research and development of microsystems and hybrid sensors,
- LTCC multilayer electronics modules including modules with various shape,
- patterning and precise printing technologies in electronic (InkJet-printing, screen-printing),
- quality and reliability of electronic systems,
- image processing.

STAFF

Professors:	**prof. Ing. Alena Pietriková, CSc.**
Associate Professors:	**doc. Ing. Juraj Ďurišin, PhD.**
Assistant Professors:	**Ing. Slavomír Kardoš, PhD.**
	Ing. Ondrej Kováč, PhD.
	Ing. Ľubomír Livovský, PhD.

Department of Technologies in Electronics

	Ing. Peter Lukács, PhD.
	Ing. Igor Vehec, PhD.
	Ing. Tomáš Lenger, PhD.
Other staff:	**prof. Ing. Juraj Banský, CSc.**
	Dr.h.c. prof. Ing. Miloš Somora, CSc.
	Igor Vehec
Secretary:	**Mgr. Alena Focková**
Internal Ph.D. Students:	**Ing. Peter Provázek**
	Ing. Gabriela Hricková
	Ing. Daniel Dzivý
External Ph.D. Students:	**Ing. Tomáš Kmec**

TEACHING

ndergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Materials Engineering	*1st*	*2/2*	*Pietriková*
Computer Engineering in Electronics	*2nd*	*2/2*	*Lukács*
Fundamentals of Automobile Construction	*3rd*	*2/2*	*Ďurišin*
Materials and Principles of Component Production in Electrical Engineering	*3rd*	*2/2*	*Vehec*
Fundamentals of Microprocessors	*3rd*	*2/2*	*Livovský*
Signals and Systems	*3rd*	*2/2*	*Kováč*
Introduction into the Matlab	*4th*	*2/2*	*Kováč*
Design and Construction of Electronic Equipment	*4th*	*2/2*	*Kardoš*
Principles of Operation and Use of Microsystems in Electronics	*5th*	*2/2*	*Kardoš*
Microprocessor Technology	*5th*	*2/2*	*Livovský*
Bachelor Project	*5th*	*0/8*	
Methods of Scientific Work	*6th*	*2/2*	*Pietriková*
Bachelor Work	*6th*	*0/12*	

Graduate study (Ing.)

Subject	*Semester*	*Lectures/exercises (hours per week)*	*Name of Lecturer*
Production Processes in Electronics	*1st*	*3/3*	*Pietriková*
ECAD Design Tool	*1st*	*2/2*	*Livovský*

Department of Technologies in Electronics

*Microstructural Analysis of the Materials in Electronics**	*1st*	*3/3*	*Ďurišin*
Diploma Project 1	*2nd*	*0/6*	
Artificial Intelligence in Electronics	*2nd*	*2/2*	*Vehec*
Microelectromechanical Systems and Production	*3rd*	*2/2*	*Ďurišin*
Digital Image Processing	*3rd*	*2/2*	*Kováč*
Flexible Electronics	*3rd*	*2/2*	*Lukács*
Diploma Project 2	*3rd*	*0/8*	
Sensor Systems	*3rd*	*2/2*	*Ďurišin*
Main Knowledge of Study Filed Electronic and their Use	*4th*		
Master Thesis	*4th*		

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

Subject	Semester	Lectures/exercises (hours per week)	Name of Lecturer
Fundamentals of Material Engineering	*Bc.*	*2/2*	*Kardoš*
Introduction into the Matlab	*Bc.*	*2/2*	*Kováč*
Sensor Systems	*Ing.*	*2/2*	*Ďurišin*

Postgraduate study (PhD.)

Subject	Semester	Lectures/exercises (hours per week)
Electrotechnology and Materials	*1st*	*0/10*
Scientific Activity 1	*1st*	*0/10*
Analyse Methods of Electronic Materials and Structures	*2nd*	*0/10*
Scientific Activity 2	*3rd*	*0/10*
Subject of Specialization	*3rd*	*0/10*
Scientific Activity 3	*4th*	*0/10*
Scientific Activity 4	*5th*	*0/10*
Scientific Activity 5	*6th*	*0/10*
Dissertation Project	*6th*	
Dissertation Thesis	*6th*	

LABORATORIES

Teaching and Research Laboratories

- Laboratory of Mounting Technologies and PCB Manufacturing.
- Laboratory for Manufacturing of Multifunction Microsystems and Hybrid Sensors.
- Laboratory of Quality and Reliability.

Department of Technologies in Electronics

- Laboratory of CAD Systems and E-learning Education.
- Laboratory of Measurement.

Special Laboratories and Equipment

- Laboratory of Thick-film and LTCC Technology (covers full process from CAD design to printing, firing and assembly including die wire bonding).
- Laboratory of InkJet Printing.
- Self-developed furnace for Vapour Phase Soldering.
- Laboratory of Quality and Reliability (thermal shock and climatic chamber, pull/shear test, accelerated aging).
- Laboratory of Material Analysis (grinder-polisher, material microscopy).

RESEARCH PROJECTS

- ***Development of New Biodegradable Metal Alloys for Medical and Prosthetic Applications (Vývoj nových biodegradovateľných kovových zliatin určených pre medicínske a protetické aplikácie).*** *Project APVV-17-0008 (TUKE - co-solver). Coordinator: prof. Ing. Alena Pietriková, CSc. Duration: 2018 - 2021.*
- ***Implementation of Advanced Methods of Scientific Work in the Context of Rebuilding Engineering and Doctoral Studies in the Study of Smart Electronics (Implementácia pokročilých metód vedeckej práce v kontexte prestavby inžinierskeho a doktorandského štúdia v študijnom programe Inteligentná elektronika).*** *Project KEGA 017TUKE-4/2020. Coordinator: prof. Ing. Alena Pietriková, CSc. Duration: 2020 - 2022.*
- ***Analysis of the Influence of Technological Factors on the Quality of Polymer Flexible UWB Antennas (Analýza vplyvu technologických faktorov na kvalitu polymérnych flexibilných UWB antén).*** *Project: FEI-2022-87. Coordinator: Ing. Peter Lukács, PhD.*

CO-OPERATION

Co-operation in Slovakia

Industrial Partners

- Marelli, Kechnec
- MAGNA, Kechnec
- Semikron, s.r.o., Vrbové
- Kia Motors Slovakia s.r.o., Žilina
- Sensor, s.r.o., Košice
- IEE Sensing Slovakia s.r.o., Veľká Ida
- ELCOM, s.r.o., Prešov
- PreDops, s.r.o., Prešov
- ELPRO, s.r.o., Košice
- Samsung Electronics Slovakia, s.r.o., Galanta

Department of Technologies in Electronics

- Panasonic Industrial Devices Slovakia, s.r.o.
- T-Systems Slovakia, s.r.o.

Academic Partners

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

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

International Co-operation

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

- Faculty of Electrical Engineering, Czech Technical University in Prague (FEL ČVUT Prague), Czech Republic.
- Faculty of Electrical Engineering and Communication, Brno University of Technology (FEKT, VUT Brno), Czech Republic.
- Faculty of Electrical Engineering, University of West Bohemia (FEL, ZČU Pilsen), Czech Republic.
- University POLITEHNICA of Bucharest (UPB), COST, Leonardo da Vinci.
- Budapest University of Technology and Economics (BME), COST, Leonardo da Vinci.
- Politechnika Rzeszow, Poland.
- DESY, Hamburg, Germany.
- Diamond Light Source, Oxfordshire, Great Britain.

Visits of Staff Members to Foreign Institutions

- Hricková, G., Poland (Warszawa) 01.03. – 04.03.2022
- Pietriková, A., CZ (Poděbrady) 24.05. – 27.05.2022
- Lenger, T., CZ (Poděbrady) 24.05. – 27.05.2022
- Lukács, P., CZ (Poděbrady) 24.05. – 27.05.2022
- Vehec, I., CZ (Poděbrady) 24.05. – 27.05.2022
- Kováč, O., CZ (Poděbrady) 30.05. – 27.05.2022
- Kováč, O., Italy (Brescia) 11.09. – 18.09.2022

Membership in International Organizations and Societies

- Pietriková, A.: Member of the International Steering Committee for International Spring Seminar on Electronics Technology – ISSE.
- Pietriková, A.: Member of the International Steering Committee for IMAPS Poland Conference.
- Pietriková, A.: Representative for Slovakia of the International Steering Committee for IMAPS CZ&SK.
- Pietriková, A.: Member of Editorial Board of Scientific Bulletin of University of Pitesti – Series: Electronics and Computer Science, (Romania).

Department of Technologies in Electronics

- Pietriková, A.: Member of the International Technical Program Committee and Editorial Board for Conference on Diagnostics in Electrical Engineering (Diagnostika).
- Lukács, P.: Member of the International Steering Committee for International Spring Seminar on Electronics Technology – ISSE.
- Pietriková, A.: Member of IMAPS CZ&SK.
- Livovský, Ľ.: Member of IMAPS CZ&SK.
- Kardoš, S.: Member of IMAPS CZ&SK.
- Kováč, O.: Member of IMAPS CZ&SK.
- Vehec, I.: Member of IMAPS CZ&SK.

Membership in Slovak Organizations and Societies

- Pietriková, A.: Member of Editorial Board "ACTA ELECTROTECHNICA ET INFORMATICA".
- Pietriková, A.: Chair of the Commission for Ph.D. Study in the Branch Electrical Engineering at FEI TU Košice.
- Pietriková, A.: Member of the Commission for Ph.D. Study in the Branch in the Branch Electrical Engineering at Faculty of Electrical Engineering, University of Žilina.
- Pietriková, A.: Member of Scientific Board at TUKE.
- Pietriková, A.: Member of Scientific board at FEI TUKE.
- Pietriková, A.: Member of Commission Project VEGA No5.
- Livovský, Ľ.: Member of the Faculty Academic Senate at FEI TUKE.
- Kováč, O.: Chairman of the Regional Round for SOČ in the Field No. 12: Electrical Engineering, Hardware, and Mechatronics.
- Kováč, O.: Chairman of the National Round for ENERSOL in the Category of Creativity.
- Kováč, O.: AMAVET (The Association for Youth, Science and Technology) – Member of the Evaluation Committee for the Prešov and Košice Region in the Field: Electricity and Mechanics, Energy and Transport.
- Pietriková, A., Vehec, I., Livovský, Ľ., Lukács, P., Kováč, O., Kardoš, S., Lenger, T.: Members of SES - Slovak Electrotechnical Society.

THESES

Bachelor's Theses

- Antolyk, V.: Design of control circuit for RGB led light (Supervisor: Livovský, Ľ.)
- Bilunka, V.: Application of shape descriptors in image processing (Supervisor: Gladišová, I.)
- Brada, T.: Microcontrollers with arm core (Supervisor: Livovský, Ľ.)
- Ferenc, L.: Generation of panoramic images (Supervisor: Kováč, O.)
- Gajdoš, J.: Microenergy harvesters from the human body (Supervisor: Lukács, P.)
- Garnek, L.: Conductive interconnections of multilayer structures in electronics (Supervisor: Lenger, T.)

Department of Technologies in Electronics

- Herbert, M.: Entropy coding in the images compression (Supervisor: Kováč, O.)
- Hričák, Š.: Generation and decoding of barcodes and QR codes (Supervisor: Kováč, O.)
- Jusko, M.: Impedance analyser module (Supervisor: Šaliga, J.)
- Marcin, T.: Influence of the load mode on the service life of electrochemical cells (Supervisor: Kardoš, S.)
- Matta, P.: Sensing and interpretation of inclination (Supervisor: Kardoš, S.)
- Mitro, R.: Alternative sources for electric vehicles charging (Supervisor: Kardoš, S.)
- Mulík, J.: Multisim library extension (Supervisor: Šaliga, J.)
- Petrišin, S.: Artificial intelligence in cars (Supervisor: Vehec, I.)
- Poluliakh, O.: Application of chain and chain-difference codes in image processing (Supervisor: Gladišová, I.)
- Seidenglanz, E.: Blockchain and routing in MANET (Supervisor: Papaj, J.)
- Tokarčík, D.: Electrochemical cells for electric vehicles power supply (Supervisor: Kardoš, S.)
- Žabecký, J.: Automatic cylinder deactivation of car engine (Supervisor: Ďurišin, J.)

Master's Theses

- Černek, A.: Design and realization of equipment for mechanical tests of the flexible substrates (Supervisor: Lukács, P.)
- Gontkovič, K.: Force sensors based on polymeric materials (Supervisor: Vehec, I.)
- Halgaš, L.: Power banks with diagnostics for mobile equipment supply (Supervisor: Kardoš, S.)
- Chmelický, Š.: Flexible UWB antenna (Supervisor: Lukács, P.)
- Jenča, M.: Design of the filament maker (Supervisor: Lukács, P.)
- Krivák, V.: Contamination of PCBs with fluxes and its effect on surface insulation resistance (Supervisor: Pietriková, A.)
- Kumar, H.: Device for temperature measurement by various types of thermocouples (Supervisor: Ďurišin, J.)
- Lamoš, D.: Motion symmetry sensing and analysis utilizing inertial measurement units (Supervisor: Kardoš, S.)
- Maťaš, V.: Design of NFC communication module (Supervisor: Livovský, Ľ.)
- Miko, J.: Analysis of electrochemical cells key parameters (Supervisor: Kardoš, S.)
- Sosa, L.: Quality evaluation of PCB mounting in the Matlab environment (Supervisor: Kováč, O.)
- Uhrín, S.: A model of a single-track electric personal vehicle (Supervisor: Kardoš, S.)
- Viski, B.: Image compression in LoRaWAN networks (Supervisor: Kováč, O.)

PUBLICATIONS

Textbooks (from 2020 to 2022)

- KARDOŠ, S.: Vybrané kapitoly z návrhu a konštrukcie elektronických zariadení, 1. vyd., Košice, Technická univerzita v Košiciach, 2022, 89 s., ISBN 978-80-553-4136-1
- KOVÁČ, O.: Číslicové spracovanie obrazov / Návody na cvičenia, 1. vyd., Košice, Technická univerzita v Košiciach,

Department of Technologies in Electronics

2022, 96 s., ISBN 978-80-553-4056-2

- VEHEC, I.: Štruktúry a technológie výroby elektronických prvkov, 1. vyd., Košice, Technická univerzita v Košiciach, 2022, 135 s., ISBN 978-80-553-4139-2
- PIETRIKOVÁ, A. - PIETRIKOVÁ, E.: Metódy vedeckej práce, 1. vyd., Košice, Technická univerzita v Košiciach, 2021, 150 s., ISBN 978-80-553-3937-5
- KARDOŠ, S. - DURANKA, P.: Princípy činnosti a aplikácie mikroelektromechanických systémov, 2. preprac. vyd., Košice, Technická univerzita v Košiciach, 2020, 120 s., ISBN 978-80-553-3615-2
- KOVÁČ, O.: Úvod do číslicového spracovania obrazov, 1. vyd., Košice, Technická univerzita v Košiciach, 2020, 114 s., ISBN 978-80-553-3521-6

Journals indexed in Thomson Reuters "Current Contents" database (from 2020 to 2022)

- LUKÁCS, P. - PIETRIKOVÁ, A. - VEHEC, I. - PROVÁZEK, P.: Influence of Various Technologies on the Quality of Ultra-Wideband Antenna on a Polymeric Substrate. In: Polymers, Bazilej (Švajčiarsko), Multidisciplinary Digital Publishing Institute, Roč. 14, č. 3 (2022), s. [1-16], ISSN 2073-4360
- TOMASZEWSKI, G. - JANKOWSKI-MIHULOWICZ, P. - POTENCKI, J. - PIETRIKOVÁ, A. - LUKÁCS, P.: Inkjet-printed HF antenna made on PET substrate. In: Microelectronics Reliability: an international journal and world abstracting service, Amsterdam (Holandsko), Elsevier Roč. 129 (2022), s. [1-9], ISSN 0026-2714
- DZIVÝ, D. - PIETRIKOVÁ, A.: Real-time contact angle's measurement of molten solder balls in laboratory conditions. In: Microelectronics international: journal of the ISHM-Europe, the Microelectrnocis Society-Europe, West Yorkshire (Veľká Británia), Emerald Group Publishing Roč. 39, č. 3 (2022), s. 132-138, ISSN 1356-5362
- ŠALIGA, J. - ANDRÁŠ, I. - DOLINSKÝ, P. - MICHAELI, L. - KOVÁČ, O. - KROMKA, J.: ECG compressed sensing method with high compression ratio and dynamic model reconstruction. In: Measurement: journal of the International Measurement Confederation, London (Veľká Británia), Institute of Measurement and Control č. 183 (2021), s. [1-11], ISSN 0263-2241
- ŠALIGA, J. - KOVÁČ, O. - ANDRÁŠ, I.: Analog-to-Information Conversion with Random Interval Integration. In: Sensors, Bazilej (Švajčiarsko), Multidisciplinary Digital Publishing Institute, Roč. 21, č. 10 (2021), s. [1-14], ISSN 1424-3210
- SAKSL, K. - PETHES, I. - JÓVÁRI, P. - MOLČANOVÁ, Z. - ĎURIŠIN, J. - BALLÓKOVÁ, B. - TEMLEITNER, L. - MICHALIK, Š. - ŠULIKOVÁ, M. - ŠUĽOVÁ, K. - FEJERČÁK, M. - VARCHOLOVÁ, D. - MOTÝĽ, R.: Atomic structure of the Mg66Zn30Ca4 metallic glass. In: Journal of Non-Crystalline Solids, Amsterdam (Holandsko), Elsevier č. 558 (2021), s. [1-9], ISSN 0022-3093
- ŠULÍKOVÁ, M. - MOLČANOVÁ, Z. - BALLÓKOVÁ, B. - ĎURIŠIN, J. - MARTINKOVÁ, S. - VARCHOLOVÁ, D. - MICHALIK, Š. - TANG-KONG, R. - WARD, L. - MEHTA, A. - ŠUĽOVÁ, K. - FEJERČÁK, M. - LACHOVÁ, A. -

Department of Technologies in Electronics

DŽUNDA, R. - SAKSL, K.: Development of new Mg-Zn-Sr alloys for medical purpose. In: International journal of nanotechnology, Bucks (Veľká Británia), Inderscience Publishers, Roč. 17, č. 7-10 (2020), 573-582, ISSN 1475-7435

- SHYLENKO, O. - BILANYCH, B.V. - BILANYCH, V. - LATYSHEV, V. - SAKSL, K. - MOLČANOVÁ, Z. - BALLÓKOVÁ, B. - ĎURIŠIN, J. - LYTVYN, P.M. - FEHER, A. - RIZAK, V. - KOMANICKÝ, V.: Investigation of structural changes in AsxSe100-x amorphous thin films after electron beam irradiation with XAFS, XANES and Kelvin force microscopy. In: Applied Surface Science: A Journal Devoted to Applied Physics and Chemistry of Surfaces and Interfaces, Amsterdam (Holandsko), Elsevier, 1985, Roč. 530 (2020), s. 1-11, ISSN 0169-4332
- DURANKA, P. - ZIMAN, J. - ONUFER, J. - KARDOŠ, S.: Magnetoelastic Anisotropy in Glass-Coated Microwires Studied using the SAMR Method. In: Acta Physica Polonica A., Varšava (Poľsko), Instytut Fizyki, Roč. 137, č. 5 (2020), s. 868-871, ISSN 0587-4246
- PIETRIKOVÁ, A. - LENGER, T. - FRIČOVÁ, O. - POPOVIČ, Ľ. - LIVOVSKÝ, Ľ.: Properties of glass/epoxy sandwich structure for electronic boards. In: Microelectronics international: journal of the ISHM-Europe, the Microelectrnocis Society-Europe, West Yorkshire (Veľká Británia), Emerald Group Publishing, Roč. 37, č. 3 (2020), s. 139-146, ISSN 1356-5362

Journals (from 2020 to 2022)

- LENGER, T. - PIETRIKOVÁ, A.: Optimization of NFC Antenna to Microcontroller's Board Dimensions. In: Acta Electrotechnica et Informatica, Košice (Slovensko), Fakulta elektrotechniky a informatiky Roč. 21, č. 1 (2021), s. 25-29, ISSN 1335-8243
- LENGER, T. - PIETRIKOVÁ, A.: Aspekty miniaturizácie elektronického obvodu pre NFC komunikáciu na báze vnorených súciastok. In: QuoVadis Research @ FEI, Košice (Slovensko), Technická univerzita v Košiciach, 2018, Roč. 4, č. 2 (2021), s. 104-111, ISSN 2585-9587

Other publications

Publication Type	Journals		Textbooks	Conferences		Patents	Other
	Foreign	Home	Home	Foreign	Home	Domestic	
Number				19	14		12

Faculty of Electrical Engineering
and Informatics

Contacts

Faculty of Electrical Engineering and Informatics
Technical University of Košice
Letná 1/9042 00 Košice
Slovak Republic