ANNUAL REPORT

2012

STU
MTF

SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA
FACULTY OF MATERIALS SCIENCE AND TECHNOLOGY IN TRNAVA

SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA
FACULTY OF MATERIALS SCIENCE AND TECHNOLOGY IN TRNAVA

PREFACE

Dear ladies and gentlemen, colleagues and guests,
Let me evaluate the past year and introduce our plans for the New Year of 2013.

I will in particular address the following issues:

1/ what we have achieved and are proud of
2/ where we did not succeed as expected and where our weaknesses lie
3/ what particular tasks should be implemented in the near future.

It will not be a chronological overview of what has happened at the Faculty. Instead, I will focus on several specific issues of the last year as viewed by the Dean, which may sound quite subjective.

Identified as a breakthrough of the year in 2011, MTF again progressed upwards in the final ARRA ranking and rating by winning 6th place within the technical faculties in Slovakia and being denoted as the 3rd most successful Faculty of STU. This is despite the fact that we are the second largest Faculty in Slovakia, which is not in our favour for the calculation of performance evaluation in the ARRA ratings. Currently, there are more than 3600 students enrolled in the Faculty programmes, which demonstrates constant interest in the study, despite the overall decrease of the number of the secondary school graduates in the country. That is good news - a positive effect of the Faculty image, a wide scope of the Faculty bachelor's programmes, dynamic study promotion carried out by the Division of Academic Activities and many individuals (such as our study ambassadors), suitable promotion and dissemination of information via the ALUMNI programme.

While in the last year meeting I mentioned that ours had been the most successful Faculty in Slovakia in raising finances from the European structural funds, I can state now that in 2012 we prepared further projects. Within the planning period of 2007-2014 we have implemented or contracted projects worth EUR 90 million, and are about to start building the Campus Bottova with two new research centres (the Centre of Materials Research and the Centre of Industrial Automation and ICT Implementation) worth EUR 42 million. Construction activities will commence this April/May; public procurement including internationally unique technologies has taken place for contracts valued at more than EUR 26 million. In other words: the University Scientific Park in Trnava (acronym CAMBO from Campus Bottova) is a vision that is coming true.

We have submitted a Complementary Educational Programme for training 15 members of technical and scientific staff who would start operating the unique equipment and devices in the field of ion and plasma technologies in mid 2015. Trainings and courses scheduled for 2 years should assure utilisation of the expensive advanced technology immediately after its installation for the purposes of scientific research.

As for reserves: publication activity of our PhD students brought the first fruits last year. The Faculty minimum publication requirements for admission to the dissertation thesis defence (i.e. three contributions registered in reputable electronic databases as categorised by the Accreditation Commission of the SR Government) have become common, despite the initial objection of supervisors. Another useful activity of our PhD students is "A Doctoral Week" during which doctoral students of six Faculty Institutes share information about their work, while looking for new links for interdisciplinary cooperation. Let me express my thanks to the PhD students, lecturers and organisers involved in that successful event. I am confident that the event will thrive this year, too.

I am particularly proud of the Faculty administration staff that has provided their clients, both students and employees, with expertise and a high international standard of work. This concerns e.g. thousands of student applications per year (either to the Registrar's Division or Library), thousands of similar requests and applications from our teachers and researchers, promotion of study abroad and projects worth millions of euros to be dealt with every day, in order to fairly and with a professional approach satisfy the applicants. Besides, the proportion of verbal or written communication in English keeps growing dramatically.

Ladies and gentlemen,
1/ Our achievements are unthinkable without co-operation with our partners from the governmental, public and private sectors. Key partnering institutions from home and abroad include: Region of Trnava, City of Trnava, JAVYS a.s., DELCAM, Beakert, VUJE a.s., Ornage Slovakia, Prvá zváračská (First Welding Co.) a.s., ŽOS Trnava, Helmoltz Zentrum Dresden-Rossendorf, IFW Dresden, TU Dresden, TU Ilmenau, Germany, University of Miskolc, Hungary, Univerzita Central Marta Abreu de las Villas, Cuba, College of Keckemet, Hungary, College of Koethen, Germany, State Technical University of Kalashnikov in Izhevsk, Russia and many other partners from the Czech Republic, Austria, Germany, Hungary, Poland, Croatia and Serbia. Upon our proposal, STU Rector granted two foreign scientists – Professor Eckart from Germany and Professor Machado from Cuba the highest university award– Dr.h. c.

2/ Our weaknesses comprise of the following:

1. We have not succeeded in distinguishing and recording the pedagogical and research activity of our university teachers and researchers: our overall research results are being achieved by less than 69% of our staff, while we all are paid more or less equally;
2. We have now almost reached the limit of co-financing projects from the European structural funds.
3. We are not fully capable of providing suitable replacements for leaving/retiring associate professors and professors.
4. The latest inconsistent amendment of the higher education legislation impedes 2 x 100% load of a university teacher, but tolerates 298%. This is an inexplicable and incomprehensible fact for foreign partners.

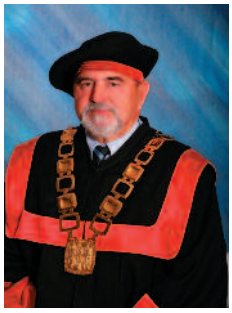
In 2013 we intend to:

- Prepare a complementary project of "Renewable energy sources" for the emergent University Scientific Park, worth approximately EUR 40 million;
- Revitalise the Faculty sports facilities according to the pre-prepared list of priorities – tennis courts, swimming pool, gymnasium;
- Increase the quality of publication activity, focusing on current list journals, recognised international conferences and monographs;
- Intensify international collaboration by preparing projects within FP8 so that each institute participates in at least one FP8 project in the period 2014-2020;
- Organise the 8th International Doctoral Seminar in Dubrovnik in co-operation with partners the University of Zagreb/FOI, Croatia and University of Zielona Gora, Poland;
- Prepare documentation for complex accreditation of the Faculty and University in the year 2014;
- Pay special attention to the quality of pedagogical process;
- Develop further the activities that have elevated us among the most successful technical faculties in ARRA ranking;
- Proceed from meeting quantitative criteria to meeting qualitative criteria, i.e. regulate the number of admitted students while emphasising qualitative evaluation of study.

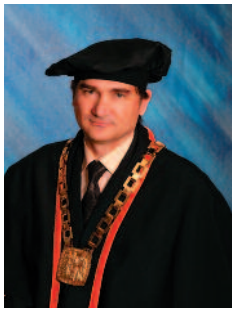
In the conclusion, let me welcome new member of our team, a full-time Professor Ing. Ján Lokaj, CSc. Good health to you and I hope you all enjoy a pleasant working atmosphere at the Faculty.

Prof. Dr. Ing. Oliver Moravčík
Dean of the Faculty

MANAGEMENT OF THE FACULTY



Prof. Dr. Ing. Oliver Moravčík
Dean of the Faculty



Prof. Dr. Ing. Jozef Peterka
Vice-Dean
Development
Information Technologies
Know-how Transfer
Prognostics

Assoc. Prof. RNDr. Mária Mišútová, PhD.
Vice-Dean
Bachelor's Degrees
Accreditation of Bachelor's Degrees
Motivation Scholarship
Study Promotion

Assoc. Prof. Ing. Peter Schreiber, PhD.
Vice-Dean
Master's and PhD Degrees
Accreditation of Master's and PhD Degrees
Student Social Affairs
Education Quality, Educational Process Inspection

Prof. Ing. Peter Grgač, PhD.
Vice-Dean
Research
International Relations
Professional Development of Academic Staff

Assoc. Prof. Ing. Helena Vidová, PhD.
Vice-Dean
Internal Relations
Public Relations
Publishing Activity
Social Programmes for Staff
Security System
ALUMNI

INSTITUTES OF THE FACULTY

Institute of Materials Science

Institute of Production Technologies

Institute of Production Systems and Applied Mechanics

Institute of Industrial Engineering, Management and Quality

Institute of Safety and Environmental Engineering

Institute of Applied Informatics, Automation and Mathematics

DIVISIONS OF THE FACULTY

Division of Academic Activities

Division of Knowledge Management

Division of Economic and Estate Activities

Division of Communication and Information Systems

Division of Personnel and Administration Activities

OTHER WORKPLACES

Centre for Technology Transfer

Department of Humanities and Social Sciences

Department of Engineering Pedagogy (from 30/08/2012)

DETACHED WORKPLACES

Komárno Detached Workplace

Dubnica Detached Workplace

FACULTY FACILITIES

Student Hostel and Canteen

SCIENTIFIC BOARD

Chair:
Prof. Dr. Ing. Oliver Moravčík

Members:

Prof. Ing. Karol Balog, PhD.
Assoc. Prof. RNDr. Mária Behúlová, CSc.
Assoc. Prof. Ing. Miloš Čambál, CSc.
Prof. Ing. Alexander Čaus, DrSc.
Prof. Ing. Peter Grgač, CSc.
Assoc. Prof. Ing. František Horňák, PhD.
Prof. Ing. Ľubomír Jahnátek, CSc.
Prof. Ing. Jozef Janovec, DrSc.
Prof. Ing. Peter Jurči, PhD.
Assoc. Prof. Ing. Mária Kapustová, PhD.
Assoc. Prof. Ing. Martin Kusý, PhD.
Prof. Ing. Milan Marônek, PhD.
Prof. Dr. Ing. Jozef Peterka
Prof. Ing. Jozef Sablik, CSc.
Prof. Ing. Peter Sakál, CSc.
Assoc. Prof. Ing. Peter Schreiber, CSc.
Assoc. Prof. Ing. Maroš Soldán, PhD.
Prof. Ing. Peter Šugár, CSc.
Assoc. Prof. Ing. Pavol Tanuška, PhD.
Assoc. Prof. Ing. Ivana Tureková, PhD.
Prof. Ing. Koloman Ulrich, PhD.
Assoc. Prof. Ing. Pavel Važan, CSc.
Prof.h.c. Prof. Ing. Karol Velíšek, CSc.
Assoc. Prof. Ing. Helena Vidová, PhD.

External members:

vis. Prof. Ing. Peter Fodrek, PhD.	The First Welding Association, a.s. Bratislava (Slovakia)
Assoc. Prof. PhDr. Ing. Aleš Gregar, CSc.	University of Tomáš Bat'a, Zlín (Czech Republic)
Prof. Dr.- Ing. habil. Peter Husár	TU, Ilmenau (Germany)
Ing. Matej Korec, PhD.	VÚJE a.s. Trnava (Slovakia)
vis. Prof. Ing. Ľudovít Kupča, PhD.	VÚJE a.s. Trnava (Slovakia)
Ing. Juraj Lapin, DrSc.	ÚMMS SAV, Bratislava (Slovakia)
Prof. Ing. Ervín Lumnitzer, CSc.	TU, Košice (Slovakia)
Prof. Ing. Milan Oravec, PhD.	TU, Košice (Slovakia)
Prof. Dr. Ing. Milan Sága	ŽU, Žilina (Slovakia)
Dr. Ing. František Simančík	ÚMMS SAV Bratislava (Slovakia)
vis. Prof. Ing. Daniel Švrček, PhD.	Agrolet s.r.o. Bratislava (Slovakia)
Prof. Ing. Jozef Zajac, CSc.	TU, Prešov (Slovakia)

Honourary Members of the Scientific Board

Prof. Dr.Sc. Dr. Ing. Michael E. Auer	IGIP (Austria)
vis. Prof. Ing. Miroslav Božík, PhD.	JAVYS a.s. Bratislava (Slovakia)
Ing. Peter Doll	SACHS a.s. Trnava (Slovakia)
Prof. Ing. Aleš Dudáček, PhD.	VŠB TU Ostrava (Czech Republic)
Assoc. Prof. Ing. Fedor Gömöry, DrSc.	SAV Bratislava (Slovakia)
Prof. Dr. Ing. Bela Illes	FMEI Miskolc (Hungary)
Prof. Ing. Jiří Kliber, CSc.	VŠB TU Ostrava (Czech Republic)
Ing. Ľuboš Lopatka, PhD.	Social Insurance Bratislava (Slovakia)
Ing. Tibor Mikuš, PhD.	Trnava Self-governing Region (Slovakia)
Ing. Jozef Zelíska	HBPO Slovakia s.r.o. Lozorno (Slovakia)

Bursar
Assoc. Prof. Ing. Róbert Riedlmajer, PhD.

ACADEMIC SENATE

Chair:
Assoc. Prof. Ing. Miloš Čambál, CSc.

Chair of Academic Staff Chamber:
Assoc. Prof. Ing. Peter Schreiber, CSc.

Chair of Student Staff Chamber:
Ing. Michal Ondruška

ACADEMIC STAFF CHAMBER

Employees:

Prof. Ing. Karol Balog, PhD.
Assoc. Prof. Ing. Miloš Čambál, CSc.
Assoc. Prof. Ing. Ľubomír Čaplovič, PhD.
Ing. Marta Kučerová, PhD.
Assoc. Prof. Ing. Peter Pokorný, PhD.
Prof. Ing. Milan Marônek, CSc.
Assoc. Prof. Ing. Milan Nad', CSc.
Assoc. Prof. Ing. Róbert Riedlmajer, PhD.
Prof. Ing. Jozef Sablik, CSc.
Assoc. Prof. Ing. Peter Schreiber, CSc.
Assoc. Prof. Ing. Pavol Tanuška, PhD.
Prof. Ing. Koloman Ulrich, PhD.
Prof.h.c. Prof. Ing. Karol Velíšek, CSc.
Assoc. Prof. Mgr. Róbert Vrábeľ, PhD.

Students:

Miroslav Fulier
Ing. Jozef Horváth
Bc. Ondrej Kimlička
Miriama Kořínková
Bc. Martin Krivý
Ing. Júlia Kurnátová
Ing. Michal Ondruška

DEVELOPMENT

The priorities for development in 2012 were as follows:

1/ The **long-term plan** of STU MTF development for the period 2012 – 2017, along with an update of the long-term plan of the Faculty development, was approved in May 2012.

2/ Key activities of the Faculty development in 2012:

09/2012 – a presentation demonstrating the "Centres of Excellence" and the Faculty research priorities at the International Engineering Fair in Brno (Czech Republic).

10/2012 – co-organisation of the scientific Conference on Current and Future Power Sources.

11/2012 – a TV documentary entitled "Spectrum of Science" featuring the STU MTF "Centres of Excellence" was shown on SR public television.

11/2012 – MTF STU wins the top prize, "Award and diploma for the best presentation in 2012", for the "Centres of Excellence" presentation within the event the "Week of science and technology in Slovakia 2012".

12/2012 – the project is submitted for the creation of the CAMBO STU MTF - University Research Park which will focus on activities in the field of materials science, specifically the area of ion and plasma technologies, automation and ICT implementation in industrial processes.

3/ Procurement of new equipment for the "Centres of Excellence":

DMG monoBLOCKJ 85 5-axis CNC machine
Lasertec 80 Shape Laser CNC machine
Laser robotised workplace for material cutting

Conic calorimeter
Safety calorimeter
Explosion chamber
Multi-purpose laboratory furnace
X-ray diffractometer
Testing device for stress corrosion test

4/ Reconstruction of the Faculty buildings in the year 2012:

Object of reconstruction	**Place of reconstruction**
Reconstruction of indoor swimming pool	Department of Humanities and Social Sciences
Reconstruction of floors in the Student Dormitories	Student Dormitories

5/ Co-operation with practice:

Company Presentations at MTF STU in 2012

27/02/2012 - A visit by Karl-Peter Simon, the vice-president of Bauer Gear Motor GmbH Co. The German company based in Esslingen, established a subsidiary, Bauer Gear Motor Slovakia s.r.o. in Zlaté Moravce and is looking for partners in Slovakia. Mr Simon and representatives of selected Faculty institutes (Institute of Materials, Institute of Technology, Institute of Industrial Engineering, Management and Quality and Institute of Applied Informatics and Mathematics) discussed the options of commercial co-operation in the field of applied informatics.

06/03/2012 - A presentation on the topic "Production Systems in Volkswagen Slovakia" for students interested in an internship and/or employment in Volkswagen Slovakia a.s. The latest VW up! model was displayed in front of the MTF Pavilion on Paulínska Street.

07/03/2012 - A presentation by PMP Montex s r.o.

company for STU MTF students (primarily those graduating). The company manufacturing orientation was introduced by Mgr. Viktória Ivanová, the company HR manager, and Ing. P. Danko and Ing. M. Sojka. After the presentation, students asked questions about the company details and possible employment opportunities. Several students sent their CVs to the company database of job applicants.

27/03/2012 - The first of a series of new discussion forums – Dialogues with practice organised by the Institute of Industrial Engineering, Management and Quality. The guest speaker for the first discussion was Dr. h. c. Ing. Jozef Uhrík CSc. President of the Association of Automotive Industry in the SR, who presented the past, presence and future of the automotive industry in Slovakia. He further discussed the importance of the automotive sector in the process of the Slovak industry conversion in the early 1990s and the potential risks in the case of failure of competitiveness in Slovakia. He also emphasised that the training of qualified staff for secondary schools and highway infrastructure is crucial for Slovakia.

27/03/2012 - A presentation by ESCAD Slovakia s.r.o. which raised the interest of students, mainly those majoring in the study programmes of Machining and Assembly, and Computer-Aided Design and Production. The company representatives, Ľubica Leo, Milan Droppa and Tobias Grassman presented the company activities aimed at 3D construction, 2D detailing, and preparation of documentation and RobCad simulations. Discussed were also potential job opportunities of STU MTF graduates within the company.

28/03/2012 - A presentation by Johnson Controls International, s. r.o. on the topics of life, work and the career of a material engineer in the automotive industry; the application of materials engineering in product development; and lastly career & personal development with the aim to attract STU MTF graduates.

03/04/2012 - A seminar within the area of welding and weldability, organised yearly in co-operation with ESAB Slovakia s.r.o., and the Department of Welding, STU MTF Institute of Technologies.

25/04/2012 - A presentation by TRW Automotive (Slovakia) s.r.o. offering job opportunities to graduating students.

01/06/2012 - A presentation by TRUMF Company introducing the latest technologies, such as the process of laser welding. The presentation illustrated the options of the laser beam and laser technology applications.

12/06/2012 - A seminar on forging organised by the Department of Forming, STU MTF Institute of Technologies and attended by representatives of the forgeries, HKS Forge, s.r.o. Trnava, ELBA, a.s. Kremnica, Metalurg Steel, s.r.o. Dubnica, SLOVARM, a.s. Myjava and Union of Forgeries in Czech Republic. A series of interesting presentations on the topic of innovation trends in manufacturing die forgings were delivered by representatives of the Institute of Technologies and the above-mentioned forgeries.

27/07/2012 - A visit by Dr. Andreas Mohr, Ing. Karl Tillinger, Ing. Marián Staňovsky and Ing. Tomáš Šimo, the CARL ZEISS/SRN representatives for Poland, Czech Republic and Slovakia. The guests visited the MTF "Centres of Excellence" and subsequently negotiated an agreement to co-operate in the educational and research fields, with the focus on metrology. Also assessed was a potential bilateral agreement between CARL ZEISS and STU MTF for the period 2013-2016.

18/10/2012 - A presentation by LENOVO Co., offering job opportunities to STU MTF graduates.

24/10/2012 - A presentation by Jaroslav Kuracina and his GRAND POWER Company, within the series of lectures entitled "Idea for Success", presenting the careers of successful Slovak entrepreneurs.

31/10/2012 - A lecture entitled "Advanced Software Testing I." by Ing. Roman Nagy, PhD., an expert for software architecture and software development at the division of research and development at BMW AG Munich Automotive.

26/11/2012 - The 3rd presentation within the "Dialogues with practice" series delivered by Assoc. Prof. Ing. Ján Lešinský, CSc., Head of the STU Institute of Life-long Education in Bratislava. The topic of his presentation was "The industrial world in the year 2020".

10/12/2012 - The 4th presentation within the "Dialogues with practice" series with Assoc. Prof. Ing. Štefan Rosina, PhD., president of Board of Directors and CEO of MATADOR Holding, a.s. The topic of his presentation was "The transformation of a resin company to a machine one, and the conditions of assuring its competitiveness". Along with the information on the company prognoses and aims, he presented interesting ideas regarding the necessity of supporting research and development, as well as the training of university students and strengthening the links between theory and practice, and industry and education.

STU MTF presentations for economic practice in 2012

28/02/2012 - STU MTF presentation in a special issue of Productivity and innovation journal.

13/07/2012 - New presentations of the Faculty institutes for economic practice

9-14/09/2012 - STU MTF participation in the International Engineering Fair 2012 in Brno, the major industrial fair in Central Europe. STU MTF presented its "Centres of Excellence" and the research characteristics of its institutes within the institution of research & development, technologies transfer, financial and other services.

03/10/2012 - Representatives from the Institute of Industrial Engineering, Management and Quality participated in the 15th National Forum of Productivity 2012 attended also by the representatives of the Ministry of Economy, Ministry of Labour, Social Affairs and Family, Slovak Academy of Sciences as well as representatives of three major automotive companies in Slovakia.

7-11/11/2012 - Participation in the exhibition of "Centres of Excellence" within the "Week of Science and Technology in Slovakia 2012". The event was organised by the SR Ministry of Education in co-operation with the National Centre for Popularisation of Science and Technology in Society. Presented at the exhibition were the practical applications of research results. STU MTF acquired the top "Award and diploma for the best presentation of the Centre of Excellence activity in 2012".

08/11/2012 - STU MTF presentation in a special edition of Engineering and Power Industry 2012.

20/11/2012 - Public TV (STV2) showed a documentary "Spectrum of Science", the STU MTF "Centres of Excellence".

6,11,13,20,27/11, 4/12/2012 - Live discussions shown on the regional Municipal Television Trnava network about the development of STU MTF and its vision. practice, and industry and education.

6/ Research infrastructure projects in 2012:

Institute/workplace	Operation programme	ITMS	Title of project	Time Period of Project
Slovak University of Technology	OPVaV	26250120045	Stage II of the complex modernisation of educational tangible information and communication infrastructure of the STU workplaces	06/2010-12/2012
Institute of Production Technologies	OPVaV	26220120045	Centre of Excellence for 5-axis Machining – experimental basis of high-tech research	01/2010-12/2012
Institute of Production Technologies + MIKON, s.r.o.	OPVaV	26220220137	Industrial research into silent blocks for excessive load in extreme temperatures in the field of industrial application	11/2011-10/2015
Institute of Materials Science	OPVaV	26220220137	Industrial research into silent blocks for excessive load in extreme temperatures in the field of industrial application	11/2011-10/2015
Institute of Materials + VUJE, a.s.	OPVaV	26220220077	Increasing the power security of the Slovak Republic	07/2010-12/2013
Institute of Production Systems and Applied Mechanics	OP VaV	26220220055	Laboratory of flexible manufacturing systems with robotised manipulation supported by drawing-free production	01/2010-06/2012
Institute of Applied Informatics, Automation and Mathematics	OPV	26110230042	Implementation of the internal system of quality assurance in education	01/2012-12/2013
Institute of Applied Informatics, Automation and Mathematics + Qintec, s.r.o. Trnava	OPVaV	26220220159	Research into monitoring and assessing the non-standard states in the vicinity of a nuclear power plant	04/2012-09/2014

Institute/workplace	Operation programme	ITMS	Title of project	Time Period of Project
Institute of Safety and Environmental Engineering	OP VaV	26220220056	Hybrid power supply for technical consultancy laboratory of utilisation and promotion of renewable energy sources	10/2010-03/2013
Institute of Industrial Engineering, Management and Quality	OPV	26110230055	Rationalisation and improvement of the industrial management study programme to support career guidance	01/2012 -12/2013
Institute of Engineering Pedagogy and Humanities	OPV	26110230023	Developing the pedagogical competencies of the STU MTF PhD students	04/2010-12/2012
Division of Knowledge Management	OP VaV	26220220054	Centre of knowledge management of intellectual property	01/2010-06/2012
Division of Knowledge Management	OPV	26110230024	Knowledge Management system of tools for monitoring the graduates' employability in the process of EU integration	04/2010-09/2012

OPVaV – Operation Programme Research
OPV – Operation Programme Education

This part of Annual Report 2012 was verified by Prof. Dr. Ing. Jozef Peterka

http://stu-mtf.pano3d.eu/

ACCREDITATION

The Faculty of Materials Science and Technology (MTF) is accredited as a **university type of institution**. Having undergone a complex accreditation process in 2009, the Faculty obtained the right to grant the academic titles of "Bachelor" (Bc.), "Engineer" (Ing., corresponding to Master's degree) and "Philosophiae Doctor" (Ph.D.). In 2012, the Faculty provided 9 Bachelor study programmes, 12 Master study programmes, and 9 Doctoral study programmes in both full-time and part-time study forms.

Accredited study programmes – Bc.

- Applied Informatics and Automation in Industry
- Materials Engineering
- Production Devices and Systems
- Computer-Aided Production Technologies
- Production Technologies
- Industrial Management
- Personnel Policy in Industrial Plant
- Quality of Production
- Occupational Health and Safety

Accredited study programs – Ing.

- Applied Informatics and Automation in Industry
- Materials Engineering
- Processing and Application of Non-metals
- Production Devices and Systems
- Machining and Assembly
- Computer-Aided Design and Production
- Welding
- Industrial and Art Foundry
- Industrial Management
- Integrated Safety
- Teaching Specific Engineering Subjects
- Engineering of Production Quality

Accredited study programmes – PhD.

- Automation and ICT Implementation in Processes
- Materials Engineering
- Processing and Application of Non-metals
- Production Devices and Systems
- Industrial Management
- Integrated Safety
- Machining Technologies and Materials
- Didactics of Technical Professional Subjects
- Engineering of Production Quality

STUDY SYSTEM AND ORGANISATION

The credit system introduced at the Slovak University of Technology (STU) has been implemented in all three degrees of the university education at STU MTF, in compliance with the law and accreditation within the defined standard length of study for both full-time and part-time study forms.

Degree 1: Bachelor's study, accomplished by granting the academic title of "Bachelor" - Bc. Having successfully passed the State exam and gaining the academic title of "Bachelor" (Bc.), the graduates can either continue the study at degree 2 level, or leave the Faculty.

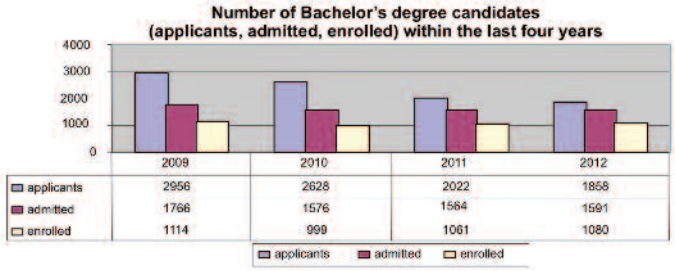
Degree 2: Master's study, accomplished by gaining the academic title of engineer – "Ing." (corresponding to MSc.)

Degree 3: Doctoral study in both full-time and part-time forms. The defined standard length of study in full-time form is 3 years, in part-time form 5 years. The study is accomplished by gaining the academic title of "Philosophiae Doctor "– PhD.

All of the above-mentioned programmes can be studied either full-time or part-time.

INTEREST IN STUDY

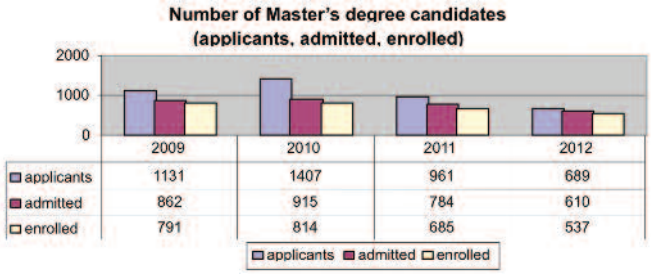
The interest in study at the Faculty within individual degrees is quite stable. A decrease in the number of the students admitted and enrolled was partially due to the changes introduced by the Ministry of Education of SR in financing universities, which consequently modified the policy of the Faculty management on the one hand, and also decreasing demographic curve and the increasing number of new universities and colleges in the Slovak Republic, on the other hand.



Graph No. 1 *Number of Bachelor's degree candidates (applicants, admitted, enrolled) within the last four years*

ADMISSION PROCEDURE VARIES ACCORDING TO THE DEGREE

The admission procedure for the Bachelor's degree is based on applicants' secondary school results, i.e. there is no entrance examination. The interest in study certified by participation in specialised competitions is an advantage for the applicants.
The admission procedure for the Master's degree considers the results of the entrance examinations achieved in three profile subjects within the programme studied as well as overall study achievements of the Bachelor's graduate.



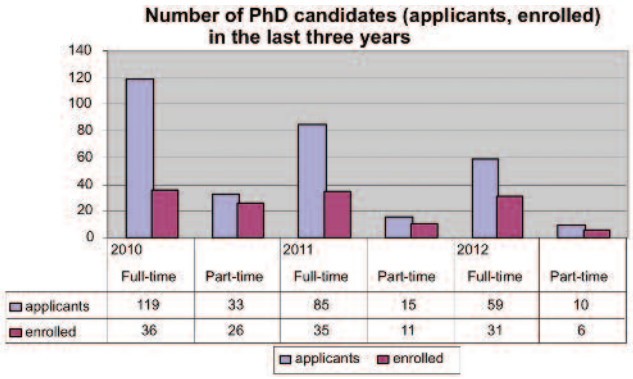
Graph No. 2 *Number of Master's degree candidates (applicants, admitted, enrolled) within the last four years*

The Faculty management perceive with satisfaction that, besides the STU MTF Bc. graduates interested in Master's study, there is also a high number of candidates from other universities **(Table.1)**, which is a proof of the high quality of the Faculty Master's study programmes.

Table. 1 Master's degree candidates: graduates of STU MTF and other universities in 2012

Applicants	MTF graduates	592
	From other universities	97
	Total	**689**
Enrolled	MTF graduates	476
	From other universities	61
	Total	**537**

The admission procedure for the doctoral degree comprises of the entrance examination consisting of an interview regarding the chosen topic of the doctoral thesis and English for Specific Purposes test. The Faculty tends to increase the number of internal PhD students.
The number of full-time PhD students **(Graph No. 3)** depends on the financial policy of the Ministry of Education, Science, Research and Sport of the Slovak Republic; the number of scholarships allotted to a university is based upon the criterion of its achievements in the field of research (domestic grants, foreign grants, internal PhD candidates having passed the dissertation exam, number of PhD graduates and the amount and quality of publications).



Graph No. 3 *Number of PhD candidates (applicants, enrolled) in the last three years*

Study and teaching is guaranteed by the Faculty Institutes. Each Institute provides all three degrees of education.

The number of students at each Institute is illustrated in **Graph 4.**

Abbreviations used:

UIAM - *Institute of Applied Informatics, Automation and Mathematics*
UBEI - *Institute of Safety and Environmental Engineering*
UMAT - *Institute of Materials*
UPMK - *Institute of Industrial Engineering, Management and Quality*
UVTE - *Institute of Production Technologies*
UVSM - *Institute of Production Systems and Applied Mechanics*

UVTE - *Institute of Production Technologies*
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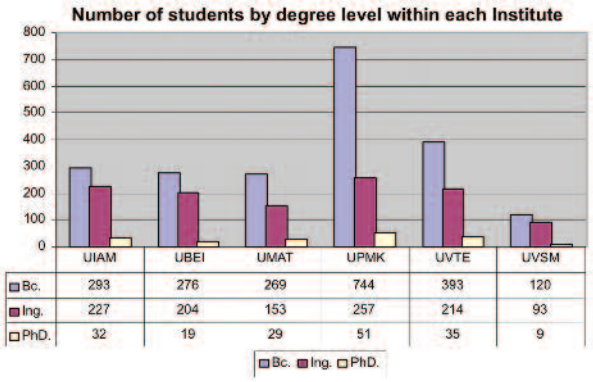


Graph No.4 *Number of students by degree level within each Institute*

STUDY CONDITIONS

Regarding the premises and administration, the study conditions at the Faculty can be considered favourable.

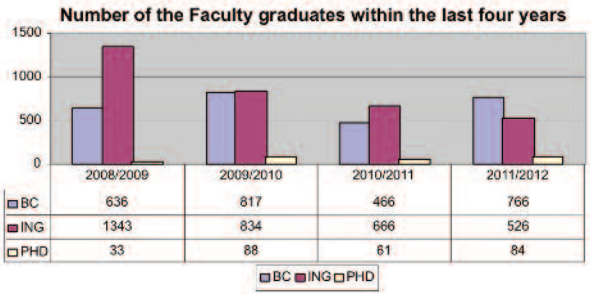
Access to textbooks has been improved by implementing the model of electronic textbooks available to all the Faculty students free of charge. To meet the students' requirements, introduced were the Saturday office hours in the Registrar's Office and the Academic Library. As for social policy, significant is the study at the detached workplaces in Komárno and Dubnica nad Váhom (the first year of bachelor studies).

Besides study, the students can be involved in the institutional research activity either by participating in research projects and the Student Research Conference, or working as research student-helpers. The Student Research Conference provides the bachelor's and master's students with a chance to get acquainted with research methods, to analyse a research task and articulate the attained research results in both oral and written forms, and to defend their opinion in a professional forum. PhD students can present partial results of their research projects in the International Doctoral Seminar, an annual event organized by the Faculty and attended also by PhD students of foreign universities and research Institutes from home and abroad.

Besides the students of Slovak citizenship, there are also foreign students studying at STU MTF. Unfortunately, the Faculty is failing to attract a higher number of foreign students; their percentage is quite low so far.

QUALITY OF EDUCATION AND EMPLOYABILITY OF GRADUATES

Education efficiency and quality can be assessed by various criteria and parameters, such as placement rate of graduates and the unemployment rate regularly announced by the Ministry of Labour, Social Affairs and Family, SR. The fact that STU ranks among the universities with the lowest unemployment rate is justified by the educational quality and interest in social practice of the Faculty graduates.



Graph No.5 *Number of the Faculty graduates within the last four years*

The aim of the educational process is to train graduates for their future profession. Its efficiency is measured by various methods, the most important of which is the method of feedback mapping the students' opinions regarding the study contents, activities of the educational process implementation, study environment and teaching strategies. Besides these tools of educational quality improvement, the Faculty carries out a survey regarding the students' satisfaction with the aim to identify weaknesses in the education process, teaching strategies, as well as administration and organisation.
In accordance with the law on Universities No. 131/2002 Coll., the STU MTF students have a chance to participate in a survey via a questionnaire available on the Faculty website. The questionnaire comprised the following areas: process and organisation of the study, quality and professional behaviour of teachers, quality of the teaching process, accommodation and others.

The electronic questionnaire evaluating the level of education from the perspective of students available for completion during September to December 2011 was responded to by approximately 300 students of all study degrees. The Faculty management seriously deals with the students suggestions from the questionnaire and informs the students and teachers on possible solutions or improvements.

SOCIAL MATTERS

Accommodation and board for students are provided in the Student Hostel of M. Uher and the adjacent cafeteria and snack bars. Students mainly appreciate the quite high standard of comfort including free internet connection, as well as availability of sports facilities such as fitness centre, gym, indoor swimming pool and tennis courts, directly on the campus.

Besides the above-mentioned facilities, students can take advantage of social scholarships and other bonuses such as the ones for study achievements and motivation, study loans and consultancy in the Career Centre. All of this is considered when designing time-tables, length of a training unit, arrangements of subjects, administration of the student agenda in AIS, PC connection, medical care and the possibility of arranging one's matters in the Registrar's and Academic Library on Saturdays. A psychologist was also employed to support spiritual and mental well-being of students by helping the students to handle critical situations and to adapt to the new academic environment.
As amended by law, the social system includes both enforceable and non-enforceable scholarships provided within the framework defined by the Act on Universities or the internal University and Faculty legislations.

STUDENTS AWARDED IN 2012

07/2012 – Awards of STU MTF Dean

a) Dean's Award for outstanding achievements attained during the entire academic study – (Bc. study)
1. Rovný Oliver – weighted point average: 1.31
2. Šurinová Radka - weighted point average: 1.44

b) Dean's Honorable Mention for excellence in the Bachelor's thesis (Bc. study)
1. Blesáková Viera: Applying basic tools of quality management in selected companies (UPMK)
2. Drábik Marián: Proposal of measures for improving the motivation system of employees in PROTHERM PRODUCTION s.r.o., Skalica (UPMK)
3. Drhová Jana: Emergency planning in handling dangerous materials (UBEI)
4. Franík Jakub: Proposal and implementation of a railway transportation control model with a related program for Simatic S7-300 station (UIAM)
5. Holík Matej: Modification of the inspection system for saddle parts before expedition (UVSM)
6. Hrabala Martin: Program modules for combustion burners (UIAM)
7. Hrnčiříková Leona: Motivation stimuli of the EC-TECH a.s. employees (UPMK)
8. Kolarik Ivan: Safety requirements for using driven railway vehicles (UBEI)
9. Kollarovičová Andrea: Study into the structure of a bimetal CuSn6 cast alloy interface by electron microscopy and EDX microanalysis (UMAT)
10. Kozák Alojz: Improving the system of employee motivation in Continental Matador Rubber, s.r.o. (UPMK)
11. Krajčo Vladimír: Proposal of measures for developing middle managerial roles in ENVIRAL, a.s. (UPMK)
12. Kružliaková Viera: Proposal of measures for improving the system of employee evaluation in a selected company (UPMK)
13. Lobodáš Miroslav: Laser beam welding through the use of a robotic beam and by using a robot (UVTE)
14. Marcinek Ján: System of receivables management in an industrial company (UPMK)
15. Mikulášek Marek: Compression of graphic formats of photographs (UIAM)
16. Mikulčík Roman: Work safety of the maintenance and repair activities within the job of a management and control system mechanic (UBEI)
17. Stano Tomáš: Proposal for construction documentation of plastic pressing (UVTE)
18. Straka Marek: Proposal of measures for the improvement of material flow in ZF Sachs Slovakia, a. s., Trnava (UPMK)
19. Vičík Vladimír: Practical issues of data collecting in 3D digitalisation (UVTE)
20. Vydra Pavol: Computer options for designing a technological procedure of bending (UVTE)
21. Vyskoč Maroš: Utilising the Internet in schools (KIP)

06/2012 – STU MTF Dean's Awards

a) Dean's Award for outstanding achievements attained during the entire academic study – (Master study)
1. Baumgartner Matej, Bc. - weighted point average: 1.15
2. Brathová Adriana, Bc. - weighted point average: 1.13
3. Lábsky Adam, Bc. - weighted point average: 1.12
4. Sroka Michal, Bc. - weighted point average: 1.05
5. Trávničková Eva, Bc. - weighted point average: 1.10
6. Zelenáková Monika, Bc. - weighted point average: 1.09

b) Dean's Honorable Mention for excellence in the Master thesis (Master study)
1. Bat'ková Marianna, Bc.: Proposal for improving the production and storage system in Hammerbacher SK, a. s. (UPMK)
2. Belko Peter, Bc.: Information and communication technologies and the use of MultiPoint Server 2011 in education (KIP)
3. Bittnerová Monika, Bc.: Proposal for improving the product changes process introduced during the manufacturing process of Foxconn Slovakia, spol. s r. o., Nitra (UPMK)
4. Čagánek Filip, Bc.: Proposal for optimising the assembling processes and ergonomy in the assembly workplace of ZF Boge Elastmetall Slovakia a. s. (UPMK)
5. Ďurica Adam, Bc.: Study into the conditions of electrolytic hydrogen production and its utilisation in fuel cells (UBEI)
6. Dvorská Monika, Bc.: Proposal for utilising the tools of marketing communication in the development of a

positive image of ORGECO spol. s r.o. and its products (UPMK)
7. Gašpar Gabriel, Bc.: Distributed system of temperature data collection (UIAM)
8. Gerek Radovan, Bc.: Increasing the effectiveness of vehicle control on a verification module of a car body (UPMK)
9. Hlavatá Monika, Bc.: Proposal for improving IMS EMS system by using a process approach in the context of SCR in TSS GRADE, a.s. (UPMK)
10. Jáňa Miroslav, Bc.: Effect of atmosphere and vacuum on the character of weld joints prepared by explosion (UVTE)
11. Jančarek Dušan, Bc.: Virtual model of a pipe exchanger (UIAM)
12. Jurík Juraj, Bc.: Proposal for rationalising the system of maintenance and repairs (UPMK)
13. Kaprinay Andrej, Bc.: Information systems for the print and on-line media (UIAM)
14. Kovařík Vlastimil, Bc.: Utilising reverse engineering in the process of manufacturing a spare part for a printer (UVTE)
15. Kövér Michal, Bc.: Analysis of phase transformations in selected low-alloy steels by thermal and computational methods (UMAT)
16. Krčová Monika, Bc.: History of the secondary technical school in Trnava (KIP)
17. Kuruc Marcel, Bc.: Improving the shape precision and surface quality of weld joints (UVTE)
18. Lábsky Adam, Bc.: Proposal for a teaching aid (KIP)
19. Longauer Ján, Bc.: Experimental investigation of the effect of voltage on electrodes in the technological process of electrochemical polishing of castings (UVTE)
20. Novotný Juraj, Bc.: Application of the QFD method in designing a new pumping aggregate in an industrial enterprise (UPMK)
21. Rolník Ladislav, Bc.: Construction design of clutch lamellas for reduced thickness (UVSM)
22. Schanz Tomáš, Bc.: Optimising the consumption of the shielding gas in MAG welding (UVTE)
23. Schottert Tomáš, Bc.: Utilisation of reverse engineering in the production of clockwork gearing (UVTE)
24. Sroka Michal, Bc.: Inference engine of rule-based expert systems (UIAM)
25. Škulibová Jana, Bc.: Importance of psycho-hygiene in controlling the burn-out syndrome in the job of a teacher (KIP)
26. Štefko Tomáš, Bc.: Study into biodegradability by means of O2 and CO2 indicators in a laboratory bioreactor (UBEI)
27. Tomčík Matúš, Bc.: Nanocomposite hard layers resistant to oxygen at high temperatures (UMAT)
28. Trávničková Eva, Bc.: Analysis and prevention of neurosis incidence amongst secondary-school students (KIP)
29. Turičík Miloš, Bc.: Implementation of SCADA system and data distribution via radio-modems in an existing dispatcher workplace (UIAM)
30. Venény Peter, Bc.: Design of a foundry model by using CAx technologies (UVTE)
31. Vittek Dušan, Bc.: Increasing the reliability of the device for transporting car bodies in PSA Peugeot Citroen, Trnava (UVSM)
32. Zelenáková Monika, Bc.: Analysis of the secondary school students' creativity and options for its development (KIP)
33. Žitňanský Tomáš, Bc.: Using a thermo-camera for predictive maintenance of house service boards and lifts (UBEI)

06/2012 – Mayor of Trnava's Award for outstanding study achievements:
Zemková Monika, Bc. , STU MTF student

06/2012 – Award of the Slovak Maintenance Society for Master's thesis in 2011: Ing.Peter Levický, STU MTF student, master's thesis entitled "Proposal for the maintenance safety regulations for a press-shop in PCA Slovakia s r.o., Trnava", thesis supervisor: Ing. Vladimír Vajcík.

Sport competitions:

04/2012 – STU Rector's Cup
SWIMMING
Korčeková Kamila: 1x 1st place, 3x 2nd place, 1x 3rd place.
Janská Miroslava: 1x 1st place, 2x 2nd place, 2x 3rd place
Kořínková Miriama: 1x 3rd. place
Ulehla Filip: 1x 2nd place, 1x 3rd place
Kováč Michal: 1x 3rd place
Lukačovič Andrej: 1x 3rd place
Kákoš Juraj: 1x 3rd place

TABLE TENNIS
students/males: quarterfinal
students/ females: quarterfinal

FOOTBALL
students: 2nd place

VOLLEYBALL
students/males: 1st place
students/ females: 3rd place

BASKETBALL
students: 5th place

FLOORBALL
students: 4th place

RESULTS OF THE STUDENT RESEARCH CONFERENCE 2012

INSTITUTE OF MATERIALS

Section: Materials Winners	Title of contribution	Supervisor
1. Bc. Libor Ďuriška	Analysis of phase equilibriums and building the thermodynamic database for complex metal Al-based alloys	Ing. Ivona Černičková
2. Filip Polakovič	Analysis of C10 and 16MnCr5 construction steels processed by carbonitration	Ing. Karin Kocúrová
3. Roman Múčka	Determining the effect of composition on the vulcanisation rate of rubber mixtures	Ing. Martin Tóth

INSTITUTE OF PRODUCTION SYSTEMS AND APPLIED MECHANICS

Section: Production Devices and Systems Winners	Title of contribution	Supervisor
1. Martin Krivý	Design of an automated PLC controlled system	Ing. Roman Ružarovský, PhD.
2. Bc. Ján Bartek	Concept of a JUOS module using catalogue components	Ing. Marcela Bučányová, PhD.
3. Bc. Patrik Vlček	Design of an end effector for industrial IRB-120 robot	Prof. Ing. Karol Velíšek, CSc.

INSTITUTE OF PRODUCTION TECHNOLOGIES

Section: Production Technologies 1 Winners	Title of contribution	Supervisor
1. Bc. Klaudia Kráľovičová	Parametric model of a hip endo-prosthesis	Assoc.Prof. Ing. Peter Pokorný, PhD.
2. Oliver Rovný	Using non-conventional materials, elements and principles for the construction of machine tools	Ing. Jozef Charbula
3. Bc. Marcel Kuruc	Improving the shape accuracy and surface quality of a weld surfaces	Prof. Ing. Ivan Baránek, CSc.

Section: Production Technologies 2 Winners	Title of contribution	Supervisor
1. Bc. Marek Šipkovský	Design of technology for welding Al components in air-conditioning service boards	Ing. Jozef Bárta, PhD.
2. Miroslav Jáňa	Effect of atmosphere and vacuum on the character of weld joints prepared by explosion	Prof. Ing. Milan Turňa, PhD. EWE, IWE

INSTITUTE OF INDUSTRIAL ENGINEERING, MANAGEMENT AND QUALITY

Section: Industrial Engineering, Management and Quality 1 Winners	Title of contribution	Supervisor
1. Bc. Monika Hlavatá	Proposal for improving EMS systems within IMS by adopting a process approach with a CSR strategy in TSS GRADE, a.s.	Prof. Ing. Peter Sakál, CSc. Ing. Gabriela Hrdinová, PhD.
2. Marianna Baťková	Proposal for improving the production and storage system in Hammerbacher SK, a.s.	Assoc.Prof. Ing. Helena Vidová, PhD.
3. Bc. Ľubomír Šmida	Contribution to the vision of a CSR business within the context of sustainable development	Prof. Ing. Peter Sakál, CSc. Ing. Gabriela Hrdinová, PhD.

Section: Industrial Engineering, Management and Quality 2 Winners	Title of contribution	Supervisor
1. Roman Blažo	Analysis of communication barriers in the information flow for an industrial enterprise	Assoc.Prof. Ing. Andrea Holková, PhD.
2. Vladimír Krajčo	Development of managerial roles in middle management	Ing. Jaromíra Vaňová, PhD.
3. Bc. Veronika Koníčková Bc. Martina Špirková Lucia Vyskočová	Impact of an ageing population on the workforce in industry	Assoc.Prof. Ing. Jana Šujanová, CSc

INSTITUTE OF SAFETY AND ENVIRONMENTAL ENGINEERING

Section: Chemical hazards and dangerous substances

Winners	Title of contribution	Supervisor
1. Jana Drhová	Emergency planning in handling dangerous substances	Assoc.Prof. Ing. Ivana Tureková, PhD.
2. Zuzana Blašková	Determining the ozone concentration in selected activities	Assoc.Prof. Ing. Maroš Soldán, PhD.
3. Radka Štetinová	Transport of dangerous materials excluded from the requirements of ADR agreement	Ing. Adela Poliaková, PhD.

Section: Safety and Health Protection Winners

Winners	Title of contribution	Supervisor
1. Peter Kaiser	Analysis of residual risks	Ing. Miroslav Slovák
2. Lenka Lužáková	Complex security assessment in production of ADLO doors	Ing. Jozef Harangozó, PhD.
3. Miroslava Kotúčková	Health and safety in the production of steel constructions	Ing. Tomáš Chrebet, PhD.

Section: Fire engineering

Winners	Title of contribution	Supervisor
1. Marek Horúcka	Determining the effects of fire on the voltage decrease and insulation resistance of electric cables	Ing. Jozef Martinka, PhD.
2. Michal Kráľovič	Fire and technical characteristics of plastic packaging in retail chains	Assoc.Prof. Ing. Ivana Tureková, PhD.
3. Milan Dermek	Automobiles of the fire and rescue brigades	Assoc.Prof. Ing. Mikuláš Monoši, PhD.

INSTITUTE OF APPLIED INFORMATICS, AUTOMATION AND MATHEMATICS

Section: Applied Informatics and Automation in Industry

Winners	Title of contribution	Supervisor
1. Bc. Gabriel Gašpar	Distributed system of temperature data collection	Ing. Michal Kebísek, PhD.
2. Bc. Ivan Pagáč	Design and implementation of an Information System (IS) supporting the property management	Assoc.Prof. Ing. Pavol Tanuška, PhD.
3. Bc. Adam Čelko	Samples positioning by means of a laser scanner	Ing. Michal Kopček, PhD.

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

Section: Humanities

Winners	Title of contribution	Supervisor
1. Petra Niklová	Motivating the STU MTF students toward better study achievements	Ing. Veronika Horňáková PhDr. Andrea Hagovská
2. Bc. Martina Deckárová	Competency model for the study programme of personnel policy in an industrial plant	PhDr. Andrea Hagovská
3. Bc. Martina Hudáková	Supporting creativity of the STU MTF students	PhDr. Andrea Hagovská

Section: English Language

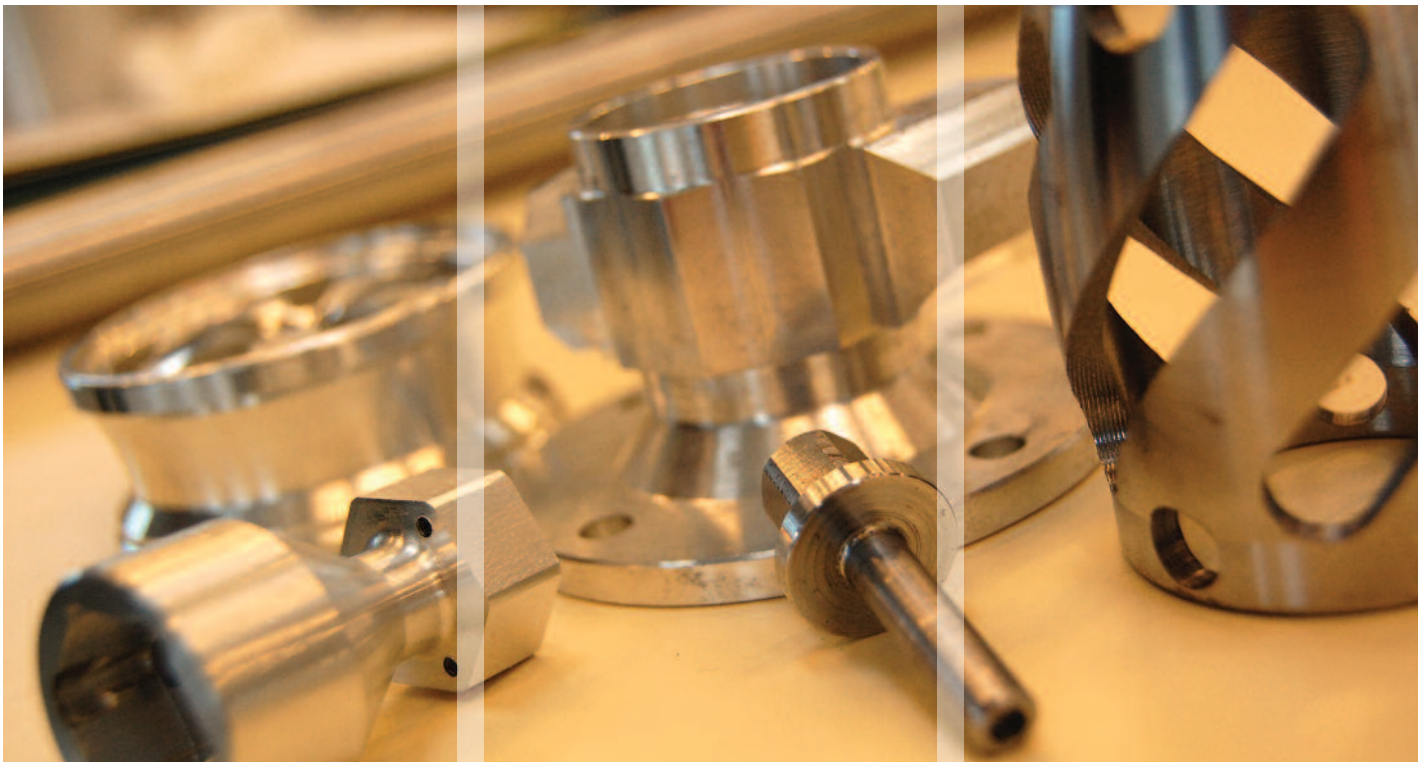
Winners	Title of contribution	Supervisor
1. Marián Hammel	Setting up a student business	Mgr. Gabriela Chmelíková, PhD.
2. Miroslav Lipovský	Summer job opportunities for students	PhDr. Emília Mironovová
3. Miriama Kořínková		
Juliana Valková	WolframAlpha webpage – a tool friend for students	Mgr. Gabriela Chmelíková, PhD.

Events organised for potential and current STU MTF students in 2012:

01/2012	Open Day (Trnava)
02/2012	Open Day (Detached workplace in Komárno)
02/2012	Doctoral Students' Week
03/2012	Student Research Conference 2012
03/2012	Presentation by Johnson Controls Trenčín, s r.o. (job offer for graduates)
03/2012	Presentation by of ESCAD Slovakia, s.r.o. (job offer for graduates)
03/2012	Presentation by PMP Montex s r.o. (job offer for graduates)
03/2012	Presentation "Production systems in Volkswagen Slovakia"
03/2012	STU MTF promotion in secondary schools in Galanta, Myjava, Spišská Stará Ves, Zlaté Moravce, Nové Zámky and Vráble.
03-04/2012	Election to the Student Board of the SR Universities for the term of 2012-2014
04/2012	Presentation of TRW Automotive (Slovakia) s r.o. (job offer for graduates)
04/2012	Discussion with a psychologist
04/2012	Excursion to Kia Motors Slovakia
04-08/2012	Competition of PhD students "Innovation in the Automotive Sector 2012"
05/2012	International doctoral seminar
05/2012	Student questionnaire – print system
06-08/2012	Graduation of Master's degree students
08-09/2012	Enrolments of new students
09/2012	Summer Olympic Games of secondary school students
10/2012	Presentation of Grand Power (JCI – Slovakia)
10/2012	Presentation of Lenovo (job offer for graduates)
10/2012	Evaluation of the student questionnaire on education quality for the academic year 2011/12
11/2012	Presentation by Ladislav Kossár
11/2012	Presentation by Ivo Toman
11/2012	Immatriculation of 1st year students
11/2012	STU MTF presentation at the European Education Fair "Gaudeamus" (Brno, Czech Republic)
12/2012	Commencement of the student questionnaire process
12/2012	SAIA information seminar at MTF

This part of Annual Report 2012 was verified by Assoc. Prof. RNDr. Mária Mišútová, PhD and Assoc. Prof. Ing. Peter Schreiber, PhD.

RESEARCH



The research orientation of the Faculty of Materials Science and Technology corresponds with its pedagogic profile and the long-term orientation of STU. As amended by Section 30, Paragraph 1, Sub-paragraph c of Act 131/2002 of the Coll. relating to Universities and as amended by other acts, the Faculty Scientific Board evaluates the faculty's activity in the field of science and technology once a year.

RESEARCH FOCUS

The scientific and research activity of MTF STU research and pedagogical staff is carried out in the following forms:

- projects of basic research
- projects solved within international programmes
- projects of international collaboration
- projects of applied research and development
- projects of contractual research

The research content is focused on the following areas:

- materials research with a focus on the research, development and technological processing of the basic and new kinds of technical materials,
- research, development and optimisation of new technologies of industrial production oriented particularly on the technological processing of modern technical materials and ecologically clean processes and products, numerical simulation of technological processes
- process identification, automation and control, as well as information support for technological, production and organisation systems,
- research and verification of managerial control principles and their organisation structures,
- quality control and certification of processes and products,
- safety and reliability of technological equipment and systems, while emphasising the analysis methods and systems synthesis,

The STU Faculty of Materials Science and Technology in Trnava was evaluated in four areas of research in the complex accreditation of activities. The research areas related to the faculty study programmes are:

Research area	**Evaluation**
Mechanical Engineering	A
Metallurgy and Materials	A
Information Sciences, Automation and Telecommunication	B
Engineering and Technology	B+

RESEARCH ACTIVITIES

In 2012, research projects under the VEGA, KEGA, APVV and other programmes were conducted at the faculty. The number of projects in 2012 from the particular agencies, grant schemes and contractual research are as follows:

	Number
VEGA projects (Basic research grant agency)	23
KEGA projects (Cultural and education agency)	7
APVV (Agency for support of research and development)	6

	Number
7th framework programme	1
Other foreign projects	2
Projects of contractual research	106

FOREIGN RELATIONS

STU MTF forms cooperation on the basis of good partnership relations which are typified by mutual cooperation, profit in the area of research activities, or experience in education.
The active cooperation of our constitution, reflected in agreements concluded with foreign partners, is proof of the necessity for searching new partnerships and cooperation.

Institutes which signed contracts of cooperation with the Faculty:
Agreements on cooperation with Foreign Partners

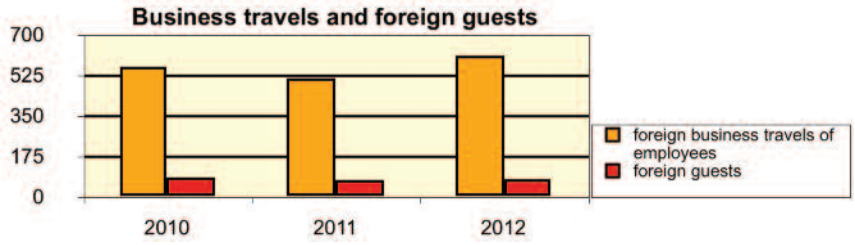
Foreign Partner	Country	City/Town
Helmholtz-Zentrum Dresden	Germany	Rossendorf
Technical University of Brandenburg	Germany	Cottbus
Leibniz-Institute for Solid State and Materials Research Dresden	Germany	Dresden
Anhlat University of Applied Sciences	Germany	Koethen
Faculty of Machining, University in Ljubljana	Slovenia	Ljubljana
St. Petersburg State University of Engineering and Electrotechnics	Russia	Saint-Petersburg
Institute of Energy in Moscow	Russia	Moscow
Buehler GmbH	Germany	Düsseldorf
Ukrainian Academy of Engineering and Pedagogy	Ukraine	Charkov
Faculty of Applied Informatics and Robotechnology, UGATU	UFA	Russia Ufa
Faculty of Economics, Management and Finances UGATU	UFA	Russia Ufa
National Institute of R & D for Materials Physics	Romania	Bucharest
Faculty of Physics, University of Bucharest	Romania	Bucharest
University of Science and Technology in Pohang	South Korea	Pohang
Faculty of Organisation and Informatics, University of Zagreb	Croatia	Zagreb
Bekaert	Belgium	Zwevegem
Faculty of Machine Building, Technical University of Cluj-Napoca	Romania	Cluj-Napoca
Institute of Technology	Poland	Radoma
ČVUT Prague	Czech Republic	Prague
University of Miskolc	Hungary	Miskolc
Institute for Systematic Coaching and Organisation Advisory	Germany	Berlin
Faculty of Economics and Management	Poland	Zielona Góra
Faculty for Management	Serbia	Novi Sad
Faculty of Information Technologies and Telecommunication of North-Caucasian State Technical University	Russia	Stavropol
Amirkabir University of Technology	Islamic Republic of Iran	Teheran
Kalashnikov Izhevsk State Technical University	Russia	Izhevsk
Hochschule Mannheim University of Applied Sciences	Germany	Mannheim
Vocational Higher Education School in Sulechów	Poland	Sulechów

STUDENT EXCHANGES

STU MTF students participate in exchange programs of short-term and also long-term scholarships. In 2012, the Faculty had 32 agreements in the Erasmus programme. The dominant Erasmus partners are the institutions in Poland (9 agreements), Germany (5 agreements), Czech Republic (3 agreements), and Croatia (3 agreements).

BUSINESS TRAVELS AND FOREIGN GUESTS

Development of relations with international partners in the last three years is reflected in the number of foreign guests and business travels of the Faculty employees to foreign institutes.



MEMBERSHIP OF SLOVAK AND INTERNATIONAL ORGANISATIONS

On an international level, the faculty cooperated with significant scientific and technical organisations in the last year. STU MTF is an institutional member of five professional international institutions. Employees of the faculty are active in different Slovak (139 individual memberships) and also international organisations (49 individual memberships) in different positions, from members to chairs, vice-chairs and members of boards.

Membership of international professional organisations

International Institute of Welding

Association for Heat Treatment of Metals

International Society for Engineering Pedagogy

European Platform of Women Scientists

European Network Education and Training in Occupational Safety and Health

European Alliance for Innovation

Memberships of Slovak professional organisations

Scientific Society for Metals

Slovak Natural Gas and Crude Oil Union

Slovak Chamber of Commerce and Industry

Slovak Society for Quality

Automobile Cluster

Slovak Society of Ergonomics

Slovak Society of Maintenance

Slovak Association of Libraries

Slovak Society for Cybernetics and Informatics, Slovak Academy of Sciences

Association of Machining Industry of the Slovak Republic

APPROVED RIGHTS TO PROVIDE HABILITATIONS AND GRANT ACADEMIC TITLES

According to the Act No. 131/2002 of Coll. relating to universities and modification, and completion of some laws as amended, the Faculty of Materials Science and Technology, Slovak University of Technology in Bratislava is entitled to carry out habilitation process and academic promotion of professors in the following study fields:

5.2.7.	Mechanical Engineering and Materials
5.2.14.	Automation
5.2.26.	Materials
5.2.50.	Production Technologies
5.2.52.	Industrial Engineering
8.3.5.	Occupational Health and Safety

NEW DOCTOR HONORIS CAUSA, VISITING PROFESSORS AND ASSOCIATE PROFESSORS IN 2012

Doctor honoris causa (Dr.h.c.)

Prof. Dr. Ing. habil. Jürgen Eckert

Prof. Dr. Ing. Norge Isaias Coello Machado

Visiting professors

Dr. rer. nat. Andreas Kolitsch

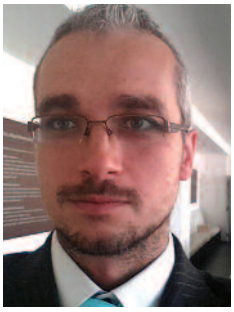
Ing. Peter Fodrek, PhD.

Ing. Ľudovít Kupča, CSc.

Associate Professors

Assoc. Prof. Ing. Štefan Václav, PhD.

Assoc. Prof. Ing. Sebastian Saniuk, PhD.



Assoc. Prof. Ing. Maximilián Strémy, PhD.

Assoc. Prof. Ing. Krzysztof Witkowski, PhD.

ACTIVITIES IN 2012:

02/2012 – Presentation of the STU MTF research profile in a special issue of Productivity and Innovation journal
02/2012 – Introduction of the TelePresence network of Slovak universities (including MTF)
03/2012 – Co-organisation of trainings with Thomson Reuters (Bratislava)
04/2012 – Opening of a joint research workplace with STU MTF and UMMS SAV oriented on the preparation of special kinds of metallic and ceramic materials
05/2012 – Workshop on progressive methods and technologies of preparation, processing and diagnostics of materials (Bratislava)
06/2012 - STU Rector, Prof. Ing. Robert Redhammer, PhD. awarded grants to young researchers of STU within the Program for the support of young researchers. The following grants were allotted to STU MTF:

Study of ozonisation of the process liquids utilisation and disposal	Ing. K. Gerulová, PhD.
Five Axis Ultrasonic Machining	Ing. M. Zvončan
Security of information assets as an integral part of a quality management system in compliance with the principles of CSR	Ing. J. Urdziková, PhD.
Generating the optimum trajectory of a robotic arm in an iCub robotic simulator by using GPU	Ing. P. Bezák, PhD.
Mechanical properties of hybrid adhesion-laser joints of thin metal sheets	Ing. I. Michalec
Design implementation of a virtual model of electro-hydraulic drive.	Ing. M. Kopček, PhD.
Study of degradability of process liquids	Ing. J. Fiala, PhD.
Developing software for the calculation of the total effectiveness index of equipment regarding employees motivation	Ing. J. Drahňovský, PhD.
Welding the magnesium and other light metals alloys by laser beam	Ing. T. Kramár
Monitoring the process of self-heating of unsaturated oils by means of SEDEX safety calorimeter.	Ing. I. Hrušovský

10/2012 – Co-organisation of an IEEE English for Engineering seminar "Drills and Skills" (Bratislava)
11/2012 – Participation in the exhibition within the Week of Science and Technology in Slovakia in 2012 (Bratislava)
12/2012 – Agreement on co-operation between the education institution of Gomel State University and STU MTF
12/2012 – Granting the title of Scientist of the Year 2012 to Prof. Ing. Jozef Janovec, DrSc. of STU MTF
12/2012 – His Magnificence, STU Rector, Robert Redhammer bestowed a high STU award, Professor of the Year 2012 to Professor Karol Velíšek of STU MTF, director of the Institute of Production Systems and Applied Mechanics for his year-long activity in the field of international co-operation and grant achievements.
Overview of conferences organised at STU MTF in 2012:
02/2012 -9th project meeting, exchange study visit and AUTOCLUSTERS project
03/2012 – Student Research Conference
04/2012 – 16th ESAB seminar on Welding and Weldability
04/2012- STU MTF in co-operation with the Slovak Society for Tribology and Tribotechnology and Competence Centre of Tribology, Mannheim organised an international conference on the topic of "Production and defects of toothwheels and gears".
05/2012 – Workshop "Progressive methods and technologies of preparation, processing and diagnostics of materials"
05/2012 – International Doctoral Seminar (IDS)
06/2012 –Seminar on Forging
07/2012 - APDTC seminar - Annual Meeting of Associated Phase Diagram and Thermodynamics Committee
09/2012 – Co-organiser of a scientific conference "Forming 2012"
10/2012 –CO-MAT-TECH 2012 international conference
10/2012 – Co-organisation of a scientific conference entitled "Power sources of regions – present and future"
11/2012 - Central European Conference on Logistics (CECOL 2012)

This part of Annual Report 2012 was verified by Prof. Ing. Peter Grgač, PhD.

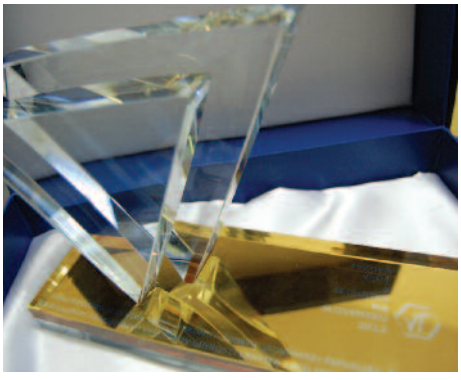
INTERNAL RELATIONS

2012 - THE 75th ANNIVERSARY YEAR OF THE SLOVAK UNIVERSITY OF TECHNOLOGY

AWARDS IN 2012

07/2012 - Dr. Rudolfo Ortiz, Minister of the Higher Education of the Cuban Republic and Professor Dr. Andres Alegria, His Magnificence and Rector of Universidad Central Marta Abreu de las Villas/Cuba conferred a decree to enable **Professor Oliver Moravčík**, STU MTF Dean to act as a visiting Professor at the Universidad Central Marta Abreu de las Villas/Cuba to. The decree was granted by Professor Dr. Angelo Rodriguez, Dean of the Faculty of Mechanical Engineering, Universidad Central Marta Abreu de las Villas/Cuba.

11/2012 – **Award and diploma for the best presentation from the "Centres of Excellence" in 2012**, the highest award of the "Week of Science and Technology in Slovakia in 2012".



12/2012 – Professor of the year in STU MTF 2012 is awarded to Professor Velíšek. His Magnificence **Robert Redhammer**, STU Rector bestowed the highest award of the Slovak University of Technology "**Professor of the year 2012**" to **Professor Karol Velíšek**, Director of the STU MTF Institute of Production Systems and Applied Mechanics for his year-long activity in the field of international co-operation and grant achievements. In **2012**, Professor Velíšek was also awarded a title of Prof.h.c. by the Technical University in Cluj-Napoca/Romania.

12/2012 - **Professor Jozef Janovec** became the STU MTF **Scientist of the Year 2012**. Professor Janovec and his team investigate complex metal with the properties different from those of conventional metal alloys.

12/2012 – During the **25th anniversary of the Faculty**, the MTF management awarded the employees who contributed to the Faculty development since its establishment. Dean Prof. Moravčík, Vice-Dean Assoc. Prof. Vidová and Assoc. Prof. Bílik, chair of the Staff Board, thanked the awardees for their year-long work.

MTF employees working 25 years for STU:
- Mária Klobušiaková
- Ing. Marta Kučerová, PhD.
- Emília Minarčíková
- Štefánia Vitteková
- Bc. Beáta Vrbovská
- Ing. Jozef Charbula
- Igor Krčmárik
- Ján Kubovič
- Jozef Ölvecký
- Ing. Vladimír Púčik
- Prof. Dr. Ing. Jozef Peterka
- Assoc. Prof. Ing. Peter Schreiber, CSc.

01/2013 New Year meeting:

At the 75th anniversary of STU, the STU Rector awarded the "**Commemoration Letter of Tree of Knowledge**" to the following STU MTF Professors: Karol Balog, Ivan Baránek, Dušan Baran, Peter Grgač, Alexander Čaus, Jozef Janovec, Peter Juči, Ján Lokaj, Oliver Moravčík, Milan Marônek, Milan Ožvold, Jozef Peterka, Jozef Sablik, Peter Sakál, Peter Šugár, Milan Turňa, Koloman Ulrich, Miroslav Urban and Karol Velíšek.

DEAN'S AWARDS FOR 2012:

The best dissertation thesis
Ing. Tomáš Škulavík, PhD. (Institute of Applied Informatics, Automation and Mathematics): Fuzzy control of a robotic arm
Ing. Ivona Černičková, PhD. (Institute of Materials): Study into the structure and phase equilibrium in the aluminium complex metal alloys
Ing. Jana Samáková, PhD. (Institute of Industrial Engineering, Management and Quality): Proposal for a methodology of controlling project communication as a tool of increasing the project quality of industrial companies in Slovakia
Ing. Marek Zvončan, PhD. (Institute of Production Technologies): Research on edgechipping in rotary ultrasonic machining.

The best project team
Research team under the supervision of Prof. RNDr. Milan Ožvold, CSc. consisting of
Prof. RNDr. Milan Ožvold, CSc., Ing. Lýdia Rízeková-Trnaková, Ing. Marián Drienovský, PhD., Prof. Ing. Milan Turňa, PhD., Prof. Ing. Jozef Janovec, DrSc. and Prof. Ing. Ján Lokaj, CSc.

The best publication of MTF STU
The best publication issued in a renowned journal with an impact factor of 2.289:
Assoc. Prof. Ing. Martin Kusý, PhD (UMAT) – RNDr. Mária Behúlová, PhD (UVSM) – Prof. Ing. Peter Grgač, PhD (Institute of Materials): Influence of the thermal history of a particle during atomisation on the morphology of carbides in a hypereutectic iron based alloy. In: Journal of Alloys and Compounds. - ISSN 0925-8388. - Vol. 536 (2012), pp. 541-545

The contribution is registered in the following databases: Web of Science, Master Journal List and Scopus.

The best co-operation with practice
The Faculty management awarded Assoc. Prof. Ing. Ľubomír Čaplovič, PhD (Institute of Materials) for the best results achieved in co-operation with practice.

Awards of other entities:
The First Welding Society, a.s. Bratislava awarded an STU MTF student for the best dissertation thesis in the field of welding in 2012: Ing. Miroslav Sahul, PhD. (Institute of Production Technologies): Welding selected dissimilar steels by laser.

Orange Slovakia, a.s. Bratislava awarded the following STU MTF employees in 2012:
For publications in the field of applied informatics and automation:
Assoc.Prof. Ing. Pavol Važan, PhD. (Institute of Applied Informatics, Automation and Mathematics)

For successful project activities in the field of applied informatics and automation:
Ing. Tomáša Bezáka, PhD (Institute of Applied Informatics, Automation and Mathematics)

IGIP (Austria)
IGIP Award (Austria) for 2012 was granted to **Prof. Dr. Ing. Oliver Moravčík**, Faculty Dean.

ACTIVITIES OF THE PUBLIC RELATIONS DIVISION IN 2012

- providing a virtual sightseeing tour of STU MTF
- providing English translations of key parts of the Faculty website
- providing a monthly schedule of the Faculty events
- promotion materials
- innovation of poster exhibition
- implementation of the STU and MTF logo redesign
- responsibility for updating the Faculty website, monitoring the news about MTF in the media
- updating the Faculty photo gallery
- establishment of the Technology Museum
- activities related to promotion of the Faculty in the media
- organisation of exhibitions at the International Engineering Fair in Brno/Czech Republic, Exhibition of Centres of Excellence in Bratislava, exhibition of photographs at STU MTF
- organisation of the regular Thursday afternoon meetings
- activity for the civic association Bank of Quality - Alumni MTF
- production of invitations, business cards and posters
- regular announcements in print media (Spektrum, Trnavský hlas, Novinky z radnice, Produktivita a inovácie)
- video recordings of events
- preparing Faculty events (New Year Meeting, MTF Day, St. Nicolas Day, International Children Day)
- preparing data for the documentary "Spectrum of Science"
- formatting and redesigning the website of the Public Relations division (including presentation map)

SOCIAL PROGRAMMES FOR EMPLOYEES OF THE FACULTY OF MATERIALS SCIENCE AND TECHNOLOGY

MTF STU creates the following conditions of social policy for employees according to their rights defined in legislation. The management of MTF STU is interested in employee opinions. Every year a survey is prepared to obtain feedback as a tool to decide about future changes. The Faculty management discusses the results of the survey (which are available for the public) and new measurements are created on the basis of the satisfaction survey.

EMPLOYEE BOARD OF MTF STU

The employee board of MTF STU was established at the Faculty after elections in June 2009 for the period of four years. It represents the interests of all employees in accordance with valid labour codes and the collective labour agreement.
The representatives on the employee board of MTF STU took part in all meetings of the Faculty management, the collegium of the dean, in meetings of UOO STU in Bratislava and in job interviews for pedagogical positions during the year. The board participated in the schedule creation for use of the gymnasium and swimming pool with employees of MTF STU and the preparation of the canteen menu; it took part as well in a petition organised with the union of employees of the school system and research in connection with creation of new labour codes.

The employee board of MTF STU:
- discussed all materials dealing with holiday planning, collective holidays, a directive of the dean regarding application for social fund resources and others.
- discussed all applications for prolonging employment, termination of working relationships because of redundancy after the implementation of the automatic call centre
- approved grants from the social fund in agreement with the union contract from 2011
- participated in evaluation of adherence to the collective labour agreement terms as well as preparation of a new collective labour agreement for 2012 in the form of comments to a draft and completion of the draft
- submitted ideas of Faculty employees for solving problems on particular panels.

The Faculty management and the Academic Senate approved the following documents in 2012:
- **Code of Ethics of an STU MTF employee and Code of Ethics of an STU MTF student.**

SECURITY SYSTEM

Status in the area of work accident risks, illnesses caused by work, dangerous events and dangerous industrial accidents:

Status of working conditions (following the rules):
- creation of a new directive by the dean No. 8/2008 on "Work and workplaces which are forbidden to pregnant women and mothers to the end of the ninth month after giving birth, and breastfeading women,"
- the categorisation of work from the perspective of health risks.

Personnel and protection of working appliances:
- the list of working activities,
- the report on the state of technical equipment and control, revision and repair

Areas for the training of Work Safety and Health Protection employees and creation of rules:
- admission training – 60 employees
- periodical training of employees - 167 employees
- training of management - 20 employees
- the induction information for students during the enrolment process
- training of employees to provide first aid – 21 em ployees.

LIST OF THE MOST IMPORTANT FACULTY EVENTS IN 2012

MONTH	DATE	EVENT
January	01/01/2012	Establishment of new workplaces: The Department of Humanities and Social Sciences and the Department of Engineering Pedagogy
	18/01/2012	Visit of His Magnificence, Rector of University of Trnava, Professor Marek Šmid
	19/01/2012	New Year Meeting
	26/01/2012	Open Day
	30/01-03/02/2012	Week of Doctoral Students



February	01/02/2012	New logo of STU MTF
	08-10/2/2012	Final conference of the Autoclusters project
	10/02/2012	Establishment of a research centre at the Institute of Safety and Environmental Engineering
	15/02/2012	Open Day at a detached workplace in Komárno
	17/02/2012	Dies Iovi Occurssus
	20/02/2012	Introduction of TelePresence web
	27/02/2012	Questionnaire on the topic of MTF employee satisfaction
	27/02/2012	Meeting with Bauer Gear Motor GmbH
	28/02/2012	Productivity and innovation - MTF presentation



March	01/03/2012	"Webometrics Ranking of World Universities" – STU in the first 500th
	06/03/2012	Presentation on "Production systems in Volkswagen Slovakia"
	07/03/2012	Presentation by MP Montex s r.o.
	10-11/03/2012	38th year of the Grand Prix of swimming in Trnava
	22/03/2012	Dies Iovi Occurssus
	27/03/2012	Presentation by ESCAD Slovakia s r.o.
	27/03/2012	Discussion: Meetings with practice
	28/03/2012	Presentation by Johnson Controls Trenčín, s r.o.
	29/03/2012	Student Research Conference
	30/03/2012	MTF Day



April

02/04/2012	Opening a joint workplace of STU MTF and the Institute of Materials and Machine Mechanics, Slovak Academy of Sciences
03/04/2012	Seminar delivered by ESAB, Electric Welding Limited company, Sweden
12/04/2012	Dies Iovi Occurssus
17 - 18/04/2012	STU Rector's Cup
25/04/2012	Presentation delivered by TRW Automotive s r.o, Slovakia
26 - 27/04/2012	"Production and defects of toothwheels and gears" Conference



May

03/05/2012	Dies Iovi Occurssus
04/05/2012	Day of the Institute of Industrial Engineering, Management and Quality
10/05/2012	Workshop entitled "Progressive methods and technologies of preparing, processing and diagnosing materials"
20 - 22/05/2012	International Doctoral Seminar 2012
23 - 25/05/2012	A series of presentations delivered by Prof. Stanislav Karapetrovič, PhD, PEng. of University in Alberta (Canada) on "Quality and evaluation of university teachers and teaching in Canada"
24/05/2012	IVth Pedagogy Conference



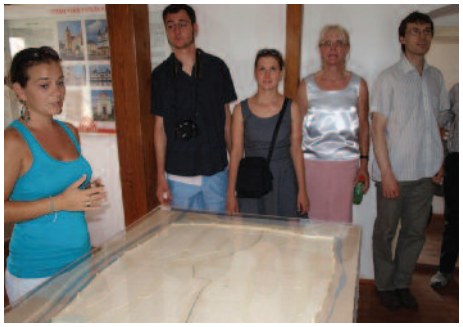
June

01/06/2012	Presentation delivered by TRUMP Co.
01/06/2012	Deadline for Master's study applications
02/06/2012	International Children Day in MTF
04 - 08/06/2012	3rd series of lectures delivered by Prof. Klaus Wetzig of IFW Dresden
15/06/2012	Deadline for PhD study applications
22/06/2012	Teachers Cup
25/06/2012	Professor Dr. Ing. habil. Jürgen Eckert from the partner research institute IFW Dresden is awarded the title of Doctor honoris causa
25/06/2012	75th Anniversary celebration of the STU establishment
27/06/2012	Approval of the strategic document "A long-term plan for the period of 2012 – 2017"
28/06/2012	Agreement of co-operation between Kalashnikov Izhevsk Technical University and STU MTF
29/06/2012	Virtual sightseeing of STU MTF "goes live" on the website
29/06/2012	On behalf of STU Professor Redhammer, STU Rector, Professor Moravčík, Faculty Dean, granted a high university award , "Plaque of STU" to Professor Gyula Patkóo, Rector of University of Miskolc
29/06/2012	Graduation ceremony of Master's study graduates



July

02 - 06/07/2012	Graduation ceremony of Master's study graduates
04/07/2012	Professor Moravčík acquired a position of a visiting professor at Universidad Central Marta Abreu de las Villas/Cuba
07/07/2012	Annual meeting of Associated Phase Diagram and Thermodynamics Committee
27/07/2012	Visit from top representatives of CARL ZEISS/SRN Poland, Czech Republic and Slovakia, Dr. Andreas Mohr, Ing. Karl Tillinger, Ing. Marián Stažovský and Ing. Tomáš Šimo
27/07/2012	Visit of His Excellency Vladimír Serpikov, Ambassador of the Republic of Belarus



August

31/08/2012	Closure of the department of Engineering Pedagogy

September

04/09/2012	Summer university of secondary school students at STU MTF
05 - 08/09/2012	Forming 2012 conference
10 - 14/09/2012	MTF exhibition at the International Engineering Fair in Brno
24/09 -22/12/2012	Teaching period for winter semester of the academic year 2012/2013

October

04/10/2012	Regional power sources – presence and future (scientific conference)
09 - 11/10/2012	Akadémia & Vapac Fair, Bratislava
11 - 12/10/2012	COMATTECH 2012 conference
18/10/2012	Presentation by representatives of Lenovo Co.
22/10/2012	Dialogues with practice, Ing. Peter Čirka
24/10/2012	Presentation delivered by Jaroslav Kuracina (JCI Slovensko)
25/10 - 02/11/2012	Exposition of photographs "Behind the Faculty gate" in Max Trnava supermarket
30/10 - 02/11/2012	Gaudeamus Brno 2012

November	06,11,13,20,27/11/2012	Live discussion with the management about development of the Faculty shown on regional TV
	06/11/2012	Immatriculations
	07 - 11/11/2012	Presentation of STU MTF at the exposition of "Centres of Excellence" within the Week of Science and Technology in Slovakia 2012
	08/11/2012	Dies Iovi Occursus
	15 - 16/11/2012	7th Seminar for Central European PhD Students - Research in Materials Science
	15/11/2012	Agreement of co-operation between the Education Institute of Gomel State University and STU MTF
	16/11/2012	Lecture delivered by Ladislav Kossár
	28 - 30/11/2012	CECOL 2012

December	01/12/2012	St.Nicholas Day for children of STU MTF employees
	04/12/2012	Information seminar by SAIA
	04/12/2012	Live discussion with the management about development of the Faculty shown on regional TV
	05/12/2012	Results published of ARRA evaluation –STU MTF ranked in 6th position among technical faculties in SR
	06/12/2012	Christmas bazaar
	07/12/2012	Christmas concert of VUS Technik STU in Bratislava
	10/12/2012	Granting of the title Dr.h.c., the highest university award, to Professor Norge Isaias Coello Machado of the partnering Universidad Central Martha Abreu de las Villas - Santa Clara/Cuba.
	11/12/2012	25th anniversary of the STU MTF establishment
	11/12/2012	25th anniversary event of the STU MTF establishment including awards to employees
	13/12/2012	Professor of the Year – Prof. h.c.Prof.Ing. Karol Velíšek, PhD. of STU MTF
	13/12/2012	Scientist of the Year – Prof. Ing. Jozef Janovec, DrSc. Z MTF STU
	18/12/2012	Concert of "Technik" ensemble at the Christmas market, a gift of STU MTF for the city of Trnava

EDITORIAL ACTIVITIES IN 2012

- editorial activities in the field of electronic textbooks, scientific monographs, MTF journals and proceedings
- processing of Faculty journals in Versita system (journals are indexed in the following databases: RePeC, Astrophysics Data System, INSPEC and TEMA)
- amending the statute of editorial activities, including the administration of anonymous reviewing
- update and administration of the portal publishing at MTF STU
- English translation of journal research papers
- mapping the publication space of STU MTF on Pearson and Cengage Publishing Houses websites
- implementation of custom publishing processes at MTF
- provision of updates to the Slovak language section of the Faculty website
- format and modification to MTF STU webpage of AlumniPress Publishing House

The aim of editorial activity at MTF STU is to secure the fast transfer of results of research knowledge development and education into syllabi via publications, and to enable access of students to new knowledge and improve the teaching process.

Editorial activity has an important role, especially from the perspective of publication activities of Faculty authors, and it has significant importance for the Faculty.

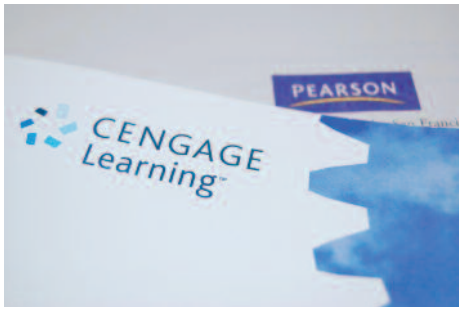
In 2012 a new portal for publishing was initialised at the Faculty.

Number of published publications at MTF STU in 2012

Monographs	Textbooks	Scripts
17	1	13

Periodical publications of MTF STU in 2011

Title of journal	Number of volumes	Number of contributions
Journal research papers	1	4
Journal, Materials Science and Technology	2	9
Books of contributions	9	



ALUMNI

On 19.3.2011 the civil association Bank of Quality – Alumni MTF STU was established. This association creates space and conditions for Faculty communication with former graduates.

Activities of Alumni in 2012:
- meeting of the general assembly of the association
- English translation of the association website
- electronic journal of the association established
- newsletter sent to the registered members of the association
- lecture delivered on the topic of "Advanced Software Testing" in co-operation with UIAM (10/2012)
- reunion of the graduates at UPMK

By making a contribution to this account number, you can support the activity of the "Civic Association of graduates and friends of STU MTF Bank of Quality – Alumni MTF STU "

This part of Annual Report 2012 was verified by Assoc. Prof. Ing. Helena Vidová, PhD.

INSTITUTE OF MATERIALS SCIENCE

CONTACT

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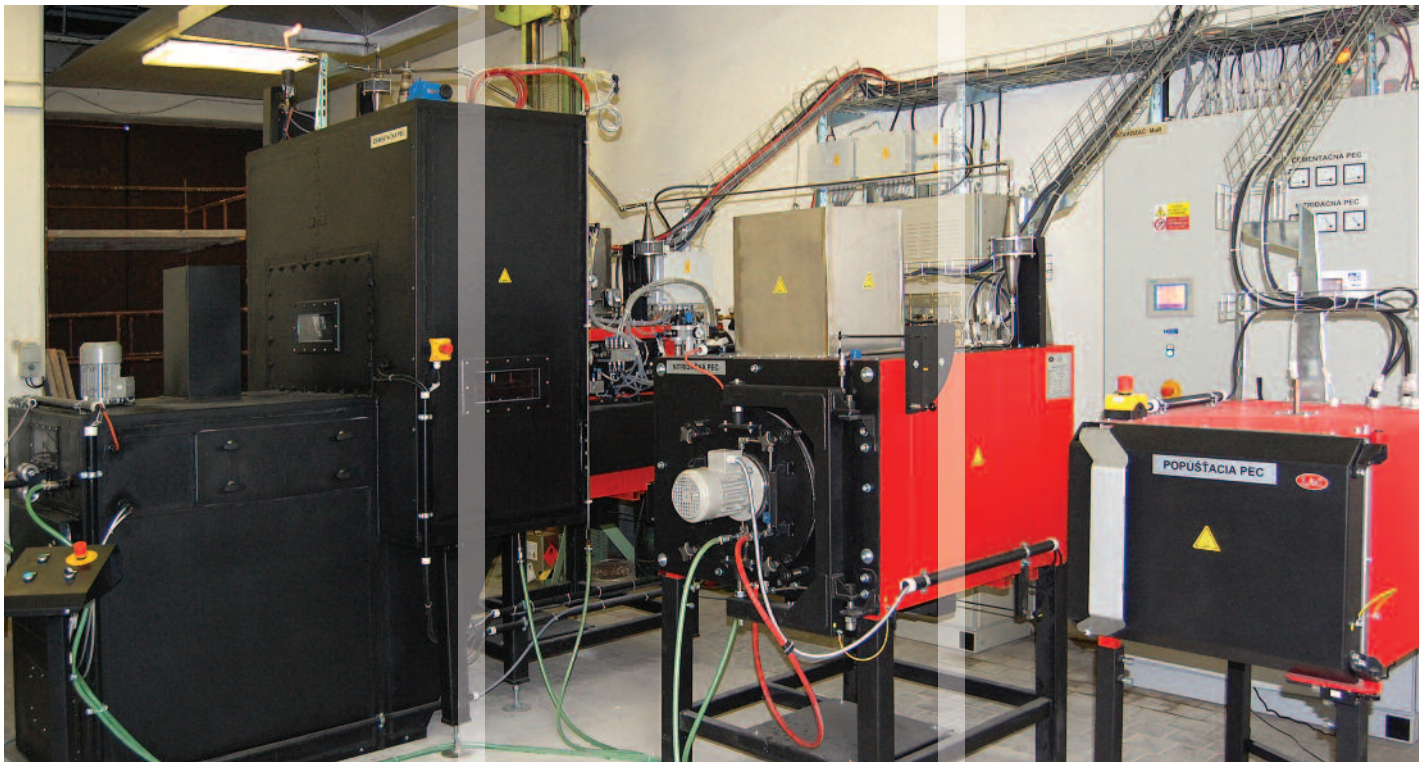
fax: +421906068499



INSTITUTE DEPARTMENTS

- Department of Materials Engineering
- Department of Physics

STAFF

- Professors: 8
- Assoc. Professors: 9
- Senior Lecturers: 17
- Research Fellows: 7
- PhD Students: 36

EDUCATION AT THE INSTITUTE

STUDY PROGRAMMES
- Materials Engineering
- Processing and Application of Non-Metals

Number of the students (as at 31.10. 2012) registered on study programmes offered by the institute: 451
Number of graduates (2011/2012) of the study programmes offered by the Institute: 77

ACTIVITIES OF THE INSTITUTE

27/02/2012 - Meeting with Bauer Gear Motor GmbH

02/04/2011 - Ceremonial opening of a joint workplace of STU MTF and the Institute of Materials and Machine Mechanics, Slovak Academy of Science.

10/05/2012 - Workshop on the topic of "Progressive methods and technologies for the preparation, processing and diagnostics of materials"

03 - 04/06/2012 - 3rd series of lectures by Prof. Klaus Wetzig of IFW Dresden, on the topic of "Ion Beams in Materials Processing and Analysis"

07/07/2012 - APDTC Conference - Annual Meeting of Associated Phase Diagram and Thermodynamics Committee

09 - 14/09/2012 - Presentation of the "Centre of Excellence" at the International Engineering Fair in Brno (Czech Republic)

07 - 09/11/2012 - Exhibition of "Centres of Excellence" within the "Week of Science and Technology in Slovakia in 2012"

15 - 16/11/2012 - 7th year of the seminar for PhD students from cental Europe – Research in Materials Engineering

20/11/2012 - CE Presentation for the Faculty documentary "Spectrum of Science"

06/12/2012 - "Scientist of the Year at STU 2012" is awarded to Prof. Ing. Jozef Janovec, DrSc.

GRADUATE PROFILE

BACHELOR PROGRAMMES (Bc.)

Materials Engineering
The graduate from the programme will have gained a complete Bachelor's degree education in the field of Materials focused on the main kinds of technical materials. The graduate will understand production, testing, technological processing, selection, exploitation and degradation of properties of main kinds of technical materials. Upon completion of the degree the graduate will have developed knowledge of the notions, principles and theory regarding technical materials, production technology, processing technology, application and recycling of materials, as well as fundamentals of electrical engineering, construction, informatics and management of industrial company. Furthermore, they will be able to specify mechanical properties of materials and work with equipment used in mechanical and defectoscopic tests of materials, evaluate the structure of materials by standard procedures with the use of corresponding equipment machinery. The graduate will be conscious of the social, moral, legal and economic impact of his or her chosen profession and will be prepared either for master´s study in the field of Materials and related study fields or for entering the job market immediately. The qualification will equip the graduate with the skills to successfully operate in industrial companies in the field of technical materials, technological processing of semi-products and products, as well as in the fields of quality control, purchasing and selling materials, service and maintenance.

MASTER'S PROGRAMMES (Ing.)

Materials Engineering
The graduate will gain a complete Master´s degree education in the field of Materials focused on technical materials. The graduate will understand the development and production of technical materials, the technological processing of semi-products and products, as well as quality control and operating diagnostics, connections within chemical composition, structure and the technically important properties of materials. Furthermore, the graduate will develop his or her knowledge of production, processing, quality control, application and recycling of materials, methods, techniques and means of property analysis, selection and implementation of materials. The graduate will also be able to specify and propose extensive material solutions across a wide range of technical fields, apply a wide spectrum of experimental methods of study and properties of materials in solving tasks in engineering practice. Through the analysis and understanding of technological and other processes in terms of their impact on structure and properties of materials, they will be able to gauge the influence of production and processing technologies on the working environment and recommend alternative solutions. The graduate will be conscious of the social, moral, legal and economic impacts of the profession and will be prepared either to continue studying at postgraduate degree level, to gain a scientific perspective across a whole range of materials engineering fields, or to enter the job market immediately. Graduate from the Master's programme will be equipped with the skills to successfully perform as a team leader or a team member in the field of materials engineering (research, development, production or implementation), individually as a project leader, an entrepreneur or a manager in industrial production.

Processing and Application of Non-metals
The graduate will gain a complete university education in the study field of Materials with specialisation in non-metallic materials. The graduate will understand the production, technical treatment, testing, exploitation and degradation of non-metallic materials such as plastic, ceramics, glass, rubber and some special kinds of materials, in addition to the correlations between structure and properties of the mentioned materials, as well as control of their quality and processes of diagnosis. The graduate will develop his or her knowledge of production, treatment, quality control, application, recycling and secondary treatment of the mentioned materials, in addition to methods, technologies and appliances of properties analysis, selection and application of non-metallic materials. Graduates from the programme can then go on to work as a manager or team member (research, development, production or application of non-metallic materials), independently as a project manager, a manager of hir or her own company or as a manager in industrial production with this specialisation.

POSTGRADUATE PROGRAMMES (PhD.)

Materials Engineering
The graduate will master the rules of scientific work in the field of Materials and will obtain a doctoral degree education in the fiel of Materials. The graduate will be prepared to discover and propose his or her own solutions to problems, learn to formulate problems scientifically and present his or her own results. They will be equipped with the skills to gauge legal and environmental aspects, ethical and social aspects of scientific work and will become familiar with scientific methods of research and development as well as processes leading to his or her problem solving in the field of technical materials. The graduate will master the rules of individual and team scientific work, scientific formulation of problems, ethical and social aspects of scientific work and the effective presentation of research results. In doing so, they will understand the relationships between research, development, production, implementation and recycling, aspects of research and development of new materials and legal and environmental aspects of new products. Upon completion of the study programme, the graduate will be conscious of the social, moral, legal and economic impacts of his or her profession and will be prepared to gain a further scientific perspective across a wide range of material research fields, in order to widen his or her own knowledge in the field, or to enter the job market immediately. The graduate will successfully perform as a researcher in research institutes, at universities or a highly-qualified specialist in large industrial companies typically focused on the production of materials or technological processing of materials for semi-products and products.

Processing and Application of Non-metals
The graduate will develop knowledge of the principles of scientific individual and team work as well as the procedures leading to individual problem solving in the field of non-metallic materials. The graduate will then be ready to discover and bring new independent solutions to problems, scientifically formulate the problem and present his or her own results and will be able to assess the legal and environmental aspects, and ethical and social aspects of scientific work. The graduate understands the connections between research, development, production, use, recycling and aspects of research and development of new materials (especially based on glass, plastics and ceramics). The graduate may work as a scientific/research worker in research institutes, at universities or in large industrial enterprises focused on the production of materials or technological processing of materials into semi-finished products and products.

LIST OF SUBJECTS GUARANTEED WITH THE INSTITUTE

- Advanced materials and technologies
- Bachelor's project
- Bachelor's thesis
- Data processing and simulation
- Degradation processes and prediction of lifetime
- Diploma project
- Diploma thesis
- Dissertation project
- Electrotechnics and electronics
- Engineering experiment
- Experimental methods of materials investigation
- Heat treatment of materials
- Heat treatment technology
- Chemical heat treatment
- Materials in power engineering
- Materials science
- Mechanical testing and defectoscopy of materials
- Methods in research of material structure and properties
- Methods of materials investigation
- Metrology and testing of plastics
- Modelling of phase equilibria
- Non-metalic materials
- Pedagogic activities
- Physical measurement methods of non-metalic materials
- Physics
- Processing technologies of non-metallic materials
- Professional practice
- Research paper
- Selected topics in advanced technologies of non-metallic materials
- Selected topics in ceramic and glass materials
- Selected topics in electrical and optical properties of non-metallic materials
- Selected topics in materials based on polymers
- Selected topics in mechanical and thermal properties of non-metallic materials
- Selected topics in modeling and optimisation properties of non-metallic materials
- Selected topics in solid state physics
- Selected topics in surface engineering
- Semestral project
- Sturcture and properties of non-metallic materials
- Technology of materials production
- Theory and technology of ceramic materials processing
- Theory and technology of glass processing
- Theory and technology of plastics processing
- Theory of materials production
- Theory of materials treatment
- Theory of phase transformations
- Utility properties and materials design
- Vacuum engineering and technology

GRADUATE THESES

Bachelor Theses

Babinec, M.: Properties of diffuse boronised cold work K245 steel
Bilický, M.: Rheology of biodegradable plastics
Borko, P.: Analysis of components damaged during hot isostatic pressing
Borko, P.: Material analysis of safety significant components in a nuclear power plant
Csémi, M.: Mechanical properties of composite Al-SiC particles
Demeter, J.: Preparation and analysis of chromium nitride coatings on tool steel
Gábor, A.: Microstructure degradation of intermetallic TiAl alloys during creep
Gondek, J.: Metallographic analysis of steel knives blades from 13th to 18th century
Kamenický, M.: Mechanical testing of lead-free soldered joints
Kollarovičová, A.: Structural study of the bimetallic interface : ductil iron – CuSn6 with electron microscopy and EDX microanalysis
Komarňanský, M.: Monitoring of electrical parameters of special glasses
Košťál, T.: Influence of diffuse boronising on the properties of steel K 720
Kustyán, M.: Effect of flavoring elements Ca and Al SiC in the melt viscosity
Kvasnovský, R.: Metalographic analysis of heat affected grains of high strength aluminium solutions prepared by rapid solidification from melt
Lašček, L.: Measurement and analysis of thermophysical properties of technical materials
Múčka, R.: Influence of composition rubber blends on curing rate
Polakovič, F.: Analysis of carbonitrided structural steels C10 and 16MnCr5
Sabová, D.: Analysis of welding joints on high strength steels created by explosion welding

Šupola, P.: Design and production of master alloys for the preparation of nanostructured composite
Tok, Z.: Effects of composition of semi expandable aluminium on the course of expansion
Toth, L.: Analysis of a work piece made by hot isostatic pressing
Trnavská, A.: Analysis of the basic properties of selected solders

Master's Theses

Balážik, P.: Influence of the chemical composition on selected properties of lead free solders
Bašnák, T.: Anticorrosion efficiency of selected coating systems
Bogár, P.: Investigation of critical parameters extrusion of smal radius tubes from polyvinylchloride, polyuretane and polyolefines thermoplastics
Boledovič, P.: Recycling of magnesium alloys
Bucha, M.: Properties of cast steel STN 41 7322 for diffuse boronising
Čavojský, P.: Analysis of weld quality of rings dedicated to the clutch of an automobile
Grejták, E.: Modelling of the temperature dependence of electrical conductivity rubber compounds based on styrene-butadiene rubber in the process
Hlavna, M.: Effect of redrawing on microstructure changes of Zn-Al-Mg coating
Holič, J.: Microscopic analysis of the wear of interchangeable sintered carbide plates after the process of 100Cr6 steel turning
Holota, L.: Influence on the leakance of glass in critical parts by construction of mould
Horváth, F.: Interaction of selected materials with lead-free soft solders
Jevičová, K.: Optimisation of glass fibre sizing
Ježovič, J.: Analysis of laser remelted surface of the compact of K390 Microclean tool steel after heat treatment
Ježovičová, J.: Analysis of laser remelted surface of the compact of K390 Microclean tool steel prepared by hot isostatic pressing
Jurčíková, A.: Analysis of boriding layers of high alloy tool steels M 390
Kollár, P.: The structure of materials for fusion reactors
Koštialik, D.: Analysis of radiation damage in dispersion strenghtened ferritic steels
Köver, M.: Analysis of phase transformations in selected low-alloy steels by thermal and computational methods
Kozánek, P.: The orientation of crystals in superconducting materials
Kuba, V.: Analysis of boronised layers on selected ledeburitic tool steels
Molnár, B.: Monitoring changes in the inner structure of materials based on polymers using physical methods
Nagy, L.: Influence of processing on the properties of polyurethane thermoplastics
Nichta, R.: Dependence of the nanocomposited microstructure of Me-C and MeC-C coatings on the type of magnetron sputtering
Novák, M.: Nanohardness of oxidation resistant coatings for demanding engineering applications
Ondruška, M.: Identification of precipitations in Cr-Mn-N based steel after thermal exposures
Pienčák, M.: Structure and properties of basalt coatings
Rauová, J.: Influence of processing on the properties of polyolephines
Rozsnyó, V.: Analysis of selected properties of lead-free soft solders
Sobota, J.: Electrical properties of special glasses on the basis of antimony oxide
Šemnický, R.: Effect of isothermal annealing on the character of Cr-Ni austenitic stainless steel
Šimončič, A.: Chemical analysis of materials used in nuclear power optical emission spectrometry
Šimonovič, I.: Effects of inhomogenities in the structure of high-temperature superconducting materials on their electromagnetic properties
Škultéty, P.: Solders with a low content of rare earths
Šoka, M.: Effect of variations in the patenting process on the microstructure and mechanical properties of steel wires
Takáč, G.: Effect of diffusive boronising on the properties of steel K455
Takáč, L.: Hard nanostructured layers prepared by magnetron sputtering
Tomčík, M.: Nanocomposite hard coatings with high temperature oxidation resistance
Turanský, M.: Joining tape superconductors using lead-free solders
Varga, Z.: Measuring and modeling of thermophysical properties of materials
Volner, P.: Quality assessment of welded joints on curved highway bridge construction
Zacková, P.: Structural analysis of advanced high hardness coatings

PhD Theses

Béger, M.: Preparation and study of selected properties and the characterisation of chromium nitride coating on tool steel
Černičková, I.: Investigation into the structure and phase equilibria of aluminum-base complex metallic alloys
Drienovský, M.: Development and the complex structural and mechanical characterisation of lead-free solders with the addition of rare earth elements
Frkáňová, K.: Phase transformations during heat treatments of new generation of air-hardenable intermetallic TiAl-based alloys
Harnúšková, J.: Stabilisation of melt for producing metal foams
Kocúrová, K.: Influence of carbonitriding carbon and low alloyed structural steels on their structure and performance
Krížik, P.: Increasing Young´s modulus of extruded aluminium profiles
Psota, J.: Electrical and dielectric properties of special glasses
Senčeková, L.: Mo/Mo - silicide composites prepared by liquid silicon infiltration
Staneková, H.: Creep of titanium-based intermetallic alloys
Štefániková, M.: Surface treatment of high alloy tool steel using laser technology
Tóth, M.: Study process for the crosslinking of rubber mixture by physical methods

RESEARCH AT THE INSTITUTE

Areas of Research
- advanced complex metallic alloys and other structurally complex materials
- alloy steels for energy industries
- lead-free solders
- materials with non-crystalline structures
- computational chemistry in materials science
- thermodynamic modelling of phase equilibria and processes in materials
- coatings and surface treatment

Research characteristics
The research activities of the Institute of Materials Science are focused on crystallisation and heat treatment of metals and alloys, tool materials, powder metallurgy, stainless steels, steels for power plants, weldability of steels, lead-free solders, wear-resistant coatings, complex metallic alloys, processing of polymers and properties of special glasses. At present, the Institute possesses three internal laboratories (Laboratory of Structural Analysis, Laboratory of Heat Treatment and Mechanical Testing, Laboratory of Physical-Chemical Measurements and Processes) and three laboratories with external partners (Laboratory of Thermophysical Measurements and Calculations, Laboratory of Soldering, Laboratory for Development and Research of Advanced Metallic Materials and Composites). During the last few years, many modern devices were obtained as part of investment in the the "Centre for development" and the application of advanced diagnostic methods in processing of metallic and non-metallic materials. Machinery acquired includes a high-resolution scanning electron microscope; JEOL 7600F equipped with EDS, WDS and EBSD detectors, a confocal laser scanning microscope; ZEISS LSM 700, a universal testing machine for evaluation of mechanical properties of materials; LabTest 4.250SP1-WM, a Charpy impact tester; CHK300J-I, a simultaneous thermal analyser; NETZSCH 409 CD, a high-temperature dilatometer; NETZSCH 402 C, a laser flash analyser; NETZSCH LFA 427, a temperature stimulated depolarisation; CONCEPT 90 with Quatro Cryosystem, a spectral analyser; Solartron 1260, a rotation viscosimeter; Gemini II and vulcanisation measurement equipment; D-MDR 3000. New software was also obtained related to modeling properties of materials subjected to thermal and mechanical treatment which has greatly enhanced the computational facilities of optimising the processing parameters (Sysweld, DEFORM, JmatPro).
In the areas of research and education the Institute has established intensive cooperation with local and foreign institutes, including, Leibniz Institute of Solid State and Materials Research in Dresden (Germany), Institute Jožef Stefan, Ljubljana (Slovenia), Vienna University of Technology (Austria), Research Center Dresden-Rossendorf (Germany), Institute of Physics of Materials, Academy of Sciences of the Czech Republic, Brno (Czech Republic), Faculty of Mechanical Engineering, University of Ljubljana (Slovenia) and other Slovak universities and institutes of the Slovak Academy of Sciences. From the list of industrial partners the most recognised are Bekaert SA (Belgium), Böhler – Edelstahl, Branson div. Emerson, and Benteler (Germany).
The Institute has a long established tradition of cooperation with regional industrial partners including INA Skalica, Ltd, Skalica; VUJE, Jaslovské Bohunice; ZF Sachs Slovakia, Trnava; Zlievareň, Trnava; HKS Forge Ltd, Trnava; MANZ, Nové Mesto nad Váhom; SONY Slovakia, Nitra; Samsung Electronics Slovakia, Galanta, Voderady; Faurecia, Trnava; PSA Peugeot Citroen, Trnava; Noble International Ltd, Senica; TRW Steering System Slovakia Ltd, Nové Mesto nad Váhom; Hella Lighting Slovakia, Kočovce; Kinex-KLF, Kysucké Nové Mesto; PSL, Považská Bystrica; EMO, Mochovce; Johns Manville, Trnava; Sauer Danfoss, Považská Bystrica; ŽOS, Trnava; PFS, Brezová pod Bradlom; Kompozitum. Topoľčany; Fremach, Trnava; Slovalco, Žiar nad Hronom and IMS Kupa, Nováky.

Areas of expertises:
- Material Degradation and Accidents
- Laboratory Technology for Material Diagnostics
- Space Phenomena
- Progressive Materials
- Fusion and Fusion Reactors
- Unleaded Solders
- Materials for Energetics

PROJECTS OF THE INSTITUTE

Project Title Excellence Centre for functionalised multiphase materials (FUNMAT)
Coordinator Prof. Ing. Jozef Janovec, DrSc.
Start Date 04/08/2011
End Date 31/12/2014
Programme Other domestic
Annotation The aim of the project is to gain new physics knowledge in the field of multiphase complex alloys, ceramics, composites and catalythically active surfaces of metals, plasmonic effects, fotovoltaic and thermoelastic polymer structures, as well as from the field of biosensors. The acquired knowledge should enable targeted functionalisation of materials with the goal to achieve required specific properties such as mechanical toughness, chemical selectivity, increased quantum efficiency of light conversion and others. The final aim will be a marked added value in research, development and the implementation of unique high-tech solutions based on a multidisciplinary approach and the connection of research subjects with the expertise in the field of physics of solids, quantum optics, materials engineering, anorganic chemistry, chemistry of polymers and biology.

Project Title Characterisation of special glasses via physical methods
Coordinator Assoc.Prof. Ing. Marian Kubliha, PhD.
Start Date 01/01/2012
End Date 31/12/2013
Programme APVV, SR Czech Rep.
Annotation The project is focused on the support of long-time co-operation between the Slovak and Czech partners in the field of study into special glasses, particularly in the case of special glasses on the basis of chalkogenides and exides of heavy metals for optoelectronic applications requiring very low contents of impurities and defects (e.g. content of OH groups usually does not exceed 0.0001 mol%). To analyse glasses, highly sensitive measuring methods of selected physical quantities are used along with conventional ones. Partners from the Czech Republic will prepare special glasses and carry out analysis of their optical properties. Researchers from the Slovak Republic will conduct analysis of electrical and dielectric properties in order to determine the quality of the prepared glasses, their homogeneity, amount and type of defects. The examined glasses are determined for the fields of photonics in the form of fibres transmitting the energy of lasers and optical signals (passive and active applications) as well as for the generation of radiation. The 4f4f shining transition is generally used after doping the glasses with rare earths serving also as active elements.

Project Title Chemical sputtering: Computational modelling of interactions in carboncontaining films when exposed to molecular ions and hydrogen EURATOM CU
Coordinator at MTF Prof. RNDr. Miroslav Urban, DrSc.
Start Date 01/01/2010
End Date 31/12/2012
Programme Euratom
Annotation The project focuses on the formation of small hydrocarbons, their chemistry and cracking pattern, upon the electron (e) and the impact and/ or thermodynamics of the formation of saturated lower hydrocarbons. The project assessed the interaction energies of the hydrogen, nitrogen and molecular ions with compounds and the creation of a model for interactions with hydrogenated carbon films.The outcomes included calculations of the ionisation potentials of small hydrocarbons, CxHy (CxHyDz) and their ions, their properties and thermodynamic stability.

Project Title Interactions in bio and nanosystems
Coordinator at MTF Prof. RNDr. Miroslav Urban, DrSc.
Start Date 01/05/2011
End Date 31/10/2014
Programme APVV, General Call
Annotation The bonding characteristics, including chemical and hydrogen bonds to weak intermolecular interactions are essential in apparently remote areas like biophysics and material sciences. Recently, benchmarking data was obtained for properties of molecules and their interactions, using the Coupled Cluster CCSD(T) method capable of recovering a substantial part of the electron correlation. It provides reliable predictions of molecular properties. innovations developed within the project remit to allow CC molecular calculations with more than 80 correlated electrons and basis sets with up to 1500 functions. Real applications require properties of large molecules and clusters, inaccessible to rigorous methods. As a result computationally less demanding DFT and semiempirical methods will be used. The accurancy control of appropriate methods using relativistic CC data for smaller model systems is essential in this project. Intermolecular interactions will be exploited "in silico" drug design, "docking and scoring" analysis and the description of the ligandactive site of the protein. The activity of "Aurora" kinase inhibitions in tumor cells, molecules with angiostatic activity, blocking the vascular endothelial growth factor receptor2 will be investigated. Reference data for metal ligand interactions related to the SAMS formation and catalysis on surfaces and cavities will be obtained. A model will be proposed as part of the research findings in order to summarise the application of Aunanoparticles in relation to material sciences and drug design. Polymer interactions based on HCNB clusters will also be studied.

Project Title Solidification and properties of novel peritectic TiAlbased alloys
Coordinator at MTF Ing. Svetozár Demian
Start Date 01/05/2011
End Date 31/10/2014
Programme APVV, General Call
Annotation Peritectic alloys based on TiAl are excellent candidates for near net shape casting of lightweight structural components for aircraft and automotive engines, industrial gas turbines and new generation of nuclear reactors. To advance the knowledge in the emerging casting technology sector of TiAlbased alloys, the SOPERIT project aims to investigate microstructure formation and segregation during solidification and solid phase transformations of novel peritectic TiAlbased alloys. The attention is directed to understand the effect of solidification parameters and alloying on the primary solidification phase, solidification path,phase equilibria, the columnartoequiaxed transition (CET, texture formation and nucleation activity of peritectic phase which will open up new opportunities for alloy and process design. The novel peritectic alloys with a fine grain structure will be designed and their microstructure and properties (chemical, physical and mechanical) will be characterised. Fine grain structure will be achieved through appropriate alloying affecting nucleation of peritectic phase and solid phase transformations. Unique CET experiments will provide advanced knowledge about the mechanisms of nucleation of exquiaxed grains, associated segregation and the necessary input data for CET modelling. Parallel to these research activities, laboratory near net shape casting techniques based on plasma melting in a water-cooled crystalliser and gravity casting into ceramic moulds will be developed.

Project Title Preparation and characterisation of composites with the polymer matrix – elastomer, reactoplast
Coordinator Mgr. Ondrej Bošák, PhD.
Start Date 01/01/2012
End Date 31/12/2013
Programme APVV, SR Czech Rep.
Annotation The project is aimed at mutual co-operation in the fied of preparation and study of newly developed materials on the base of rubber mixtures and composites based on polymer substances filled with non-oriented and oriented fibres and nanotubes. Partnering workplaces in the Czech Republic are able to prepare examined materials and diagnose common technical applications. The Slovak partner will focus on diagnostic methods either in the field of interaction of the electromagnetic field with material, or in the area of characterisation of the thermomechanical behaviour at elevated temperatures.

Project Title Research and development of advanced materials, processing and automation technologies for direct manufacturing and application
Coordinator Assoc.Prof. Ing. Martin Kusý, PhD.
Start Date 01/09/2011
End Date 31/08/2014
Programme Other international
Annotation The subject of the research is focused on advanced materials, processing and automation technologies for direct manufacturing and its application.

Project Title Structure, properties and processes at surfaces and interfaces of materials from first principles calculations.
Coordinator RNDr. Andrej Antušek, PhD.
Start Date 01/01/2012
End Date 31/12/2015
Program VEGA
Annotation The project is focused on density functional calculations of surface and interface structures relevant for materials science and chemistry. Through the application of methods of theoretical and computational chemistry the research will address the growth of a thin layer and the subsequent thermodynamic properties of such structures with possible applications in brazing and joining technology. Using our previous experience with intermolecular interactions, the research will model interactions of molecules with surfaces, with a focus on increasing the understanding of the bonding mechanism. For smaller model systems accurate relativistic CCSD(T) calculations will be used as benchmarks to verify DFT results. Wave function calculations may also be useful for the selection of a proper DFT fuctional.

Project Title Study of phase equilibria in advanced materials using aimed experiments and computational thermodynamics.
Coordinator Ing. Roman Čička, PhD.
Start Date 01/01/2011
End Date 31/12/2013
Program VEGA
Annotation The aim of the research project is to contribute to the thermodynamic description by creating and assessing the thermodynamic databases of selected materials systems for PBfree solders, advanced steels and complex metallic alloys. In the experimental part of the study the chemical and phase compositions of samples in investigated systems will be determined, their thermodynamic properties will be measured and phase transitions will be characterised. This data will be analysed and compared to results of computations of phase equilibria, using the CALPHAD method and the Thermocalc software. Based on this procedure, the thermodynamic description of phases in the investigated systems will be optimised and values of interaction parameters of components will be refined. These results should be useful for planning further research of new alloys in these systems, aimed to improve the properties of existing materials.

Project Title Study of crystal structure and thermodynamic properties of aluminiumbase and zincbase complex metallic alloys
Coordinator Prof. Ing. Jozef Janovec, DrSc.
Start Date 01/07/2012
End Date 31/12/2015
Programme APVV, General Call
Annotation The project is focused on the study of phases, their equilibria, and transformations due to changes in temperature and chemical composition in aluminiumbase and zincbase complex metallic alloys, as well as on the determination of their crystal structure, This study will be carried out using experimenal (Xray diffraction, DTA, DSC, TEM, electron diffraction, SEM, EDX, WDX, and EBSD) and theoretical (CALPHAD, DFT and empirical potentials) tools. Selection of alloys will be focused on systems where one component is either aluminium or zinc, and the remaining components are formed by transition metals. The project may significantly contribute to complementation and clarification of phase diagrams in areas that are less well-known and poorly studied. The emphasis will be placed on areas where structurally complex and quasicrystalline phases could be supposed. The contribution to finding of new quasicrystalline and structurally complex phases is anticipated. Theoretical study of these phases will lead to a more detailed description of their crystal structure, as well as to a deeper understanding of the relationship between the structure and physical properties.

Project Title Study into structural and mechanical stability of a new extremely hard coating for the construction and tool materials.
Coordinator Assoc.Prof. Ing. Ľubomír Čaplovič, PhD.
Start Date 01/01/2012
End Date 31/12/2014
Programme VEGA
Annotation The project is aimed at analysing the effect of structural, material and technological parameters of the current advanced coatings applied on the construction and tool materials in specific conditions of their application. Tha latest analytical techniques (HRSEM, HRTEM, EBSD, RTG difraction) will be used to examine the mechanism of forming wear-resistant types of PVD coatings on selected types of materials. The following evaluation of mechanical and tribological characteristics will be used to describe the influence of dynamic and static load of the layers on their operational reliability. The goal is to find a correlation between the internal construction of coatings, their interphase interfaces with substrate, structural tension relations in the layers, way of heat treatment prior to and post the PVD application and their tribological properties.

Project Title Properties of leadfree solders and their liquidstate and solidstate interfacial reaction with substrates
Coordinator Prof. RNDr. Milan Ožvold, CSc.
Start Date 01/01/2009
End Date 31/12/2012
Program VEGA
Annotation The aim of this project was to increase the basic knoxledge of the crucial properties of alloys that can be used as environmentally friendly altternatives to solders. The work covered the areas of physical, metallurgical and mechanical properties. The top properties were to measure the melting point temperature and surface tension. The surface tension of molten solder is a basic parameter affecting wettability together with flux. The wettability of the solder alloy and mechanical properties of joints are influenced by the interface reaction and intermetallic growth between the solder and under bump metallisation. The objective was to establish a (micro)structureproperty relationship and potential reliability issue of Pbfree solders.

Project Title Effect of exposition conditions on the development of binary and ternary phases in complex metal aluminium-based alloys.
Coordinator Prof. Ing. Jozef Janovec, DrSc.
Start Date 01/01/2012
End Date 31/12/2012
Program VEGA
Annotation The project focuses on the study of thermally activated development of binary and ternary phases in complex metal alloyes based on aluminium with the aim of specifying related phase diagrams. Alloys of AlTMTM type (TM=transition metal) will be annealed at various temperatures and subsequently rapidly quenched in order to preserve the state corresponding to exposition temperature. Tm was substituted by Pd, Fe, Co, Cr, Cu, Mn or other transition elements. X- ray difraction analysis, TEM, SEM, DTA, EDX, WDX and EBSD, as well as thermodynamic modelling used to analyse the phases. Attention was paid to the systems which havewere not previously studied. Based on the experimental results and available theoretical knowledge, thermodynamic parameters of the identified phases and enhance related thermodynamic databases were examined. The application of progressive experimental methods were prepared prerequisites for innovations in the methodology. The solutions contribute to the knowledge pool will the aim of possibly discovering new phases of original properties.

Project Title Effects of inhomogeneities on functional properties of hightemperature superconducting wires
Coordinator Mgr. Michal Skarba, PhD.
Start Date 01/01/2011
End Date 31/12/2014
Program VEGA
Annotation Nonmetallic superconductors based on a mixture of Y, Ba and Cu oxides (YBCO) are well known materials showing superconductive properties at relatively high temperatures. Structural analysis of micrometer superconductive layers on metallic substrate enables an understanding of the relationship between the parameters of preparation of layer and its properties. During deposition of layer on meallic substrate and during further processing, defects in the structure of thin layers of YBCO develop. These defects significantly affect the electromagnetic properties of superconductors, especially critcal current and ac losses. Information about defects in layers of YBCO, inferred from structural analysis, are useful for decreased imperfections of production of superconductive layers. It is also necessary for the development of superconductive devices, because they can have a significant influence on their working characteristics. Evaluations of structure of thin superconducitve layers will be performed mainly with (highresolution) TEM.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Employee	Country
Ing. Jana Bohovičová	Estonia Czech Republic
Mgr. Ondrej Bošák, PhD.	Czech Republic
Assoc.Prof.Ing. Ľubomír Čaplovič, PhD.	Japan Poland Germany Croatia Czech republic
Ing. Roman Čička, PhD.	Poland Australia
Assoc.Prof.Ing. Mária Dománková, PhD.	Germany
Ing. Marián Drienovský, PhD.	Poland
Mgr. Filip Holka, PhD.	Austria
Assoc.Prof.Ing. Mária Hudáková, PhD.	Czech Republic
Prof.Ing. Jozef Janovec, DrSc.	Turkey
Prof. Ing. Peter Jurči, PhD.	Czech Republic
Ing. Karin Kocúrová	Estonia
Ing. Pavol Konopka	Estonia Germany
Assoc.Prof.Ing. Marian Kubliha, PhD.	Czech Republic
Assoc.Prof.Ing. Martin Kusý, PhD.	Czech Republic Germany
Ing. Natália Navrátilová	Estonia Croatia
Ing. Andrej Opálek	Estonia
Ing. Ľubomír Orovčík	Estonia
Prof. RNDr. Milan Ožvold, CSc.	Czech Republic
Ing. Matej Pašák	Estonia
Mgr. Magda Péteryová	Czech Republic
RNDr. Pavol Priputen, PhD.	Germany Australia
Ing. Jozef Psota	Estonia
Ing. Martin Sahul	Estonia Germany Croatia Czech Republic
Ing. Kristián Šalgó	Estonia
Ing. Emil Seliga	Czech Republic Estonia
Mgr. Michal Skarba, PhD.	Germany
Ing. Mária Štefániková	Estonia Slovenia
Ing. Martin Tóth	Estonia
Prof. RNDr. Miroslav Urban, DrSc.	Czech Republic Austria USA
Paulína Zacková	Czech Republic

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Union of Slovak Mathematicians and Physicists
Mgr. Ondrej Bošák, PhD.

Slovak Physical Society
Assoc.Prof. Ing. Marián Kubliha, PhD.
Mgr. Ondrej Bošák, PhD.
Mgr.Andrej Dobrotka, PhD.
Prof. RNDr. Milan Ožvold, PhD.
Assoc.Prof. Ing. Róbert Riedlmajer, PhD.
Ing. Roman Čička, PhD.
RNDr. Igor Jančuška, PhD.
Mgr. Jozef Krajčovič, PhD.
Assoc.Prof. RNDr. Vladimír Labaš, PhD.
Prof. RNDr. Ján Kalužný, PhD.
Assoc.Prof. Ing. Stanislav Minárik, PhD.
RNDr. Pavol Priputen, PhD.

Slovak Chemical Society
Prof. RNDr. Miroslav Urban, DrSc.

Slovak Academy of Sciences / Metal Science Society
Prof. Ing. Jozef Janovec, DrSc.
Assoc.Prof. Ing. Ľubomír Čaplovič, PhD.
Ing. Lýdia Trnková, PhD.
Assoc.Prof. Ing. Mária Hudáková, PhD.
Ing. Viktória Sedlická, PhD.
Assoc.Prof. Ing. Martin Kusý, PhD.
Assoc.Prof. Ing. Roman Moravčík, PhD.
Mgr. Ondrej Bošák, PhD.

Information Society of Education
Mgr. Jozef Krajčovič, PhD.

Special Interest Group of Chemistry and Physics of Solid
Assoc.Prof. Ing. Ľubomír Čaplovič, PhD.

Slovak Astronomical Society
Mgr. Andrej Dobrotka, PhD.

Slovak Academy Society
Prof. RNDr. Miroslav Urban, DrSc.
Prof. Ing. Jozef Janovec, DrSc.

Learned Society at Slovak Academy of Sciences
Prof. RNDr. Miroslav Urban, DrSc.

Slovak Commission for Scientific Degrees
Prof. Ing. Jozef Janovec, DrSc.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

Minerals, Metals and Materials Society
Prof. Ing. Jozef Janovec, DrSc.

IUCr International Union of Crystallography
Assoc.Prof. Ing. Ľubomír Čaplovič, PhD.
Prof. Ing. Jozef Janovec, DrSc.

European Physical Society
Assoc.Prof. Ing. Róbert Riedlmajer, PhD.
Assoc.Prof. Ing. Marián Kubliha, PhD.
Mgr. Ondrej Bošák, PhD.
Ing. Roman Čička, PhD.

Czech and Slovak Crystallographic Association
Assoc.Prof. Ing. Martin Kusý, PhD.
Assoc.Prof. Ing. Ľubomír Čaplovič, PhD.

Czech Society for New Materials and Technologies
Prof. Ing. Peter Jurči, PhD.

Regional Committee of the IUCr
Assoc.Prof. Ing. Ľubomír Čaplovič, PhD.

CVC Working Group Integral
Mgr. Andrej Dobrotka, PhD.

Association for the Heat Treatment of Metals
Prof. Ing. Peter Grgač, PhD.
Prof. Ing. Peter Jurči, PhD.

European Powder Metallurgy Association
Prof. Ing. Peter Jurči, PhD.

North-Atlantic Consortium on Non-Oxide Glasses (NACNOG)
Prof. RNDr. Ján Kalužný, PhD.
Assoc.Prof. Ing. Stanislav Minárik, PhD.
Assoc.Prof. Ing. Marián Kubliha, PhD.
Assoc.Prof. RNDr. Vladimír Labaš, PhD.

Norwegian Chemical Society
Mgr. Marián Palcut, PhD.

Union of Czech Mathematicians and Physicists
Mgr. Jozef Krajčovič, PhD.

International Society for Theoretical Chemical Physics
Prof. RNDr. Miroslav Urban, DrSc.

World Association of Theoretical and Computational Chemists
Prof. RNDr. Miroslav Urban, DrSc.

International Academy of Quantum Molecular Science
Prof. RNDr. Miroslav Urban, DrSc.

PUBLICATIONS (most important publications in 2012)

Antušek, Andrej - Kedziera, D - Kaczmarek-Kedziera, A - Jaszunski, M.: Coupled cluster study of NMR shielding of alkali metal ions in water complexes and magnetic moments of alkali metal nuclei. – **registered in : Web of Science, Master Journal List, Scopus**. In: Chemical Physics Letters. - ISSN 0009-2614. - Vol. 532 (2012), pp. 1-8

Benkovská, Jana - Stuchlíková, Ľubica - Búc, Dalibor - Čaplovič, Ľubomír: Electrical Characterization of 4H-SiC Schottky Diodes with RuWOx Schottky Contacts before and after Irradiation by Fast Electrons. – **registered in: Web of Science, Master Journal List, Scopus**. In: Physica Status Solidi (A)-Applications and Materials Science. - ISSN 1862-6300. - Vol. 209, Iss. 7 (2012), s. 1384-1389

Čaplovičová, M. - Billik, Peter - Čaplovič, Ľubomír - Brezová, Vlasta - Tturáni, T. - Plesch, Gustav - Fejdi, P: On the true morphology of highly photoactive anatase TiO2 nanocrystals. – **registered in: Web of Science, Master Journal List, Scopus**.In: Applied catalysis B Environmental. - ISSN 0926-3373. - Vol. 117-118 (2012), pp. 224-235

Dobrotka, Andrej - Mineshige, S. - Casares, J.: A flickering study of nova-like systems KRAur and UUAgr. – **registered in: Web of Science, Master Journal List, Scopus**. In: Monthly Notices of the Royal Astronomical Society. - ISSN 0035-8711. - Vol. 420, Iss. 3 (2012), pp. 2467-2474

Jaszunski, M. - Antušek, Andrej - Garbaczewski, Piort - Jackowski, K. - Makulski, W. - Wilczek, M.: The determination of accurate nuclear magnetic dipole moments and direct measurement of NMR shielding constants. – **registered in: Web of Science, Master Journal List, Scopus**. In: Progress in Nuclear Magnetic Resonance Spectroscopy. - ISSN 0079-6565. - Vol. 67, November 2012 (2012), pp. 49-63

Kraus, Michal - Pitoňák, Michal - Hobza, Pavel - Urban, Miroslav - Neogrády, Pavel: Highly Correlated Calculations Using Optimized Virtual Orbital Space with Controlled Accuracy. Application to Counterpoise Corrected Interaction Energy Calculations. – **registered in: Web of Science, Master Journal List, Scopus**. In: International Journal of Quantum Chemistry. - ISSN 0020-7608. - Vol. 112, Iss. 4 (2012), pp. 948-959

Kusý, Martin - Behúlová, Mária - Grgač, Peter: Influence of the thermal history of a particle during atomization on the morphology of carbides in a hypereutectic iron based alloy. - abstract published in Proceedings of ISMANAM 2011, p. 89. – **registered in: Web of Science, Master Journal List, Scopus**. In: Journal of Alloys and Compounds. - ISSN 0925-8388. - Vol. 536 (2012), s. 541-545

Melicherčík, M. - Pašteka, L.F. - Neogrády, Pavel - Urban, Miroslav: Electron affinities of uracil: Microsolvation effects and polarizable continuum model. – **registered in: Web of Science, Master Journal List, Scopus**. In: Journal of Physical Chemistry A. - ISSN 1089-5639. - Vol. 116, Iss. 9 (2012), pp. 2343-2351

Ness, Jan-Uwe - Schaefer, B. E. - Dobrotka, Andrej - Sadowski, Andrzej - Drake, J.J. - Barnard, R - Talavera, A - Gonzalez-Riestra, R. - Page, K. L. - Hernanz, M. - Sala, G. - Starrfield, Sumner: From X-ray dips to eclipse: Witnessing disk reformation in the recurrent nova U Sco. – **registered in: Web of Science, Master Journal List, Scopus**. In: Astrophysical journal. - ISSN 0004-637X. - Vol. 745, Iss. 1 (2012)

Palcut, Marián - Mikkelsen, Lars - Neufeld, Kai - Chen, Ming - Knibbe, Ruth - Hendriksen, Peter V.: Efficient dual layer interconnect coating for high temperature electrochemical devices. – **registered in: Web of Science, Master Journal List, Scopus**. In: International Journal of Hydrogen Energy. - ISSN 0360-3199. - Vol. 37, Iss. 19 (2012), pp. 14501-14510

Palcut, Marián - Mikkelsen, Lars - Neufeld, Kai - Chen, Ming - Knibbe, Ruth - Hendriksen, Peter V.: Improved oxidation resistance of ferritic steels with LSM coating for high temperature electrochemical applications. – **registered in: Web of Science, Master Journal List, Scopus**. In: International Journal of Hydrogen Energy. - ISSN 0360-3199. - Vol. 37, Iss. 9 (2012), pp. 8087-8094

Pašteka, Lukáš - Melicherčík, Miroslav - Neogrády, Pavel - Urban, Miroslav: CASPT2 and CCSD(T) calculations of dipole moments and polarizabilities of acetone in excited states. – **registered in: Web of Science, Master Journal List, Scopus**. In: Molecular Physics. - ISSN 0026-8976. - Vol. 110, Iss. 18 (2012), pp. 2219-2237

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Trnovcová, Viera - Kubliha, Marián - Labaš, Vladimír - Kadlečíková, Magdaléna - Pedlíková, Jitka - Greguš, J. - Slabeycius, Juraj: Structure and Optical Properties of TeO(2)PbCl(2)PbF(2) Glasses Doped with Pr and Er, Prepared in Au or Pt Crucibles. – **registered in: Web of Science, Master Journal List, Scopus**. In: Journal of Optoelectronics and Advanced Materials. - ISSN 1454-4164. - Vol. 14, No. 1-2 (2012), pp. 77-83

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Chaus, Alexander - Čaplovič, Ľubomír - Chaus, Yu.A. - Sojka, Jaroslav: Characterisation of C-B-N Diffusion Layers Developed on High-Speed Steel Substrate. - **registered in: Web of Science, Scopus**. In: Defect and Diffusion Forum. - ISSN 1012-0386 (E). - ISSN 1662-9507 (P). - Vol. 326-328 (2012), pp. 285-290

Demianová, Kristína - Behúlová, Mária - Ožvold, Milan - Turňa, Milan - Sahul, Miroslav: Brazing of aluminum tubes using induction heating. - **registered in: Web of Science, Scopus**. In: Advanced Materials Research. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 463-464 : 2nd International Conference on Advanced Material Research, ICAMR 2012, Chengdu, 7-8 January 2012 (2012). - ISBN 978-303785363-4, pp. 1405-1409

Grgač, Peter - Behúlová, Mária - Moravčík, Roman - Mesárošová, Jana: Semi-quantitative model of the microstructure development in the high-alloyed iron based alloy during atomization. - abstract published in the Proceedings of The 14th International Conference on Rapidly Quenched and Metastable Materials. RQ 14 : Program and Book of Abstracts. Salvador, BA, Brazil, 28 August to 02 September 2011. - , 2011. - S. 23. - **registered in: Web of Science, Master Journal List, Scopus**. In: Materials Research. - ISSN 1516-1439. - Vol. 15, Iss. 5 (2012), pp. 705-712

Šimeková, Beáta - Hodúlová, Erika - Kovaříková rod. Sukubová, Ingrid - Palcut, Marián - Ulrich, Koloman: Growth of the IMC at the interface of SnAgCuBi (Bi = 0,5; 1,0) solder joints with Cu substrate. - **registered in: Web of Science, Master Journal List, Scopus**. In: Tehnicki Vjesnik - Technical Gazette. - ISSN 1330-3651. - Vol. 19, No. 1 (2012), pp. 107-110

Moravčík, Roman - Štefániková, Mária - Čička, Roman - Čaplovič, Ľubomír - Kocúrová, Karin - Šturm, Roman: Phase Transformations in High Alloy Cold Work Tool Steel. - ITMS 26220120048. In: Strojniški vestnik - Journal of Mechanical Engineering. - ISSN 0039-2480. - Vol. 58, No. 12 (2012), pp. 709-715

This part of Annual Report 2012 was verified by Prof. Ing. Jozef Janovec, DrSc.

INSTITUTE OF PRODUCTION TECHNOLOGIES

CONTACT

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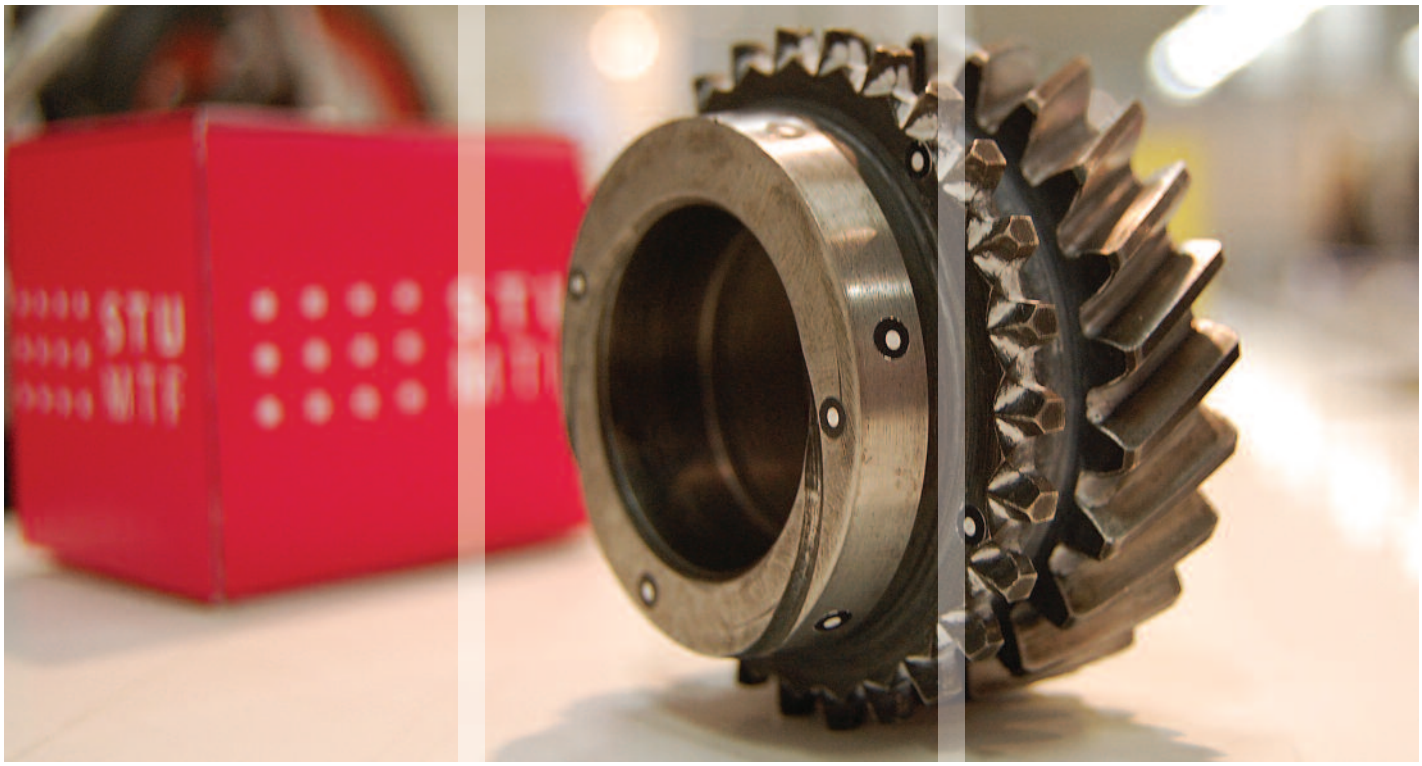

INSTITUTE DEPARTMENTS

- Department of Welding
- Department of Machining and Assembly
- Department of Foundry
- Department of Forming

STAFF

- Professors: 6
- Assoc. Professors: 12
- Senior Lecturers: 12
- Research Fellows: 10
- PhD Students: 61

EDUCATION AT THE INSTITUTE

STUDY PROGRAMMES OFFERED AT THE INSTITUTE

Bachelor's level:
Computer-Aided Production Technologies
Production Technologies

Master's level:
Machining and Assembly
Computer-Aided Design and Production
Welding
Industrial and Art Casting

Postgraduate level:
Machine Technologies and Materials

Number of the students (as at 30/10/2011) registered on study programmes offered by the Institute: 642
Number of graduates (2010/2011) of the study programmes offered by the Institute: 228

ACTIVITIES OF THE INSTITUTE

27/02/2012 - Meeting with Bauer Gear Motor GmbH Company
22/03/2012 - Exposition of photographs by Prof. Marônek in "Trnava Objective 2012" Exhibition
03/04/2012 - Seminar ESAB
26-27/04/2012 - "Production and defects of toothwheels and gears" International Conference
05-08/09/2012 - Forming 2012 Conference
01/06/2012 - Presentation by the TRUMPF Company
12/06/2012 - Seminar on Forging
09-14/09/2012 - Presentation as part of the International Engineering Fair in Brno (Czech Republic)
07-09/11/2012 - Presentation as part of the exhibition "Week of Science and Technology in Slovakia 2012"

GRADUATE PROFILE

BACHELOR'S PROGRAMMES (Bc.)

Production Technologies
The graduate will understand the theoretical and practical issues in production technologies and systems. The graduate will be equipped with the skills to solve creatively the tasks in the field of production, seek new progressive technology procedures in the production of parts and technology units, using modern technology devices and information systems. After completion of the programme, the graduate will be well prepared either to continue with at Master's degree level, or to enter the job market as a technologist or a team member in various areas of industry in both private and public sectors.

Computer-Aided Production Technologies
The graduate will be able to perform the role of a production technologist and able to operate computational technology CAx systems and Cax technologies used in the production preparation and control. The graduate will be able to prepare technical documentation and design and manufacturing stage of the production process, design programs for CNC machine tools, design complex 3D products and simulate preparation of their production. After completion of the programe, the graduate will also be able to implement and operate production and technological systems in a position of a CAD/CAM specialist, designer of tools and a programmer of CNC machine tools using appropriate computer systems and software.

MASTER'S PROGRAMMES (Ing.)

Machining and Assembly
The graduate will gain a complete Master's degree education in the production of machine parts and implementation of the latest technologies, in particularly the field of chip and chipless machining and products assembly. The graduate will fully understands the changes of material properties during the machining and principles of machine parts assembly. The graduate will have obtained a deep theoretical knowledge in the field of production technologies (machining, welding, forming, foundry and assembly), materials, tools, fixtures and machine tools supported by the knowledge of CAx technologies and systems. The graduate will be suitably prepared to work as a production specialist, tool designer, CNC and assembly specialist, as well as a leader in the sectors manufacturing process design.

Computer-Aided Design and Production
Graduates from the programme will be suitably training to perform activities accompanied with the CAx Technologies and systems application. After completion of the programe, the graduate will be able to lead teams utilising engineering computer analyses, simulations of production processes, computer technologies in the field of manufacturing process design, or work as managers and entrepreneurs in the field of computational technology and CA system implementation in production processes.

Industrial and Art Foundry
The graduate will have gained an indepth knowledge of the technological processes of liquid metal preparation, production of moulds for industrial and art castings with high-precision and high-quality surface. The graduate will be equipped with the theoretical knowledge of metallurgy of casting materials, processes, design of castings' mould, moulds manufacturing, and apertures of castings. The graduate will be able to work with computational technology, software for simulation of casting processes, computer-aided design of the casting shape, and prediction of casting properties in the phase of production preparation. The graduate can autonomously design technological procedures and control production in a foundry. The skills gained will enable the graduate to perform effectively in the public and private sectors, research roles, as well as in construction and project workplaces.

Welding
After completion of the programme, the graduate will be obtain the skills to evaluate the selection of materials, technology feasibility and modern progressive concepts of products that will be manufactured by welding, other joining technologies and cutting. The graduate will have simultaneously gained the knowledge of the computational technology utilisation and computer simulations in the field of thermal processes in order to minimise degradations of the chosen materials. The graduate will be able to justify safety risks and provide solid outcome for the economic assessment of a product. After completion of the programe, the graduate can successfully perform at a high level in industrial production, university research, both domestic and abroad, as well as in managerial positions requiring knowledge in the field of materials and their further progressive technological processing.

POSTGRADUATE PROGRAMMES (PhD.)

Machine Technologies and Materials
The graduate will have developed a wide range of theoretical knowledge in the field of metallurgy, progressive technologies of chipless and chip processing of materials, computer support and applications of CA technological systems, simulations and automation of technological processes. The graduate will have mastered the scientific methods of research and development in production processes, particularly in technologies of machining, welding, forming, foundry, machine metrology, assembly, powder metallurgy and CA technologies. After completing the programe the gradaute will be able to autonomously articulate and solve research tasks, and to lead a research team. The graduate will be able to find employment in research and development institutes in managerial positions in the field of sophisticated production technologies, and in engineering universities.

LIST OF SUBJECTS OFFERED BY THE INSTITUTE

- Assembly Technology and CAA systems
- Assembly Theory
- Atelier of Computer-Aided Design and Manufacturing I, II, III
- Automation of Foundry Production
- Bachelor Project
- Bachelor Thesis
- Bulk Forming Processes
- CA systems and Computer Simulation Processes
- CAPP I, II
- CAx technologies
- Computer Aided Forming Technology
- Computer Aided Productions Technologies I, II, III
- Computer Aided Welding Technology
- Design and Manufacturing of Welding Constructions
- Design for Manufacturing
- Dissertation Project I, II, III, IV, V, VI
- Equipment for Foundry and Metal Casting
- Experimental Methods in Forming
- Experimental Methods in Machining
- Final Project
- Finishing Methods of Machining
- Forming Machines
- Forming Machines and Tools
- Forming Technology
- Forming Tools
- Foundry Technology
- Geometrical Product Specification
- Graduate Project
- Graduate Thesis
- Inspection in Welding
- Introduction to Computer Aided Production Technologies
- Machine Tools and Tools
- Machining Technology and Assembly
- Measuring and Control Parameters of Products
- Mechanization and Automation in Machining
- Metallurgical Processes in Casting
- Methods of Scientific Work
- Metrology
- Metrology and CAQ systems
- Paedeutical Activity I, II, III, IV, V, VI
- Planning of Welding Manufacture
- Pre-degree practice
- Professional Practice
- Production Systems II
- Programming of CNC Machines
- Progressive Machining Methods
- Progressive Methods of Assembly
- Progressive Methods of Moulds and Cores Production
- Projecting of Production Processes and Systems Design
- Quality Control and Casting Defects
- Quality Control of Weld Joints
- Quality Management Systems
- Research Work I, II, III
- Selected Parts from Theory and Technologies of Casting
- Selected Parts from Theory and Technologies of Forming
- Selected Parts from Theory and Technologies of Machining, Metrology and Assembly
- Selected Parts from Theory and Technology of Welding
- Semester Project
- Soldering and Brazing
- Special Casting Technologies
- Special Technologies of Artistic Castings Production
- Special Welding Methods
- Technical Preparation of Production in Machining and
- Forming
- Technical Preparation of Production in Welding and Casting
- Technological Design
- Technology of Cast Iron Production
- Technology of Powder Metallurgy
- Theory of Casting
- Theory of Forming
- Theory of Machining
- Theory of Welding
- Tribology
- Welding Machines and Equipment
- Welding Technology

GRADUATE PROFILE

Bachelor Theses

Ambruš, L.: Welding review of DP steels in the automotive industry
Antal, A.: Cast electrotechnical materials
Bartoš, M.: The influence of deformation on the reinforcement of cold formed steel-tube reducers
Beňák, F.: Design and construction of injection form by using CAD systems
Bestvina, R.: The application of electroerosive cutting during adjustment of the mold for pressure injection molding
Bobok, R.: Creating animations of selected methods for measuring
Bohuš, R.: Beam methods of material cutting
Bunčiak, M.: Modelling of turning and drilling tools
Daučo, J.: Possibilities of computer support for nanotechnologies
Detony, Ľ.: Potential uses of computer technology in the technological process of drawing
Dolnačko, M.: Binder of molding compositions based resins
Drozd, J.: Laser technology in machining
Duga, D.: The draft of external profiling cutting insert with support of CAD software
Ďuriš, P.: Surfacing of metal powders by induction heating
Fekete, I.: Laser welding of magnesium and its alloys
Gajdoš, M.: Circular interpolation in CAM and CNC machines
Gál, M.: Designing Injection Mold for Babyplast Molding Machine
Goga, J.: A proposal for increasing efficiency of component manufacturing
Greguš, R.: Computer Aided Finishing
Grúber, R.: Measuring the cutting forces in machining
Henčel, L.: Exploitation of CAx systems in CNC machining
Híreš, M.: Utilisation of advanced methods for modeling of milling tools
Horváth, M.: Production of a robotic telescope pointing device
Hučka, J.: Part production at multi spindle automatic machines
Chranček, J.: Hybrid technologies of weld bonded materials
Janek, P.: The effect of size reduction on the mechanical properties of drawn tubes
Janíková, K.: Comparison of methods for measuring straightness
Jankovič, P.: Optimalisation of control machine IK in INA SKALICA spol. s.r.o. company
Jedlička, D.: Simulation of cutting materials in program ABB RobotStudio
Konečná, L.: CAPP systems in practice
Kováč, J.: The modelling of a moulding press for making snap rings
Krčmárik, I.: Mathematical analysis of lead-free soldered joints
Leško, M.: Design for the manufacture of a wood bandsaw with laser cutting technology
Lisinovič, M.: Adaptive control of the CNC machine in system Heidenhain
Lobodáš, M.: Laser beam welding with the use of a robot
Lubina, J.: Progressive methods of cladding to increase the quality of clad
Macek, E.: Nails production tools
Manca, Š.: Computer aided processes of bulk forming
Masaryková, R.: The current trends and methods to increase the life of forming dies
Matejovič, J.: Creation of postprocessor for the CNC machining centre
Nádaský, D.: A comparison of construction systems in the Magna Ltd. Company
Nádaský, M.: Welding of malleable cast iron with other metals
Očenáš, M.: 5-axis milling of thin-walled parts in the aerospace industry
Palková, J.: The use of laser beam cutting in practice
Pavelek, Ľ.: Design of the soft solder for soldering with the support of power ultrasound
Pavka, O.: New trends in the field of cutting
Petrovič, M.: The current status of ceramic materials soldering
Pikálek, P.: Design of the chain conveyor with a versatile device for two types of parts
Polák, A.: Design considerations of castings
Ponca, M.: Theoretical analysis of the possibilities to increase the life of forming tools
Remeš, N.: The application of CA Technologies in the design and manufacture of bearing reducer flange
Rovný, O.: The application of unconventional materials, elements and principles in machine tool construction
Satin, L.: Design of an injection tool for automobile parts
Semjan, P.: A study of the high-speed forming process
Schay, M.: A proposal of production technology for aluminium parts
Stano, T.: A proposal of the manufacture for plastic moulding
Straka, J.: Welding process of tracks
Struhár, F.: 3D digitalising and rapid prototyping application for the designing and making of a fire-arm pattern
Šilhár, J.: The characteristics of surface modeling in CAD softwares
Šmida, M.: Edit postprocessor in FeatureCAM software
Špányi, M.: Options for simulation of the wire drawing process
Štefan, M.: The use of TRITOP measurement of oversized objects
Štibrányi, P.: Testing of welded joints of new ultrasonic techniques
Švec, P.: Modeling of circle profile
Tomáška, J.: Analysis of fittings production in Slovakia
Tóth, M.: Rationalisation of an assembly station in Mühlbauer AG company
Tóth, R.: Uses of virtual reality in welding
Triznová, J.: Measurement of the polar coordinates
Uhrinec, L.: Alternative control systems for CNC machines
Urbanovič, L.: Technology analysis of severe plastic deformation
Uváček, M.: Design considerations in investment casting
Vachálek, J.: Voxel application in the simulation software
Val'o, M.: A proposal of Hi-Pot set-up assembling
Valúch M.: Rationalisation of membrane gas-meter assembly
Vetrík, Ľ.: Importance of development of flashless die forging
Vičík, V.: Practical problems of data acquisition during 3D digitisation
Vydra, P.: Potential uses of computer technology in the technological process of bending
Zahnaš, L.: Programming of CNC machines in engineering operations
Zaujec, R.: NC verification software
Žilinčík, R.: Design and manufacturing of a pressing tool

Master's Theses

Babicz, D.: Milling composite materials
Bočko, T.: Utilisation of an ozonizer to increase the lifespan of cutting fluids
Bogár, D.: A study to establish electro-discharge machining at KOM ÚVTE MTF STU
Bogdányi, L.: Design and manufacturing of car bodywork with the use of digitising, milling and laminating
Brtáň, R.: A proposal to rationalise the structure of the trailer hitch using the final elements method in GALIA SLOVAKIA Ltd
Bučko, M.: Comparison of methods for the evaluation of cylindricity variation using a coordinate measuring machine
Budzel, V.: The use fire devices assembly in Technicom, s.r.o. Komarno
Bunček, V.: A tudy into the properties of duplex steels plasma weld joints
Cintavý, L.: Methods of fluxless soldering of aluminium and its alloys
Čapkovič, J.: The impact of the chemical composition on aesthetic characteristics and processing of sculptural bronze
Černý, M.: Design enhancements for the reinforcement of a map pocket
Čief, M.: Creation of parametric models in CATIA V5
Doboš, D.: The rationalisation of production and installation of a garage system
Drienik, J.: The toolwear measuring process of the ball end mill
Drlička, R.: Welding titanium by laser beam
Drobný, M.: Design and production of stainless steel tools
Ďuriš, J.: Design production guide bush to HK 2315
Dvorák, M.: Testing of the protein-based system binder
Fišerová, M.: Rationalisation of the hole production while producing chosen components
Frankovič, J.: Innovation of the glass mould production by 5-axis machining
Gaži, M.: Design of a measurement plan for measuring component back cover on a coordinate measuring machine
Gergely, M.: Monitoring the effect of critical parameters on fluidity ZnAl4Cu3 alloy cast into silicone molds by centrifugal casting
Giertl, R.: Draft inflow system coating process and artistic cast figural sculpture with the application of precision casting technology
Glasnák, M.: Repair of auxiliary fuel tanks in aircraft technology
Gombár, R.: Design of complex components for determining the accuracy of CNC milling machines
Harárová, A.: Design, stress analysis and manufacture of bow limbs
Hevier, J.: Concept of a conveyobelt in MANZ AG company
Horváth, M.: The influence of temperature for dimensional stability to silicone mould
Horváth, T.: Turning of composite materials
Hovančák, D.: Analysis of internal stress of the weldment of rope disk in the manufacturing process
Hrbatý, L.: The influence of selected parameters of silicone mould centrifugal casting on the dimensional accuracy of casts
Hrebíková, M.: Design of sports medals through the application of ArtCAM software
Chudý, J.: The cutting forces during turning process
Jackulík, L.: Welding of door panels in the automotive industry with the use of ultrasonic
Jáňa, M.: The effect of atmosphere and vacuum on character of welded joints fabricated by explosion
Jókay, J.: Determination of a contact point position of a measuring arm
Kalný, Ľ.: Renovation of painting lines for the car body
Katrušák, R.: Proposal of welding technology for the repair of car bodies welding seams
Kazík, P.: The influence of high-speed milling to a machined surface
Kissová, T.: Study of an anorganic binder system based on sodium silicate
Klenko, M.: The innovation of the production process of glass mould in GM Technology, Trenčín
Kočitý, M.: Cutting force in 5 - axis milling
Kolenič, A.: A study of selected properties of composite weld deposits with spherical WC
Kösegi, T.: The measurement of thin-walled part static deformation during five-axis milling
Kostelný, M.: The effect of water factor molding mixtures based on gypsum - anhydride with a share of minced quartz in hardness and shear strength
Kovács, A.: CB cores application possibilities in the production of castings by the Tekcast method
Kovačič, Ľ.: Laser beam welding of AlMg5 alloy
Kováčik, M.: Experimental research of the influence of temperature electrolyte by electrochemical polishing of castings on technological process properties
Kovařík, V.: The use of reverse engineering for creation of spare parts for a printer
Koyšová, D.: Study into the influence of crystalisation rate to produce primare structure of high speed steels for cast cutting tools
Krajčí, M.: Simulation design of an automated welding cell using simulation software Robcad
Krajčovič, J.: Simplification of robot controlling through the use of standard movements
Krajčovičová, M.: The design of a measuring plan for a brake hub on a coordinate measuring machine
Kráľovičová, K.: Parametric model of hip endoprosthesis
Kršková, L.: Laser micromachining of tool steels
Kršteník, J.: Design of the control process for the production of car chassis
Kubičková, S.: Property analysis of selected silicone compounds during the vulcanisation process and under thermal stress in casting
Kubošek, M.: Proposal of a grease separators construction in the Wonderwerk company
Kuruc, M.: Improving the shape precision and the surface quality of welding areas
Lavrinčíková, D.: The influence of core sand on properties of the bentonite molding mixture for the rough-

ness of surface and dimensional accuracy of a cast
Longauer, J.: Experimental research into the influence of voltage rate by electrochemical polishing of castings on technological process properties
Magula, R.: A proposal of quality control for spot and laser weld joints on automobile body's in the PSA Slovakia s.r.o. Trnava factory
Majbová, A.: Metallurgical joining of Mg alloys
Majtánová, L.: A study into the influence of crystalisation conditions of silumin AlSi12 on the morphology of eutectic silicon and the character of alloy fracture
Maruškinová, Z.: The mechanical properties of molding sands with protein based binder
Matula, P.: The rationality of clutch facing production
Matušík, J.: Flatness measuring by the non-contact method
Mihalik, P.: Design and production of blister forming tool for volume computer – aided
Michalík, J.: The influence of material condition on machined surface quality of C45 steel
Michalíková, M.: An investigation into the effect of work stress on cast gloss in the plasma
Miklovič, V.: The rationalisation of assembly workplaces
Mitríková, L.: A study into the influence of different amounts of added AlTi5B1 on the size of dendritic cells in the alloy AlSi9Cu1
Muráň, T.: A proposal of assembly workplaces for pneumatic cylinder assembly
Nižnánsky P.: Thermal circle in the fusing process of welding
Pauer, A.: The influence of clamping on circularity with the production of opening
Paulínyová, Z.: The productivity of welding steel structures increased application of tubular cored wire welding in a controlled atmosphere
Pavelka, T.: Surfacing metallic powders on steel by induction heating
Perička, S.: Design of welding parameters austenitic steel and construction steel by laser welding
Petrušek, M.: The effect of the thermal regime on the properties of AlCuMg alloys
Podhájsky A.: Researching of the properties of pressing when compressing a mixture of metal powders
Polakovič, R.: Optimalisation parameters of plasma arc welding sheets treated by nitrooxidation
Poliak, J.: Cutting forces in threads turning
Porubský, P.: Plan of the calibration process for calibration of selection measurings to meet the specifications of Lindenmaier Slovakia s.r.o.
Prach, M.: Soldering of silicon with solders with small content of lanthanides
Pšenko, M.: The construction of a historical vehicle scale model by using CAD software and rapid prototyping technology
Púchly, M.: Software application for calculation of milling tool bending
Pukanec, J.: Creating of electronic didactic aids for education of casting technology subjects
Puskásová, S.: A study into the influence of thermal aging of solder joints Cu/lead-free solder
Radošický, B.: Drilling composite materials
Ragula, M.: Computer-aided design forming tool for sheet metal forming
Rehák, M.: Computer aided design and production of a memory coin
Rusnák, M.: Requests of management and fusion welding processes in the preparation phase of K-SUPRA, Ltd. company for certification STN EN ISO 3834-2
Rusnáková, M.: Geometric-kinematic conditions of turning of a low-stiff workpiece
Sadovský, G.: Controlling the technological process of electrical discharge machining
Schanz, T.: Optimising of shielding gas consumption in MAG welding
Schmidt, R.: Programming of the monitoring system for cutting fluids
Strečanský, L.: A proposal for a hybrid power system for the Centre of Excellence
Struška, B.: Automating the packaging of products in Würth International Trading Ltd.
Strýček, P.: Circular aperture manufacturing with plasma technology in SLKB a.s
Suchý, M.: Suggested optimal technology of welding feeder shoots
Surový, R.: Production design parts of the cover plate on the CNC milling machine in the Sauer-Danfoss company
Šantavý, D.: Optimalisation of measuring mechanical properties of soldered joints
Šimončič, D.: Design of the process parameters for laser engraving
Šipkovský, M.: A proposition of welding technology for aluminium components used in air conditioning units
Škoda M.: Design and manufacture of an electric guitar through the use of lamination technology
Škojec, M.: The structural design and manufacturing forming tool
Tejbus, M.: Cross-section of the cutting layer by 5-axis milling
Teplan, T.: Laser welding of AlCuMg alloy and the optimisation of its parameters
Tomaníček, V.: The impact of CAM strategies on cutting forces during milling
Tužinská, M.: The impact of core compounds in a single mixture of bentonite molding mixture of strength in the zone of condensation water
Uriča, M.: Welding light alloys by FSW process
Vagovský, J.: A draft measuring plan for measuring the ZSB pump on the coordinate measuring machine to meet the specification of ZF SACHS Slovakia a.s.
Varga, E.: Area visualisation of the Faculty of Materials Science and Technology
Váry, G.: The application of coated cutting tools in the production of special part components
Venény, P.: Production design of foundry model with the use of CAx Technologies
Vičíková, D.: Geometric-kinematic conditions of milling of a low-stiff workpiece
Volek, J.: Circularity of turned components
Vopát, T.: Manufacturing of complex turned parts
Vörös, M.: Models of surface roughness parameters Ra and Rz as depending on the feed and depth of cut in grinding
Vozár, P.: Construction and proposals for improvements for a low-cost 3D scanner
Závodný, M.: Substitution hand welding workplace robotics
Zelíska, I.: Modeling and proposal of machining part of a turbocharger
Žažo, M.: Vibration welding of plastics in the automotive industry

PhD Theses

Augustin, P.: The influence of a small amount of Al on the properties of SAC lead-free solder
Babalová, E.: Experimental and numerical approaches to the investigation of laser cutting processes
Bártová, K.: Exposure conditions effect on phase stability and corrosion resistance of alloyed steels
Beňo, M.: Research of technology possibilities of CNC turning with the use of a counter spindle
Bernadič, Ľ.: Research of the influence of punching dies on slug pulling in car sheet metal punching
Bútora, P.: Gates system optimisation of tools for two-component injection molding of thermoplastics
Koleňáková, M.: Lead-free solders for higher application temperatures
Kováč, M.: Research technological capabilities of 5-axis HSC and HSM machining
Kravárik, Ľ.: Research of precision forging in closed dies
Krivošík, M.: Materials diagnostics and residual life of the welding constructions of steel
Maračeková, M.: The influence of fixative forces on the accuracy of turned workpieces
Martančík, B.: Research of defects diagnosis using the new ultrasonic testing methods TOFD a phased array and the impact on the residual life of welded structures
Martančíková, G.: The application of Computer Aided systems in arc welding
Mikoláš, J.: A study of the micromachining process of stainless steel by pulsed Nd:YAG laser
Ondruška, J.: Explosion welding of maleable cast iron with other metals
Porubský, J.: Using tungsten to improve the structure and performance of high-speed steels for cast cutting tools
Provazník, M.: Solderability of ceramic and non-metallic materials
Sahul, M.: Welding of selected dissimilar steels with laser
Sojka, J.: Investigation of microstructure and mechanical properties of nodular ductile cast iron after hot mechanical working using technology of direct extrusion
Vrábec, J.: The influence of crucial parameters using the Tekcast method for the technological process of zinc alloy castings production
Zemko, P.: The influence of incremental forming on exploitation properties of spun parts made by metal spinning
Zvončan, M.: Research into edgechipping with the use of rotary ultrasonic machining

RESEARCH AT THE INSTITUTE

Areas of Research
- Production and control of components with complex forms and strict surfaces
- Numerical simulation and optimisation of sheet metal and bulk forming processes
- Modification of surfaces of stainless steel with plasma discharge in electrolytes
- Art casting
- Classical and special methods of joining and cutting metallic and non-metallic materials
- Tribology and surface engineering
- All important and original results are presented at our Institute, at seminars and conferences at home and abroad, and are published in reviewed or non-reviewed scientific journals and in professional journals.
- The results from the research activities are transferred to the educational process within specific subjects and also as part of Bachelor's, Master's and PhD programmes.

Research characteristics
Research at the Institute of Production Technologies is focused on industrial technologies with respect to research and development in the sphere of high-tech technologies. The main fields of industrial technologies at the Institute of Production Technologies are: machining, forming, foundry and welding.
Key directions of scientific research activity at the Institute of Production Technologies are focused on supporting the development of individual science and educational branches. It is the specific responsibility of the Institute to ensure personal and professional growth of all employees. The attention is devoted primarily to actual and prospective questions related to industrial technologies in the Slovak Republic, during this process provisions are also made for international trends, as well as the integration processes of the EU. The mark of scientific research work and activity is determined by originality of the scientific output of the teachers and scientific research employees in the Institute, the material output of the main workstations and the proposed solutions to scientific questions. The Institute of Production Technologies focuses on trans-regional pedagogic and scientific activities and also cooperates with many renowned scientific research institutes abroad. International co-operation in research is implemented mainly through the exchange of information, results, knowledge for education of PhD students (fellowships, educational visits, workshops).
The scientific directions are determined for the long-term and cover the production and technological aspects of exploitation of all resources and solutions of actual questions. The layout of projects is focused primarily on production technologies in co-operation with industrial practices on the basis of actual global problems.

Areas of expertise
- 5-axis Machining
- Adhesive Joining of Materials
- Application of Progressive Cutting Tools
- Application of Cutting Fluids
- Safety and Machinability of Materials
- CAD/CAM Systems
- Construction of Engineering Products in terms of Assembly
- Laser Welding
- Metrology
- Tool Steels
- Surfacing

- Machining
- Centrifugal Casting
- Optical 3D Scanning
- Plastic Deformation
- Computer Simulation
- Surface Treatment (Cast Moulds)
- Powder Metallurgy
- DELPHI Programming
- Programming of NC Machines
- Control of Quality in Welding
- Simulation processes in Forming
- Testing of Materials
- Soldering
- Strengthening of Surface Layers
- Stereology
- Engineering Metrology
- Engineering Technology
- Special Methods of Welding
- Technology of Forming
- Theory of Production Processes
- Theory of Welding
- Heat and Chemical Heat Treatment
- Tribology
- Forming Tools
- Forming Machines and Tools
- Formability of Materials
- Maintenance, Monitoring of Cutting Fluids
- Production of Steel Wires
- Die Forging
- Foundry Production
- Foundry
- Welded Structures
- Welding

PROJECTS OF THE INSTITUTE

Project title Design, implementation and use of joint programs regarding quality in manufacturing engineering
Coordinator Prof. Dr. Ing. Jozef Peterka
Start Date 2012/2013
End Date 2012/2013
Programme Networking of university researchers
Annotation The aim of the project is to increase the level of students education and flexibility in the field of production engineering and production engineering quality in the central European region. The primary goal is to implement a common Masters and Doctoral study programmes and improve co-operation within the network.

Centre of Excellence for Five-Axis Machining
Prof. Dr. Ing. Jozef Peterka
2010
2012
OPVV
Five-axis machining is one of the main trends in cutting technology used for mould production. The term five-axis machining means cutting machine tools through which the movement is carried out on five different axes simultaneously. The benefit of five-axis machining is the machine's ability to machine complex shapes in a single set-up and achieve a uniform surface with roughness being cultivated. The Centre will have the opportunity to realise the basic research on 5-axis machining of complex shape parts, including control and measurement and will also be able to monitor the quality of cutting fluids and cutting processes. It will be able to provide for all levels of learning in education together with establishing an experimental base for doctoral researchers from Slovak and foreign universities, and also practitioners. The ambition of the project is to help mould and die manufacturers (developers, designers, technologists, quality control persons, supervisors, young starting engineers and also skilled senior engineers) to find a theoretical and practical orientation (guidance) in this difficult cutting process of five-axis machining.

Project title Design, implementation and use of joint programs regarding quality in manufacturing engineering
Coordinator Ing. Ladislav Morovič, PhD.
Start Date 2012
End Date 2013
Programme Networking of university researchers
Annotation The aim of the project is to increase the level of students education and flexibility in the field of production engineering and production engineering quality in the central European region. The primary goal is to implement a common Masters and Doctoral study programmes and improve co-operation within the network.

Project title Modern methods of the constitution and measurement of geometrical surface structure
Coordinator Ing. Ladislav Morovič, PhD.
Start Date 01/09/2011
End Date 31/08/2012
Programme Designing a network of university researchers
Annotation The common aim of all the project participants is the study focused on modern methods of measuring the geometrical surfaces structures. Synergy of partnering institutions provides the possibility of achieving effective co-operation (utilising laboratories, student and teacher mobility etc.).

Project title Investigation of dynamic characteristics of the cutting process in 5 axis milling in context of 5 axis machining at the Centre of Excellence.
Coordinator Assoc. Prof. Ing. Peter Pokorný, PhD.
Start Date 01/01/2011
End Date 31/12/2013
Programme VEGA
Annotation The project aims to explore the characteristics of the dynamic cutting process. In this context, the project studies the distribution and effect of cutting forces in the 5axis milling. The chatter as well as its origination, effect and ultimately the conditions for its elimination are important dynamic characteristics as well. The project therefore addresses the causes of the chatter in 5 axis milling and deals with the solutions for milling without the chatter. The suitable choice of CAM milling strategies with regard to the desired shape and quality of a part is also an important parameter in the process of 5 axis milling. The project will therefore also analyse the impact of various 5 axis milling CAM strategies on dynamic characteristics of the cutting process.

Project title Joining of surface treated thin steel sheets by modern joining methods
Coordinator Prof. Ing. Milan Marônek, CSc.
Start Date 27/04/2011
End Date 31/12/2013
Programme VEGA
Annotation The scientific project deals with joining (welding and adhesive joining) of steel sheets with a different kind of surface treatment. The surface layer significantly influences arc stability of technological process and the subsequent quality of weld and adhesive joints. As the new joining technologies (laser beam welding, arc welding methods with controlled metal transfer, hybrid welding methods, MIG brazing and adhesive bonding) are gradually being applied in practice, there is the necessity to know the suitability of these joining methods to the defined surface treatment or to specify the range of process parameters leading to quality joint formation.

Project title Technological heritability of laser micromachining process and its influence on technological and exploatation properties of material.
Coordinator Prof. Ing. Peter Šugár, CSc.
Start Date 01/01/2011
End Date 31/12/2014
Programme VEGA
Annotation The goal of the project is to research of the laser micromachining process (laser micromilling and so called laser microstructuring) during machining of metals by solidstate Nd: YAG laser. Two fields of interest are solved in this project. The first is the assignment of laserinduced surface degradation relevancy on changes in corrosion resistance of corrosionresistant steels and Tialloys with the different degree of deformation strengthening (thin sheet plates made by technology of drawing and metal spinning). The second area of interest is to define optimal technological conditions of laser structuring in the processes of incremental forming tools and semifinished products surfaces modifications.

Project title Effect of the 5axis grinding parameters on the geometrical precision of shank cutting tools
Coordinator Assoc.Prof. Ing. Štefan Václav, PhD.
Start Date 01/01/2012
End Date 31/12/2013
Programme VEGA
Annotation The project will deal with the grinding precision and geometry of shank cutting tools in dependence of the cutting tool and using a newly designed methodology.
The theory of cutting forces in grinding has not been processed properly. Researchers in this project will use a new method of experiment planning, where acquired relations will be dimensionally homogeneous and indicators of equations (dimension constants) will gain a physical sense. The project output will be dissemination of the theory of highly-parametrical grinding, a shift from 3axis to 5axis grinding. A unique contribution will be also the determination of life-cycle by means of specific cutting enthropy. The goal will be the verification of the originally manufactured tools for 5axis milling machines and their subsequent measurement of geometry prior to and post machining on both the Zoller 5axis measuring machine and optical scanner.

Project title Implementation of an online classroom for the dynamic education of secondary technical school and university students focused on design and manufacturing of freeform surfaces
Coordinator Prof. Dr. Ing. Jozef Peterka
Start Date 01/01/2012
End Date 31/12/2013
Programme KEGA
Annotation The project aim is to develop an online classroom for the dynamic training of secondary school and university students and the pilot implementation of the online classroom for training the wider public in the field of CNC machines and CAD/CAM systems programming as well as for accredited study programes of Computer-Aided Production Technologies (Bc.) and Computer-Aided Design and Production (Master) at STU MTF. The project will comprise the elaboration of complex materials (texts, presentations, multimedia videos, sample tasks) placed on the designed internet website available for all potential interested parties. Results will be applicable to the whole Slovak Republic as well as abroad.

Project title Research into the metallurgical joining and other technological processes of processing the magnesium and other light alloys by progressive and suitable environment-friendly technologies
Coordinator Prof. Ing. Milan Turňa, PhD.
Start Date 01/01/2012
End Date 31/12/2013
Programme VEGA
Annotation The project will focus on the design, experimental verification and scientific justification of technological processing of Mg alloys. Selection of progressive and environment-friendly technologies of metallurgical joining and forming. Welding and soldering/brazing the Mg alloys with other metals (Al, Ti, steels). Design and quality control of joints by using advanced non-destructive and destructive methods. A detailed study will be conducted of the interface of combined joints with the AZ91and AZ31 alloys, thus contributing to the research into the mechanisms and their origin and participation into the development of a new Mg alloy of ML5 type. The investigation of heat distribution by concentrated energy sources and comparison with AWJC. Verification for the possible use of microplasma polishing of surfaces of the Mg and Al alloys will be made. The study will focus on the strain/stress-deformation states of materials in processing the Mg and Al alloys (ISF, MS, Thixoforming) in order to optimise the parameters of forming processes and predict utility properties of products. The justification of the economic and environmental priorities of the individual technologies will also be given.

Project title Research into the effect of parameters of selected technological processes on the integrity of surface layers
Coordinator Assoc.Prof. Ing. Jozef Bílik, PhD.
Start Date 01/01/2012
End Date 31/12/2014
Programme VEGA
Annotation The project is aimed at examining the effect of selected technological parameters and technological impact on the properties and integrity of surface layers in order to predict the utility and life-cycle of products. The goal is to determine the effect of speed and transformation size on the integrity of surface layers made by ramming, charging, spinning, rolling, shooting or cold-drawing of pipes and wires. To assess integrity, the research will use conventional methods of qualitative analysis as well as the results attained by the application of stereological materialography, AbottFireston curves and evaluation of tribological properties. The attained results will be applied in the prediction of utility properties of formings and parts in practice.

Project title Research into the weldability of duplex and superduplex stainless steels by concentrated energy sources
Coordinator Prof. Ing. Koloman Ulrich, PhD.
Start Date 01/01/2011
End Date 31/12/2013
Programme VEGA
Annotation The aim of the scientific project is the investigation and proposed solutions to problems regarding the weldability of duplex steels with laser and electron beam. The welding of duplex steels with arc processes has been solved and is currently used in practice. Welding with laser and electron beams, generally presents a problem with attaining a suitable proportion of the structural components austenite/ferrite (around 50/50 %) and results in poor corrosion resistance. The balance of phases ferrite-austenite is important primarily from the aspect of corrosion, which is the main of priority of duplex steels.

Project title Development of a leadfree solder for the application at higher temperatures and research of material solderability of metallic and ceramic materials.
Coordinator Assoc. Prof. Ing. Roman Koleňák, PhD.
Start Date 01/01/2011
End Date 31/12/2013
Programme VEGA
Annotation The project is aimed at the development of a leadfree solder for the application at higher temperatures. The developed solder is designed for environmentally friendly soldering of metallic and ceramic materials. The developed solder will be used for solderability tests of ceramic and metallic materials with the application of flux and without flux through the use of ultrasound power. The structural character of the solder under diverse soldering conditions will be studied, including the interactions on the soldered metal solder boundary. The qualitative solderability criteria of wettability, spreadability, capillarity, diffusion and erosion at normal and extreme soldering conditions will be determined. The shear strength of joints fabricated with the developed solder in metallic and ceramic materials will also be determined. The ageing tests and thermal cycling tests of soldered joints will be also performed.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Employee	Country
Ing. Martin Bajčičák, PhD.	Austria
Prof. Ing. Ivan Baránek, CSc.	Czech Republic, Germany
Ing. Jozef Bárta, PhD.	Croatia
Ing. Klaudia Bašovská	Czech Republic
Ing. Matúš Beňo PhD.	Czech Republic
Assoc. Prof. Ing. Matej Beznák, CSc.	Austria
Assoc. Prof. Ing. Jozef Bílik, PhD.	Hungary
Ing. Ivan Buranský, PhD.	Germany Russia Czech republic
prof. Ing. Alexander Čaus, DrSc.	Turkey Austria Belarus
Assoc.Prof.Ing. Augustín Görög, PhD.	Czech Republic Germany
Ing. Zdenko Guniš,	Czech Republic Estonia
Ing. Erika Hodúlová, PhD.	Portugal and the Azores Austria
Ing. Marek Hurajt	Estonia, Austria
Ing. Jozef Charbula	Czech Republic
Ing. Miroslav Jáňa	Czech Republic Austria
Ing. Jaroslav Jančár	Austria Croatia
Ing. Martin Kováč,PhD.	Czech Republic
Ing. Roman Krafský	Estonia
Ing. Tomáš Kramár	Czech Republic Estonia Austria
Ing. Peter Krampoťák	Estonia
Ing. Tomáš Kupec	Czech Republic Austria
Ing. Marcel Kuruc	Czech Republic
Ing. Monika Maračeková, PhD.	Czech Republic
prof. Ing. Milan Marônek, CSc.	USA, Croatia
Assoc. Prof.Ing. Maroš Martinkovič, PhD.	Czech Republic
Ing. Bohuslava Mikulová	Estonia
Ing. Ladislav Morovič, PhD.	Czech Republic Hungary
Ing. Jozef Ondruška	Czech Republic
prof.Dr.Ing. Jozef Peterka	Germany Czech republic UK Cuba Hungary
Assoc. Prof.Ing. Štefan Podhorský,CSc.	Austria Germany Russia UK, Czech republic
Ing. Michal Prach	Czech Republic
Ing. Martin Ridzoň, PhD.	Estonia Germany
Ing. Miroslav Sahul, PhD.	Czech Republic Estonia
Ing. Michaela Samardžiová	Czech Republic Estonia
Ing. Róbert Sobota, PhD.	Czech Republic
Ing. Roland Šuba, PhD.	Austria
prof.Ing. Peter Šugár, CSc.	Czech Republic UK Croatia Germany
Assoc. Prof.Ing. Viktor Tittel, CSc.	Czech Republic
prof.Ing. Milan Turňa,PhD.	Czech Republic
Assoc. Prof.Ing. Štefan Václav, PhD.	Germany
Ing. Juraj Vagovský	Czech Republic
Ing. Dušan Vaňa	Austria
Ing.Tomáš Vopát	Czech Republic
Ing. Marek Zvončan, PhD.	Czech Republic

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Welding Society
Ing. Erika Hodúlová, PhD.
prof. Ing. Koloman Ulrich, PhD.
Ing. Ladislav Pavlovič
prof. Ing. Milan Marônek, CSc.
Assoc. Prof. Ing. Pavel Kovačócy, PhD.
Assoc. Prof. Ing. Roman Koleňák, PhD.
Ing.Vladimír Púčik

Slovak Foundry Society
Assoc. Prof. Ing. Matej Beznák, PhD.

Slovak Associations of Steel Constructions
prof. Ing. Koloman Ulrich, PhD.

Slovak Chamber of Commerce and Industry – Section of Production Machines and Equipment
prof. Ing. Ivan Baránek, PhD.

Slovak Metal Science Society
prof. Ing. Ivan Baránek, PhD.
Assoc. Prof. Ing. Jozef Bílik, PhD.
Assoc. Prof. Ing. Mária Kapustová, PhD.
Assoc. Prof. Ing. Roman Koleňák, PhD.
prof. Ing. Milan Marônek, CSc.
Assoc. Prof. Ing. Maroš Martinkovič, PhD.
Ing. Róbert Sobota, PhD.
prof. Ing. Peter Šugár, CSc.
Ing. Jana Šugárová, PhD.
Assoc. Prof. Ing. Viktor Tittel, CSc.

Slovak Maintenance Society
Ing. Svätopluk Mečiar, PhD.

Slovak Metrology Society
Assoc. Prof. Ing. Augustín Görög, PhD.

Technical Standard Committee
prof. Ing. Koloman Ulrich, PhD.

First Welding Company, Inc.
prof. Ing. Koloman Ulrich, PhD.

Slovak Institute of Technological Normalization – TK 76 Corrosion and Material Protection against Corrosion
Assoc. Prof. Ing. Štefan Václav, PhD.
Assoc. Prof. Ing. Peter Pokorný, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

International Institute of Welding
Ing. Erika Hodúlová, PhD.
Ing. Ingrid Kovaříková, PhD.
prof. Ing. Koloman Ulrich, PhD.
prof. Ing. Milan Marônek, CSc.

American Welding Society
prof. Ing. Milan Turňa, PhD.

Czech Welding Society
prof. Ing. Milan Turňa, PhD.

Czech Society for New Materials and Technologies
Assoc. Prof. Ing. Pavel Kovačócy, PhD.

International Journal of Advances in Machining and Forming Operations
prof. Ing. Alexander Čaus, DrSc.

PUBLICATIONS (most important publications in 2012)

Chaus, Alexander - Porubský, Ján: Effect of Modifying Tungsten Additions on Formation of Primary Structure of R6M5-Type High-Speed Steel. – Journal: Fizika Metallov i Metallovedenie, 2012, Vol. 113, No. 11, pp. 1129-1140. – **registered in: Web of Science, Master Journal List, Scopus**. In: Physics of metals and metallography. - ISSN 0031-918X. - Vol. 113, No. 11 (2012), pp. 1068-1078

Devoino, O.G. - Kardapolova, M. A - Chaus, Alexander: Raising the wear resistance of gasothermal coatings from bronze BrA7N6F by laser alloying. – In: Metallovedenije a Termičeskaja Obrabotka Metallov, No. 3(681), str. 40-45, Marec 2012. – **registered in: Master Journal List**. In: Metal Science and Heat Treatment. - ISSN 0026-0673. - Vol. 54 [online first 20 July 2012] (2012), pp. 145-149

Chaus, Alexander - Čaplovič, Ľubomír - Chaus, Yu.A. - Sojka, Jaroslav: Characterisation of C-B-N Diffusion Layers Developed on High-Speed Steel Substrate. - **registered: Web of Science, Scopus**. In: Defect and Diffusion Forum. - ISSN 1012-0386 (E). - ISSN 1662-9507 (P). - Vol. 326-328 (2012), pp. 285-290

Chaus, Alexander - Beznák, Matej - Boháčik, Michal - Porubský, Ján - Úradník, Peter: Effect of Austenitising Temperature on Structural Changes in Modified High-Speed Steel of AISI M2 Type. – **registered in: Web of Science, Scopus**. In: Defect and Diffusion Forum. - ISSN 1012-0386 (E). - ISSN 1662-9507 (P). - Vol. 326-328 (2012), pp. 348-353

Demianová, Kristína - Behúlová, Mária - Ožvold, Milan - Turňa, Milan - Sahul, Miroslav: Brazing of aluminum tubes using induction heating. – **registered in: Web of Science, Scopus**. In: Advanced Materials Research. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 463-464 : 2nd International Conference on Advanced Material Research, ICAMR 2012, Chengdu, 7-8 January 2012 (2012). - ISBN 978-303785363-4, s. 1405-1409

Košťálová, Miroslava - Kapustová, Mária: Optimization of the Raw Part Shape for the "fork" Production by Computer Simulation. – **registered in: Web of Science, Scopus**. In: Applied Mechanics and Materials. - ISSN 1660-9336(PRINT). - ISSN 1662-7482(ONLINE). - Vol. 152-154 (2012), pp. 1675-1678

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This part of Annual Report 2012 was verified by Prof. Ing. Milan Marônek, PhD.

INSTITUTE OF PRODUCTION SYSTEMS AND APPLIED MECHANICS

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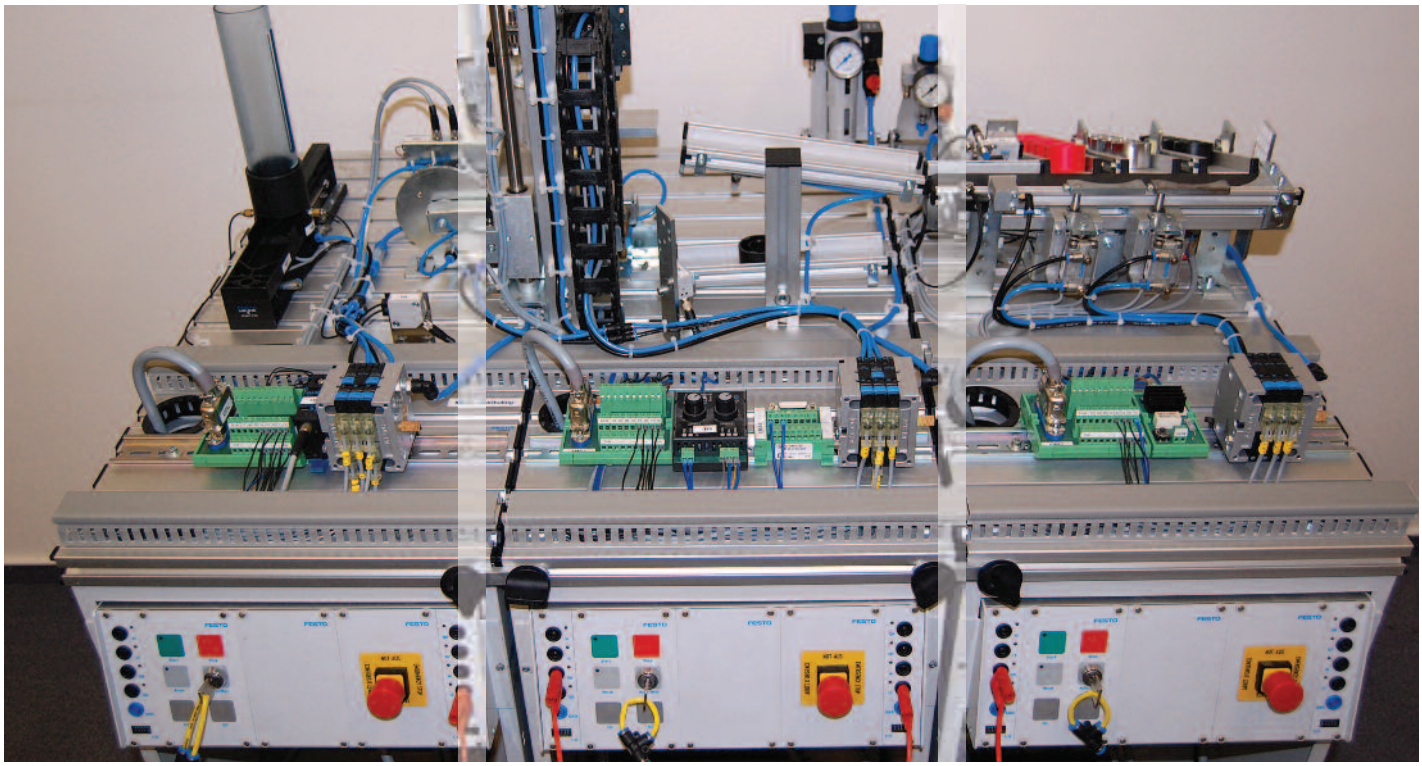

INSTITUTE DEPARTMENTS

- Department of Applied Mechanics
- Department of Technological Devices and Systems

STAFF

- Professors: 1
- Assoc. Professors: 5
- Senior Lecturers: 12
- Research Fellows: 5
- PhD Students: 10

EDUCATION AT THE INSTITUTE

STUDY PROGRAMMES
- Production Devices and Systems

Number of students (at 30/10/2011) on study programmes offered by the institute: 222
Number of the graduates (2010/2011) from study programmes offered by the institute: 59

ACTIVITIES OF THE INSTITUTE

28-30/11/2012 - International Conference CECOL 2012 - **Central European Conference on Logistics**

GRADUATE PROFILE

BACHELOR'S PROGRAMMES (Bc.)

Production Devices and Systems
The graduate will gain a complete Bachelor's degree education in the field of manufacturing engineering focused on engineering production including the maintenance and means of mechanisation and automation. The graduate will understand machine technologies and applied tools. The individual will have aqcuired knowledge in the fundamentals of management, environmental engineering, work safety and health protection. The graduate will be able to solve the problems in the field of technical materials and their properties, as well as machine mechanics. After completion of the course the graduate will be prepared either for the Master's degree study programme in production devices and systems or for immediate entry to the job market. The graduate will find engagement as a designer of automated production systems and devices, as a technologist, self-employed in engineering services or as a specialist in various production sections.

MASTER'S PROGRAMMES (Ing.)

Production Devices and Systems
The graduate will gain a complete university (Master's degree) education in the field of manufacturing engineering and materials, production processes and production systems. The individual will understand the function of machines and constructions of production equipment. The graduate will have developed knowledge in the field of production machines and materials used in the processes of manufacturing and will be able to solve the tasks of machine mechanics, mechanisation and automation. After completing the programme the graduate will be able to recognise social, moral, legal and economic impacts of the profession and will be prepared to either continue studying at post-graduate level, implementing advanced methods and techniques of design and development, or to enter the job market immediately as an expert in production, project and development organisations in solving conceptual technical and organisational tasks of complex automation of production processes.

LIST OF SUBJECTS OFFERED BY THE INSTITUTE

- Applied Mechanics
- Assembly Machines
- Bachelor's Project
- Bachelor's Thesis
- Computer Aided Design I, II, III
- Cutting Tools
- Design of Production Systems
- Diploma Thesis
- Elasticity, Strength and Plasticity
- Experimental Methods and Technical Diagnostics
- Finite Element Method
- Fixtures
- Fundamentals of Engineering Design and Technical Documentation
- Graduation Project
- Hydraulic and Pneumatic Mechanisms
- Industrial Robots and Manipulators
- Industrial Robots and Manipulators
- Logistics of Production Systems
- Machine Parts and Mechanisms
- Machine Tools
- Machines for Special Technologies
- Maintenance of Production Systems
- Mechanics of Fluids and Thermomechanics
- Mechanics of Production Machines
- Mechanics of Rigid and Flexible Bodies
- Mechanisation and Automation
- Modelling of Thermal Processes
- Noise and Vibration
- Operation and Maintenance of Production Devices
- Performance of Production Systems
- Production Devices
- Production Process Planning
- Production Systems I
- Professional Practice
- Programming of Production and Manipulating Devices
- Reliability and Safety of Technical Systems
- Technological Equipment of Production Machines
- Technological Process Modelling and Simulation
- Theory of Automatic Machines

GRADUATE THESES

Bachelor's Theses

Birkuš, D.: The current trends in developing permanent joints
Dobišová, V.: The organisational structure of manufacturing production systems
Ďurkovič, M.: Implementation of angular and linear measurement units by using QuantumX measuring station
Hlavanda, P.: Proposal for a handling device for the palletisation of the selected component
Holík, M.: Modification of the control system of seat parts before delivery
Horváthová, P.: Design of a database of components for basic engineering and technical documentation
Chvaščák, M.: The use of the sensor system in the field of automation of assembly processes
Kĺč, J.: Workspace layout of an IRB 120 industrial robot and its periphery
Kostolanský, M.: Renovation of machine components in practice
Krivý, M.: Design of an automated pneumatic system operated by PLC
Kupkovičová, N.: Preventive, predictive and reliability oriented maintenance of production systems
Margetiny, M.: The influence of material flow design on the maintenance process
Matúš, Ľ.: Operation, maintenance and servicing of technical equiment – lifting equiment
Michálik, J.: The ideological proposal of the pressurised gripping cap for selected parts
Miklo, M.: The application of technical standards for the drawing of surface roughness of machine parts
Palkovič, M.: A design of the production workplace
Petrák, L.: Vibroisolation in engineering practice
Polčová, M.: Parametric modeling by CAD systems
Pressel, M.: Markov´s process as a model of performance and efficiency of production systems
Prištic, M.: Parametric database rolling bearings
Púček, M.: The identification of tribological qualities of a sliding pair
Stajsko, P.: A proposal for the maintenance of mobile hydraulic systems
Šulko, A.: The effect of chosen parameters on pneumatic control
Tolarovič, M.: Operation, maintenance and repairs of reserved technical devices – pressure vessels
Vatrt, P.: A summary of the current situation in the field of intelligent sensor systems

Master's Theses

Babiak, M.: A draft of a suitable camera system for the identification of individual objects in the workspace for intelligent assembly cell UVSM
Baránek, J.: A proposal of automatic changes of an assembling device to disassembling
Baumgartner, M.: Design of the automatic equipment for the palletising workplace with use of the industrial robot IRB-120
Belai, R.: A design solution of a backup system for elevator suppling seats to the production line in PSA Peugeot Citroen, Trnava
Boris, M.: Algorithm of assembly processes in the flexible assembly system
Bučeková, K.: Vibrodiagnostic evaluation of operating states of selected production systems nodes
Fitoš, P.: Design of the control program of industrial robot IRB 120 by means of software RobotStudio
Gašparovič, P.: Analysis of dynamic properties of rotor with flexible shaft of composite material
Hlavka, S.: Improvement of the technical reliability of conveyor turntable for car seats
Hrebík, M.: Measuring the acoustic absorption properties of selected materials by PULSE system
Janota, J.: A proposal for the automation of the transfer of the railway carriages wheelset by assembly for surface treatment in ŽOS Trnava, a.s.
Lančarič, A.: The structural design of the sensor dynamic parameters based on piezoelectric materials
Melovič, F.: Palletising workplace with component orientation by angular robot
Mišovič, P.: The design of production systems for the production of forgings die forging
Nádaský, D.: "Pick and Place" manipulator regulating program proposal for the assembly-disassembly cycle
Novák, S.: Recommendations for the maintenance of critical devices in fibre line – manipulation with pulp in Mondi SCP,s.c.Ružomberok
Pilař, M.: Analysis of the influence construction of turning tools on vibrations in the turning process
Popovič, I.: Design of production systems for manufacturing products
Rolník, L.: Structural design of clutch plates with a reduced thickness
Stančoková, K.: Material flow analysis of flexible assembly cell
Šafranek, M.: Modernisation of a paper folding machine
Šimúnová, M.: Algorithm of working in the storage system in a flexible assembly system
Šoltésová, A.: Stochastic simulation of the production lines reliability (Monte Carlo method)
Švoš, J.: Creation of kinematic systems in the system CATIA V5
Topolský, L.: The study of the industrial robot IRB-120 management in the palletised workplace
Vilím, A.: A proposal of press machine control – the improvement of press operating personnel safety
Vittek, D.: Increase of machine reliability for bodywork displacement in PSA
Vlček, P.: Design of the end-effector of an industrial robot IRB-120
Žák, K.: Increase in the hourly production capacity of five-door cars in the production procedure assembly of PSA Trnava

PhD Theses

Holubek, R.: Automatic exchange of grippers in intelligent assembly systems
Kerak, P.: Intelligent clamping systems
Oravcová, J.: Proposal and testing of the methodological process of jaw design by clamping devices for technological operations
Španielka, J.: Prediction of steel products crack during heat treatment through the use of computer simulation
Babalová E.: Experimental and numerical approaches to the investigation of laser cutting

RESEARCH AT THE INSTITUTE

Areas of Research
- intelligent workpiece clamping
- intelligent assembly
- intelligent assembly systems
- thematic network on manufacturing technologies
- new concept of integrated multifunction manufacturing system
- modeling, analysis, simulation and experimental investigation of machine aggregates as mechatronic systems
- investigation of new materials with progressive tribological properties
- research and application of new approaches in numerical methods – analysis and simulation of technological and industrial processes, static and dynamic analysis of engineering structures
- numerical simulation of heat transfer processes, fluid-structure interaction
- research and development in the field of theoretical and applied mechanics

Research characteristics

The research projects at the Institute of Production Systems and Applied Mechanics are focused on the support and development of education in the study programmes of Production Devices and Systems at Bachelor's, Master and PhD. Degree levels. The research activities of the institute are aimed at obtaining solutions for up-to-date problems and tasks from the field of production systems and devices, applied mechanics, thermodynamics, heat transfer and numerical modeling of technological processes.

Main topics of research activities:

- Flexible manufacturing systems
- Intelligent assembly systems
- Intelligent clamping systems
- Special production systems
- Pneumatics and electro-pneumatics in control systems
- Material flow in production
- Use of computers in design and manufacturing of machines and devices
- Modeling, analyses and simulations of mechanical systems and machine aggregates
- Mechatronical principle application to production devices
- Methods of diagnostics and identification
- Mechanical systems reliability
- Vibrations, acoustics and biomechanics

- Determination of cooling characteristics for heat treating mediums
- Mechanical, thermal, fluid and other analyses for mechanical parts of machine and skeletons
- Modeling, numerical simulations, analyses and optimisation for processes of forming
- Welding, founding and heat treatment

At the Institute, the following laboratories are currently in operation: The Laboratory of Robotics, the Virtual Laboratory of Pneumatics and Electro-pneumatics Systems, the Laboratory of Pneumatics, the FESTO Laboratory, the Laboratory of CAD Systems, the Laboratory of Machine Mechanics, the Laboratory of Tribology, the Laboratory of Thermodynamics and Mechanics of Fluids, the Laboratory of Numerical Analyses, the Laboratory of Modelling, the Laboratory for Vibration and Acoustics Research and also the Mechanical Workshop.

In the framework of cooperation between research and practice, the Institute cooperates with several industrial enterprises and research centres (FESTO spol. s r.o. Bratislava; SMC Priemyselná automatizácia spol. s r.o. Bratislava; ZF Sachs Slovakia, a.s. Trnava; TOMA INDUSTRIES spol. s r.o. Trnava; ŽOS, a.s. Trnava; INA Skalica, spol. s r.o. Skalica; VUJE, a.s. Trnava; EBO Slovenské elektrárne, a.s. Jaslovské Bohunice; JAVYS, a.s. Jaslovské Bohunice; AllDeco, spol. s r.o. Jaslovské Bohunice) and with Institutes of the Slovak Academy of Sciences, metal design Slovakia a.s.

An important part of the research activities of the Institute is represented by cooperation with universities abroad. The most important partners are TU Vienna, TU Miskolc, TU Cluj-Napoca, TU Poznaň, VUT Brno, TU Budapest, UTB Zlín, VŠB Ostrava, TU Bratislava, TU Chemnitz, ZČU Plzeň, TU Izhevsk, and many others.

The results of research activities are published in domestic and international journals and presented at scientific conferences and symposiums. The obtained results are applied in education as well.

Areas of expertises

- Accustics and Vibration of Mechanical Systems
- Automation of Production and Assembly
- Nummerical Analysis and Simmulation of Technological Processes
- Industrial Heatings
- Structural Analysis (strength, dynamical) in the Area of Nuclear Energy
- Technical Analysis, Measurement of Thermophysical - Properties
- Production Technology
- Production Systems

PROJECTS OF THE INSTITUTE

Project title Analysis of qualitative parameters of a machined surface in the 5axis ultrasonic machining
Coordinator Assoc.Prof. Ing. František Pecháček, PhD.
Date from 01/01/2012
Date to 31/12/2014
Programme VEGA
Annotation The project is a base research focused on the machining of selected hard-to-machine materials by milling. The emphasis is on monitoring the desired and achieved quality parameters of machined surfaces of hard-to-machine materials by the technology of milling and ultasonic assisted milling. The solution is focused on the typical quality parameters of machined susrfaces: surface roughness represented by the mean arithmetic deviation Ra, height of roughness Rz, dimensional precision of machined surfaces, type and size of residual stresses, the size of the components of cutting forces, technological parameters of milling technology, type and shape of tool etc. When analying the results obtained by machining, i.e. milling and ultrasonic assisted milling of selected hard-to-machine materials, findings will be compared were the values of quality parameters achieved under the same technological conditions.

Project title Analysis of nonequilibrium thermal, metallurgical and stressstrain processes in production technologies involving rapid cooling and solidification of metallic materials.
Coordinator Assoc. Prof. RNDr. Mária Behúlová, CSc.
Date from 01.01.2011
Date to 31.12.2014
Programme VEGA
Annotation Rapid cooling and solidification of materials in nonequilibrium conditions is used in several advanced technologies of production and the processing of metallic materials. The research in the framework of the submitted project will be focused on experimental investigation, numerical simulation and analysis of nonequilibrium thermal, metallurgical and stressstrain processes in technologies of preparation of rapidly solidified powders using inert gas atomisation of melt, material forming in semisolid state and also the laser welding and surface heat treatment. The main aim of the project is the identification of common characteristics, phenomena and nonequilibrium processes leading to the development of refined microstructures in the conditions of rapid cooling and solidification of materials. In the theoretical field, the project should contribute to the explanation of physical and metallurgical reasons and mechanisms of metastable structures development in the highalloyed materials on the base of iron and aluminum.

Project title Application of innovative layers and coatings for reconstruction of tribologicaly loaded surfaces.
Coordinator Ing. Eva Labašová, PhD.
Date from 01.01.2011
Date to 31.12.2013
Programme VEGA
Annotation The operation of technical systems results for interacting elements to the surface changes of elements. These changes are caused by the surface wearing and in many cases, the degradation of a tribological surface is caused as the consequence of unstable operational processes. Geometric changes of tribological surfaces (TS) generate improper transfers of power effects, causing further degradation of the TS element. Which often leads to element damage. Early diagnostics of incorrect functionality of TS and its subsequent reconstruction by innovative layers leads to regeneration of the correct tribological functionality of surface, prolongation of element life time and renewal of the correct operational state of the technical system. The objective of the project is to analyse tribological layers properties in terms of material and geometrical parameters. Using numerical analysis will examine the stressstrain states of loaded TS with innovative layers. The results of computational analysis, wear and life will be verified experimentally.

Project title Intelligent assembly cell
Coordinator prof. Ing. Karol Velíšek, CSc.
Date from 01/01/2009
Date to 31.12.2012
Programme VEGA
Annotation The flexible and intelligent assembly cell conception includes new types of solutions to create structures of the assembly system. A none external industrial robot is used for the mainpulation and also for assembly. Intelligent behaviour of the system will repose on the monitoring of important parameters of the system and also will monitor information about system interaction with its surroundings. Surround interaction information provide many advantages such as, the cell will bring flexible reactions of the system to the manufacturing changes, build up area saving, lower building costs and higher usage effects of the whole device.

Project Title Numerical, symbolic and experimental analysis of nonconservative mechanical systems
Coordinator Ing. Tibor Nánási, CSc.
Date from 01.01.2011
Date to 31.12.2013
Programme VEGA
Annotation Undesired vibration and excessive noise is persistently accompanying even the operation of the most advanced technological systems. The proposed project focuses on the development of analytical, numerical and experimental methods of analysis of complex mechanical systems with nonconservative couplings. Such an approach may be found in contradiction with common practice when the nonconservative problems are using artificial assumptions, transformed to a form which can be approached by conservative methods. The project involves also design and building of equipment for the measurement of damping as a function of frequency and temperature as well as equipment allowing for the nonconservative loading of the structure under consideration.

Project Title Research into the possibilities of "intelligence" implementation in the assembly process.
Coordinator Assoc. Prof. Ing. Peter Košťál, PhD.
Date from 01/01/2012
Date to 31.12.2014
Programme VEGA
Annotation The intelligent assembly paradigm includes a new approach to assembly system structure design. For the manipulation and assembly the industrial robot is used and equipped with the industrial vision system. Intelligent behaviours are based on the monitoring of important parameters of the system and its environment and the flexible reaction to changes. Tealisation and utilisation of this design paradigm as an "intelligent assembly system" enables the flexible system to react to the production requirements as soon as environmental changes. Results of these flexible reactions are a smaller layout space through decreasing the production and investment costs and by increasing productivity.

Project title Laboratory of flexible manufacturing systems with robotised manipulation supported by no- drawing production
Type of the project OPVV
Number of the project ITMS 26220220055
Main investigator Prof. Ing. Karol Velíšek, CSc.
Time period of the project 2010-2012
Annotation The aim of the project is to create an elastic production system with robotic regulation which will enable design-free production. The product will be modelled with a PC in an appropriate 3D CAD program, then the regulation program will be generated and it will be started in an elastic production system which will produce a component. It will provide the possibility to produce the necessary components for a concrete product. All produced components will be controlled during production, so the likelihood of failure of finished products will be decreased. This prototype device will help to observe the influence of different production strategies on production costs, time, which is necessary to produce a certain product amount, and other important efficiency parameters of the production. The advantages of design-free production and the influence on efficiency of the whole process will be observed and presented in the pre-production and production phases.

Project title Engineering as a Communication Language in Europe
Type of the project CEEPUS
Number of the project CIII-PL-0701-01-1213
Main investigator Prof. Ing. Karol Velíšek, CSc.
Time period of the project 2011-2012
Annotation There many native languages in Europe however, very often engineers use their own slang, which is quite well understandable to them, regardless of their nationality. I have noticed, that technical tutorials, brochures or other documents which are written in technical English can by understood by people, who have only basic knowledge of English.
The goal of the new CEEPUS Network "Engineering as Communication Language in Europe" is to create communication and cooperation between engineers dealing with various engineering branches, thanks to that, we would be able to create Interdisciplinary Engineering Teams. A strong background in engineer techniques applicable to a wide variety of complex problems is in demand along with engineers who understand more than one discipline and are prepared to work at the intersection of two or more engineering and science disciplines. Nowadays the research and industry sectors have high requirements towards engineers. Often a single engineer is not able to solve complicated interdisciplinary problems, but there is a great possibility that Interdisciplinary Engineering Teams would make it better and faster.

We would like to involve teachers from partner Institutions in order to create team projects that would represent the main part of the programme. We would also like students to benefit from our programme. Thanks to it, students would be able to freely communicate and work - communicating with their supervisors e.g. during trainings, summer schools, excursions, etc.

In a period of 13-14 days the students will have the possibility to gain engineering knowledge during the lectures, exercises and labs and will be able to choose interesting themes. Planned activities will concern the following topics: Science Communication, Surface Engineering, Roughness and Shape Measurements, Mechanical and Electrochemical Surface Treatments, Renewable Energy Resources, Agriculture and Forest Engineering, Corrosion Engineering, Civil Engineering, Economical Aspects in Engineering, Neural Networks, Artificial Intelligence, Experiment Planning, Statistic in Engineering, Biomaterials and Nanomaterials, Technical English for Engineers, Article Writing Secrets.

"Engineering as Communication Language in Europe" gives the opportunity to create successful cooperation not only between teachers but also students from the universities which are to participate in the network, as well as between beneficiaries of the freemover mobility. Teacher and student mobility within this network enables learning and research experiences exchange within related fields and helps to build personal connections, broaden professional horizons and what is more, gives the opportunity to develop the curriculas. Therefore, the knowledge exchanged between the partner Institutions will give a good possibility for the further development of the Universities as well as for increasing education standards. This network would also stimulate further topic- oriented engagement and provide the basis for such kind of work.

Project title Development of mechanical engineering (design, technology and production management) as an essential base for progress in the area of small and medium companies' logistics - research, preparation and implementation of joint programs of study
Type of the project CEEPUS
Number of the project CIII-PL-0033-07-1112
Main investigator Prof. Ing. Karol Velíšek, CSc.
Time period of the project 2011-2012
Annotation Small and medium sized industrial companies (SMC), according to the opinion of many experts, are the base of a developing countries economy. It concerns especially the economy of Central Europe countries, which formerly had non-market economies. Development of mentioned industrial enterprises nowadays depends on the proper level of mechanical engineering (design, manufacturing engineering, production management) and, in particular, on proper logistics. All of this demands a good level of education from proper specialised institutions especially universities. The exchange of ideas, knowledge, results of investigations, students, teachers etc. is the condition sine qua non of a high level of research and education in particular university. Thus, the existence of the possibility of the mentioned exchange is very important from the point of the development of the economy.
Technology, one of the most important fields of knowledge in the modern world, determines manufacturing of various machines and mechanical equipment. The development of manufacturing methods is dependent on the intensity of research, the aim of which is obtaining high-quality products in mass production at as low costs as possible. Therefore, the investigations carried out by the majority of European research centres concentrate on basic conventional technologies as well as prospective unconventional manufacturing techniques. Numerically controlled machine tools and also modern computer-aided manufacturing systems are being employed in the analysis and simulation of technological processes. The development of technology enables monitoring of particular stages of the technological process, inspection of the technical conditions of technological machines and devices and control of the production cycle of machine elements. It is also possible to check the manufacturing accuracy (product dimensions, shape, surface quality), evaluate the quality of materials used for the manufacturing of particular machine elements, evaluate and test the final products, and also test the durability and reliability of machines and devices.
A typical company makes thousands of different parts, in many different batch sizes, using a variety of different manufacturing operations, processes and technologies. It is beyond the capability of the human mind to comprehend and manipulate such vast amount of detailed data. People still need to make decisions regarding how to run a manufacturing company and success in today's competitive environment at home and foreign markets. The pressure on management is continuing to escalate as global competition drives the need for producing a greater variety of high quality products, in smaller sizes and lower costs. These outgoing demands continuously increase the level of complexity present in a manufacturing environment. What is needed, are both the strategy and a tool that can be used to achieve such a purpose.
A global world brings global problems for production engineering. Economic pressure urges manufacturers to make more customised products of high quality, in smaller series, with shorter lead time and of course, without increased costs. Time is becoming one of the most important points of company strategy. Costs are also important. More important is competitive price and the most significant are marketability of manufactured products. Therefore producers look for tools that could increase a competitive advantage of their enterprises.
Logistics is the part of the supply chain process which focuses upon planning, implementation and controlling the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements. Industrial logistics is even more specialised and touches a wide range of topics related to plant supervision, demand planning and production control. Supply chain technology is a critical factor in extracting value. A supply chain strategy is needed to identify the correct supply chain technology. Selecting the right system requires a careful evaluation process that asks the right question and dentifies correct solutions for logistics and industrial logistics.
Taking into account all the above mentioned aspects of modern manufacturing of machines and technological devices, the following subject of a new research project to be realised within the framework of the CEEPUS program has been proposed.

Project title Applications of Rapid Manufacturing in Biomedical Fields
Type of the project CEEPUS
Number of the project CIII-SI-0206-05-1112
Main investigator Prof. Ing. Karol Velíšek, CSc.
Time period of the project 2011-2012
Annotation Rapid manufacturing methods represent great potential in the field of medical applications. They are at their essence most suitable for individual – custom made parts that are in almost 100% demanded for medical applications. For example, hip implants are nowadays made in a series of several modules – sizes. The choice is then made by the surgeon according to the patient's size and without making any mistakes at the decision there are still great chances that the chosen implant will not fit as anticipated. The consequences are uneven and therefore rapid wear of an acetabular cup which leads to unplanned revision operations. Data show that 11% of all unplanned revision operations for hip implant replacements are caused by the misalignment of the implant at the first installation. Using the reverse engineering and rapid manufacturing techniques a vast majority of these problems can be avoided.
Although a lot of research work has already been done in this field the methods of surgical operations' planning and using the custom made implants haven't been widely adopted by the medical staff. Reasons for this are very diverse but the most common one is a lack of understanding on both, medical as well as the engineering side. The proposed network is aimed to overcome these obstacles by joining a small group of medical and engineering institution to develop a common knowledge base that will en-

able mutual understanding of ever changing research subjects.
The research and educational work in the frame of the network will mostly be aimed to the following research / educational topics:
- Processing of the medical images (from CT and MRI).
- Printing Rapid Prototyping (RP) master models for medical applications (planning fitting, training, education).
- Designing and dynamicaly and statically analysing medical implants
- Production of bio-compatible implants (casting and direct manufacturing).
- Developing new bio-compatible materials, suitable for RP technologies.
- Case studies of using the RP parts for medical purposes.
- Analysing the costs / benefits of using the RP for medical applications.
- Disseminating the knowledge and results.

Student and teacher mobility, will offer good possibilities for knowledge exchange and development of new teaching strategies that will address the multidisciplinary aspect of the network's topics – cooperation among medical doctors and engineers. Moreover during the mobility individuals will learn and benefit from new customs in the foreign countries and Institutes, develop new friendships and consecutively improve their habits, working principles and knowledge.
Students (undergraduate and post-graduate) will benefit from having the opportunity to use the large equipment base spread over different laboratories of participating universities, which will enable them to prepare better final theses.
New contents for interdisciplinary subjects to be taught in the participating institutions will be developed and evaluated during the workshop which will be held between September 15th and 20th in Maribor. The topics will include:
- Rapid Manufacturing – medical applications
- Quality in medical equipment production,
- Tthics in medicine and engineering,
- Reverse Engineering of body parts – CT and MRI data conversion and reconstruction of 3D parts, image processing and medical devices,
- Design and design optimisation for rapid prototyping
- Dynamic model construction and simulation for the sizing of implants.
- Implantation process - surgeon's viewTitle of the project Applications of Rapid Manufacturing in Biomedical Fields

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Project title Teaching and Research of Environment -oriented Technologies in Manufacturing
Type of the project CEEPUS
Number of the project CIII-RO-0013-07-1112
Main investigator Prof. Ing. Karol Velíšek, CSc.
Time period of the project 2011 – 2012
Annotation The project will focus the development of skills to prepare those individuals participating in student mobility, short-term mobility and teacher mobility with the necessary skills.
Student mobility - professional achievements - language knowledge - previous or current concerns regarding the aspects of environmental protection and modern technologies in this field
Short-term student mobility - scientific achievements in the field of environment aspects of manufacturing technologies - language knowledge - publications in the field of network topics - previously contacts between partners
Teacher mobility - professional and teaching achievements in the topics of network; - language knowledge - leading of diploma works and philosophical degrees in this field - previously contacts between colleagues from partner's departments - participation at scientific conferences, workshops organized by partners - comon specific activities with PhD students.
The coordinator of the network and the representatives of the partner institutions establish a working procedure at the beginning of the academic year. The working procedure contains the objectives of the activities, the responsibilities of each partner and deadlines. The coordinator of the network checks the fulfillment of each activity according to the previously elaborated working procedure. At the end of the academic year, the coordinator writes a final report on the basis of the partial reports submitted by the participants and summaries received from the teachers and students which were involved in this program. Also we intend to buil one particular web-page of the network in which we plan to present the main aspects of activities from the network. Publishing the main results at scientific conferences organised by partners.

Project title Implementation and utilisation of e-learning systems in study area of production engineering in the Central European region
Type of the project CEEPUS
Number of the project CIII-RO-0202-05-1112
Main investigator Prof. Ing. Karol Velíšek, CSc.
Time period of the project 2011 – 2012
Annotation Access to lifelong learning can be solved using the e-learning systems. Information and communication technologies (ICT), properly used, contribute to the quality of education and training and to Europe's move to a knowledge-based society.
The universities have to know how to respond to global problems and to be prepared to educate the specialist. Many of the new methods used in production engineering and in CA systems and technologies as rapid machining, virtual prototyping, CAD/CAM/CAE/CMMS are based on "e" (electronic) activities because it reduces the time (time is becoming rapidly the most strategic topic of companies) and increase the quality of products without increasing the costs.
E-learning comprises all forms of electronically supported learning and teaching. E-learning applications and processes include Web-based learning, computer-based learning, virtual classroom opportunities and digital collaboration. Content is delivered via the Internet, intranet/extranet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio.
The main action lines of the e-learning systems in study area of production engineering are based on:
- Information and Communication Technologies (ICT):
- Digital literacy as e-books, e-papers, e-courses, etc.
- The teaching process must be based on e-presentations (slide-shows, papershow system, etc.).
- Development of virtual laboratories especially in case of equipments with large dimensions.
- Development of simulations for improves the functions parameters.
- Using the virtual tests for find the possible errors in design.
- Using the simulations for improve the maintenance and reliability of machines and equipments.
- Implementation of virtual laboratories specific for each University and realization of virtual laboratory network between Universities
- Implementation of modern communications technologies, especially for the case of lifelong learning, between the students and teaching staff of universities
- Simulations of industrial logistics activities.

All activities concerning the "e" (electronic) are keys for solving of global problems of producers and global problems of universities. It is necessary to solve the legislative frame of common interest and accord the national legislative frame with the European legislative frame.
Joint programs give a good platform for an increase of collaborated universities and using of e-learning systems can increase the efficiency. Therefore the subject of new CEEPUS III network is titled "Implementation and utilisation of e-learning systems in the study area of production engineering in the Central European region"
The principal motive is the elaboration and implementation of joint programs in the study area of production engineering based on collaboration agreements between partners. The proposed network wants to develop the existent collaborations agreements between partners (North University of Baia Mare College of Nyíregyháza, Poznan University of Technology, Technical University of Cluj Napoca, St. Istvan University from Godollo, University Politehnica Bucuresti, University of Žilina Technical University in Košice) and to put the bases for the next agreements. All presented activities (organising of conferences and workshops, seminars for students and PhD students, support for elaboration and finishing of PhD thesis, excursion) will be hence forward supported and there will be effort to increase their level in framework of joint programmes.
The e-learning initiative of the European Commission seeks to mobilise the educational and cultural communities, as well as the economic and social players in Europe, in order to speed up changes in the education and training systems for Europe's move to a knowledge-based society.

Project title Technical characteristics researching of modern products in the Machine Industry (machine design, fluid techniques and calculations) with the purpose of improving their market characteristics and better placement on the market
Type of the project CEEPUS
Number of the project CIII-RS-0304-04-1112
Main investigator Prof. Ing. Karol Velíšek, CSc.
Time period of the project 2011 – 2012
Annotation Market globalisation has had an effect on product assortment extension on the market, which brought many benefits to the consumers. They are enabled to buy products of different quality, price, design and terms of delivery. Major manufacturers have received globalisation with a great enthusiasm, because globalisation enabled the expansion of the market and all the preferences that follow with this. Small and medium sized manufacturers are the most affected with globalisation, because of the presence of concurrents, so they can not place their products anymore in such amount like before, or even they can not do it at all. Due to globalisation, they have had to reduce their assortment and intensively sought to develop existent products, so they could become more competitive. All who did not succeed in this process, had to change their production programme, or simply to close their factories.

The global world brings global problems for industrial production. Economic pressure urges producers to make more customised products of high quality, in smaller series, with shorter lead time and of course, without increased costs. Time is becoming one of the most important point of the companies strategy. Costs are also important, however more important is competitive price and the most significant are marketability of manufactured products. Therefore producers look for different ways (new design, modern tools, etc.) to increase the competitive advantage of their products.

In most cases, leading competitors bought all prospective companies (their potential competitors), so they continued to produce, but, after this, different products. If small and medium sized manufacturers want to remain in a globalised market, they intensively and incessantly must develop their products, apply new technologies and nourish aggressive marketing, because it is the only way to subsist at the market.
When some product is being analysed, we can discuss its aesthetic characteristics (shape, colour, style), its

technical characteristics (dimensions, mass), its service characteristics (capacity, energy consuption), functional characteristics (principle of functioning), and design (construction and performance way). However, when the product occurs on the market, its market characteristics become very important. It is necessary that manufacturers always have to develop market characteristics of their products in order to encourage potential customers to choose their products. The final selection of the products and producers by consumers is dependent on the market characteristics of the product, ability of marketers and retailers or buyers and sellers to point out those characteristics and use them in forming the prices and other sales aid activities (delayed payments, credit, exchange etc.)
The market characteristics are the following: nature and complexity of the product, specific characteristics, variety of the palette of products, quality, design, price, product brand, image of the product, packaging, production date, distinctiveness and protection of the product, sales brochures and catalogues, marketing support, availability of the product, customer service, timing of product delivery, warranty terms, technical support, service support, etc.
The majority of market characteristics are influenced by the producers themselves, and they have the biggest responsibility for the sales of their own products. However, the role of the retailers is also important, which leads to the conclusion that the sales problem should be tackled with a complex approach, with the full cooperation of all involved parties. This is especially relevant today, when the increase of the sales of domestic products is a priority and all the relevant information regarding the quality of the products should be disclosed. Also, it is very important to secure availability of the domestic products supply, keep the public informed of where those products are sold, ensure that they are recognisable in retail outlets, labelled separately that they are produced domestically, outline the reasons why consumers should choose them over competition, train the sales staff in details about the advantages of the domestic products and encourage them to present that to the consumers. All of these factors can have a significant influence on the consumers, and in addition to affordable pricing, credit financing, attractive design and good image, they can play a determining role in decision-making regarding the purchase of domestic products by the consumers. It is also important to accentuate high impact of the image of the product, which is dependent on the image of the producer, image of the current customer base, product design image, packaging image, image of the visual graphics displayed on the product and packaging, image and perception of pricing, image of retail outlets, image of the promotional activities, image of the after sales support services etc.
Technical characteristics depend on the nature of the product so that with sports equipment importance is in design, comfort, recognition and price; with household appliances importance is in design, ease of handling, low weight, easy maintenance, low noise and price; with transport vehicles, design, comfort, fuel usage, low emissions and environmental issues; with working machinery, capacity, precision, and the degree of automation; with generators and energy converters, power, and effective utilisation which show the degree of perfection of converting the energy. Technical characteristics can significantly improve the market characteristics of the product and such can influence the better placement on the market.
Taking into account all the above mentioned aspects of technical and market characteristics of the products, the following subject of a new research project to be realised within the framework of the CEEPUS program has been proposed:
Technical characteristics researching of modern products in the Machine Industry (machine design, fluid techniques and calculations) with the purpose of improving their market characteristics and better placement on the market

The necessity of the network cooperation

The Universities included in this network have been collaborating with each other, though not always formally, for a number of years. Several partners have experience and achievements in the CEEPUS projects cooperation. CEEPUS project represents a very useful formal way for cooperation between the partner institutions. The network assures an efficient possibility for students and teachers mobility, that contribute to mutual acquaintance and to valuable educational and research programs development. Exchange of knowledge and experience is very important for each university teacher and student. Not only the acquisition of necessary information has big significance but also dissemination is characteristic for universities and other scientific institutions. Another important possibility is the possibility to create joint programmess of study, common evaluation of diploma and PhD works.

Project title Development of manufacturing technologies – new strategies and new challenges in education and research
Type of the project CEEPUS
Number of the project CIII-BG-0614-01-1112
Main investigator Assoc. Prof. Ing. Peter Košťál, PhD.
Time period of the project 2011 – 2012
Annotation Time and digital technology are the most strategic topics for companies in order to survive. Nowadays manufacturing is characterised by intensive use of computers, communication and information technologies.
New methods of manufacturing technology, computer aided systems and information technologies, virtual machining are indeed strong tools for solving the global problems. The manufacturers look for tools to improve their enterprise competitiveness - to produce more products with less material, less energy and less waste. Additionally, they have to take environmental considerations. This means that the choice of materials and the designed solution cannot be done on purely technical and economical criteria, but must also take recycling, pollution and disassembly concerns into account.
This new project will allow our future engineers to work in a more project focused manner and to combine state of the art know-how with theoretical insight. Thus, this project will meet future industrial needs for highly trained professionals in the manufacturing industry. It will be directly linked to technology and innovation across the universities in Central and Eastern Europe.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Employee	Country
Assoc.Prof.RNDr. Mária Behúlová,CSc.	Czech Republic, Poland, Austria, South Africa
Ing.Lenka Čičmancová	Estonia, Slovenia, Poland, Romania
Ing. Nadežda Hankeová	Estonia, Slovenia, Poland, Romania, Czech republic
Ing.Štefan Hajdu,PhD.	Czech Republic
Ing.Radovan Holubek,PhD.	Croatia, Czech republic
Assoc.Prof.Ing. Peter Košťál, PhD.	Czech Republic, Cuba, Romania
Ing. Katarína Krajčová	Czech Republic, Romania
Assoc.Prof.Ing. Milan Nad', CSc.	Estonia, Czech Republic
Ing. Tibor Nánási, CSc.	Estonia, Czech Republic
Assoc.Prof.Ing. František Pecháček, CSc.	Romania, Poland, Croatia
Ing. Roman Ružarovský, PhD.	Croatia, Germany, Japan, USA
Ing. Silvia Šebeňová	Czech Republic, Poland, Romania, Croatia
Prof.Ing. Karol Velíšek,CSc.	Japan, Estonia, USA, Poland, Czech Republic, Romania

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Acoustical Society
Ing. Tibor Nánasi, PhD.
Assoc.Prof. Ing. Milan Nad', PhD.

European Acoustical Association
Assoc.Prof. Ing. Milan Nad', PhD.

Slovak Welding Society
Ing.Helena Kraváriková, PhD.
Ing. Jarmila Oravcová, PhD.

Technical Commission 21 SÚTN Bratislava
Ing. Tibor Nánasi, PhD.
Assoc.Prof. Ing. Milan Nad', PhD.

Slovak Associations of Mechanical Engineers (SASI)
prof. Ing. Karol Velíšek, CSc.
Assoc. Prof. Ing. Peter Košťál, PhD.
Assoc.Prof. Ing. František Pecháček, PhD.
Ing. Radovan Holubek, PhD.
Ing. Roman Ružarovský, PhD.

Technical Commission 68 SÚTN Bratislava
Assoc.Prof. Ing. Milan Nad', PhD.

Expert Group for Chemistry and Physics of Solids
Assoc.Prof. RNDr. Mária Behúlová, CSc.

Technical Commission 81 SÚTN Bratislava
Assoc.Prof. Ing. Bohumil Taraba, PhD.

Technical Commission 57 SÚTN Bratislava
Assoc.Prof. Ing. Bohumil Taraba, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

Society of Machining and Machine Tools
prof. Ing. Karol Velíšek, CSc.
Assoc.Prof. Ing. Peter Košťál, PhD.
Assoc.Prof. Ing. František Pecháček, PhD.
Ing. Marcela Charbulová, PhD.

OIAV - ÖSTERREICHISCHER INGENIEUR - UND ARCHITEKTEN – VEREIN
prof. Ing. Karol Velíšek, CSc.

WASET - World Academy of Science, Engineering and Technology - Scientific Commitee and Editorial Rewiew Board
prof. Ing. Karol Velíšek, CSc.
Assoc.Prof. Ing. Peter Košťál, PhD.
Ing. Nina Danišová, PhD.
Ing. Roman Ružarovský, PhD.

The Czechoslovak Association for Crystal Growth
Assoc.Prof. RNDr. Mária Behúlová, PhD.

European Acoustical Association
Ing. Tibor Nánasi, PhD.

IACSIT - International Association of Computer Science and Information Technology
Assoc.Prof. Ing. Peter Košťál, PhD.
Ing.Andrea Mudriková, PhD.
Assoc.Prof. RNDr. Mária Behúlová, PhD.

IIIS The International Institute of Informatics and Systemics
Ing. Nina Danišová, PhD.

SCIEI - Science and Engineering Institute
Assoc.Prof. RNDr. Mária Behúlová, PhD.

PUBLICATIONS (most important publications in 2012)

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Košťál, Peter - Velíšek, Karol: The New Drawing less Manufacturing Laboratory. In: World Academy of Science, Engineering and Technology. - ISSN 2010-376X. - Iss. 65. Part X : May 2012, Tokyo, Japan (2012), s. 1349-1353

Košťálová, Miroslava - Košťál, Peter: The Intelligent Clamping Fi xture. - **registered in: Web of Science, Scopus**. In: Applied Mechanics and Materials. - ISSN 1660-9336(PRINT). - ISSN 1662-7482(ONLINE). - Vol. 152-154 (2012), s. 1670-1674

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Krajčová, Katarína - Pecháček, František - Velíšek, Karol: Organizational machines layout and the application of individual features in the specific production or assembly through the simulation. – **registered in: Web of Science, Scopus**. In: Advanced Materials Research. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 479-481 : 3rd International Conference on Manufacturing Science and Engineering (ICMSE 2012), China, 27-29 March 2012 (2012). - ISBN 978-3-03785-372-6, pp. 508-511

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This part of Annual Report 2012 was verified by Prof. Ing. Karol Velíšek, PhD.

INSTITUTE OF APPLIED INFORMATICS, AUTOMATION AND MATHEMATICS

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STAFF

- Professors: 6
- Assoc. Professors: 9
- Senior Lecturers: 16
- Research Fellows: 6
- PhD Students: 41

EDUCATION AT THE INSTITUTE

STUDY PROGRAMMES

- Applied Informatics and Automation in Industry
- Process Automation and ICT Implementation in Industry
- Process Automation and ICT Implementation

Number of students (at 30/10/2012) registered on study programmes offered by the Institute: 552
Number of the graduates (2011/2012) of the study programmes offered by the institute: 207

ACTIVITIES OF THE INSTITUTE

27/02/2012 - Meeting with Bauer Gear Motor GmbH.
04/07/2012 - A decree awarding the title of Visiting Professor is given to Oliver Moravčík by the Universidad Central Marta Abreu de las Villas/Cuba.
09-14/09/2012 - The Institute gives a presentation at the International Engineering Fair in Brno (Czech Republic)
31/10/2012 - A lecture is given on the topic of "Advanced Software Testing I. delivered by Ing. Roman Nagy, PhD., a development expert for software architecture and development. Since 2008, he has worked for the Research and Development Division of BMW AG (Munich, Germany).

GRADUATE PROFILE

BACHELOR'S PROGRAMME (Bc.)

Applied Informatics and Automation in Industry
The graduate will obtain the first level university education in the interdisciplinary field of study in Automation and Applied Informatics. The interdisciplinary study allows the application of skills in industry and also in the service sphere. Throughout the programme the individual will have gained an understanding of the information systems of an industrial enterprise and control systems of technological and production processes. The graduate will have developed an understanding of the processes and the methods of implementation and operating of information technologies and automation. Graduates from this field will have a fundamental knowledge of automation and informatics and will be able to implement the process through the use of computer-aided systems. The graduate will have knowledge and skills in the field of machine technology, automation and ICT implementation in the processes as well as the fundamentals of diagnosing, collecting, processing and transformation data, along with experience in programming, computer modeling and simulation. The practical operation of automatic measuring, control and information systems will contribute to the graduate's ability to solve problems regarding the implementation and utilisation of computational and automation technology and the individual will have gained knowledge of natural science within the first degree of university study, mathematical and physical basics of automation and computer science. The in-

dividual will have developed the necessary IT skills, will be able to work alone or as a member of a team and will have skills to analyse automation and information technology requirements as well as implement and operate automation equipment and information technologies in control systems. Completion of the programme will equip the graduate with an awareness of social, moral, legal and economic contexts of the profession and the consequences of automation and information technology application. Moreover the graduate will be ready to perform in the field of industry and services as well as to study the second degree in automation and applied informatics. The graduate will be able secure employment and work successfully in jobs connected with the implementation, operation and maintenance of control and information systems for technological processes control and data processing in various fields of industry.

MASTER'S PROGRAMME (Ing.)

Process Automation and ICT Implementation in Industry
After completion of the course the graduate will have acquired extensive knowledge of theoretical and applied scientific disciplines necessary to understand patterns during the physical, technological, informatics, automation and control processes in industrial companies and organisations, even at the description level of abstract models. The graduate will master basic technological processes of industrial production and the structure of manufacturing. This knowledge will allow the individual to design systems and ways of automated control and information support, with design consideration given with regard to environmental and ecological aspects. The graduate will also develop knowledge of data collection techniques, data processes and data transmission from the process level to the business level. The graduate will have a deep understanding of the theory of systems, process automation, automation equipment, algorithms, information technology, programming, data processing and data transmission, information systems, real-time systems, visualisation of processes, modelling and simulation of systems, systems for decision support in business activities, systems integration. This knowledge will equip the graduate with the ability to analyse, design and maintain a huge amount of information of technology systems and specific types of information systems for control processes and decision support regarding specific requirements of the enterprise, organisation or institution. The graduate will be aware of the social, moral, legal and economic contexts of the profession in accordance with professional, ethical and legal frameworks applicable to the area of applied information technologies and automation. The graduate will be well prepared for an immediate entry into the labour market as well as for postgraduate study in order to further develop their scientific potential in information technologies and automation. The graduate will be able to successfully perform not only in the design and operation of information and control systems in industrial plants, but also in the design or consultancy offices for institutions, information, management and telecommunications systems, software engineering, as well as in schools in educational institutions.

POSTGRADUATE PROGRAMME (PhD.)

Process Automation and ICT Implementation
The graduate will have developed expertise in the modern fields of automation and control processes utilising information technologies in the development of new methods, algorithms and procedures on the level of a scientist and a researcher. Depending on the choice of elective subjects, students can specialise in the areas of complex systems by utilising information technologies, in the field of modern flexible manufacturing systems or intelligent management techniques with artificial intelligence. The individual will master mathematical principles, theory and cybernetics methodology combined with advanced methods, theories of management and automation. Upon completion of the programme, the graduate will have developed knowledge of the principles and methods for designing the complex systems and complex systems of information technologies. The graduate will be able to analyse and define the problems of scientific research, implement projects by using the latest formal tools and experimental procedures in accordance with the EU legislation. The graduate will understand the background of automation, control and related sciences as well as the physical fundamentals of the originally implemented solutions for automated and automatic control, information technology, preparation and management of experiments, modeling and simulation. The graduate will be aware of the social, moral, legal and economic aspects of the profession as a scientist or a researcher. The graduate will be well prepared for scientific or research work in the field of research and development of new methods for the management of complex systems based on the latest information about control algorithms. The individual will also be ready to articulate the problem and lead the research team professionally and can also successfully perform as a top development researcher in the top scientific, research and academic institutions in both domestic and foreign labour markets.

LIST OF SUBJECTS OFFERED BY THE INSTITUTE

- Applied Mathematics
- Automation of Data Acquisition and Processing
- Bachelor's Thesis
- Bachelor's Project
- Diploma Thesis
- Graduation Project
- Dissertation Project I,II,III,IV,V,VI
- Graphical Systems
- Information Systems
- Real-Time Information Systems
- Information Technologies
- Integration of Production Control Systems
- Intelligent Control Methods
- Internet Technologies
- Information Systems – Deployment and Integration
- Communication Technologies
- Mathematical Methods of Experiment Planning and Evaluation
- Mathematics I, II, III
- Systems Modelling and Simullation
- Neural Networks and Genetic Algorithms
- Object Oriented Programming
- Professional practice
- Pedagogic activities I,II,III,IV,V,VI
- Computer Integrated Manufacturing
- Computer Graphics and Digital Image Processing
- Computer Architecture and Operating Systems
- Computer Networks
- Process Visualisation
- Programming Languages
- Programming of Industrial Controllers
- Programmable Logic Controllers
- Planning of Control Systems
- Knowledge Representation and Inference Mechanism
- Control of Flexible Manufacturing Systems
- Project Management
- Production Systems Control
- Simulation Optimisation in Production Systems Control
- Software Engineering
- Decision Support Systems
- Automatic Control Hardware
- Automatic Control Theory
- Systems Theory
- Complex System Theory
- Selected Topics in Mathematics
- Research paper I,II,III,IV,V,VI,VII
- Development of Information Systems
- Basics of Automated Control

GRADUATE THESES

Bachelor's Theses

Baláž, M.: Project and implementation of information system for small business
Bartoš, M.: Information systems of a construction company using UML
Belan, R.: The use of technical equipment to increase the security of a facility (camera systems)
Benka, T.: Mensuration characteristics of transistor amplifiers using the selected measurement and control unit
Berčík, P.: Multimedia products guide in the company, Železiarne Podbrezová
Cuninka, P.: Generating simulation models of radnom structure applied in Matlab
Čipel, M.: The development of iOS applications for iPhone
Deák, M.: Information system for a furniture store using UML
Demian, A.: Solved and unsolved examples in C++
Donoval, K.: The design and creation of a virtual model of the environment Control Web for station Simatic S7-300
Fazekas, M.: Controlling a tramway by PLC
Franík, J.: The design and realisation of a model for railway traffic management and depending control program for station Simatic S7-300
Fraňo, D.: Configuration of a Linux–based domain controller for mixed clients
Fuňák, M.: The design and implementation of information system educational institutions in UML notation
Grolmus, M.: The proposal of a Information System agenda for a dental clinic
Hanuliak, M.: Numerical solving of the first order differential equations by Runge-Kutta methods
Hetteš, P.: Comparison of ABB and Fanuc robots
Hnilica, P.: A design for the operation of a printing machine using PLC and a stepper motor
Hrabala, M.: Software modules for combustion burners
Chobot, P.: The design and implementation of web applications for small business
Chovanec, M.: The design and implementation of an interactive ordering system in UML notation
Janák, J.: The possibilities of controlled graphics applications creation using Windows
Kiliany, M.: Mobile application IS for price calculation using OS Android
Klačanský, M.: The design and implementation of a safe computer network for a small company
Košarišťan, J.: Implementation of application for Android mobile devices for a private company
Kováčová, M.: The design and implementation of the information system of a corporate agenda in UML notation
Kraic, D.: Plugin for XEP-0136 support to Pidgin IM
Lendel, J.: Database applications for the need of community self-government
Lenghardt, I.: In-plant information portal by PHP/MySQL
Lengsfeld, M.: The use of instance data blocks, functions and indirect addressing in step 7
Lepieš, P.: Web design applications using the MVC architecture
Lovíšková, K.: WEB database application for a military paintball association
Majko, P.: The design and realisation of the controlling program for a stacker-rack
Márföldi, P.: Creating a website for TAS Trnava
Matovič, M.: The design of a security system in an intelligent house
Mavyahi, A.H.K.: A proposal for dynamic web applications
Miklošovič, T.: The design and implementation of a local information system - module client account management
Mikulášek, M.: Compressed graphics file formats for pictures
Mogilský, D.: Creating a robot control program for the MSR-84
Mráz, P.: The creation of a hybrid system model and event processing algorithm in MATLAB (Simulink)
Musil, V.: Configuration with AI/AO for support teach-

ing of the programmable logic controllers
Nagy, M.: Modern segmentation techniques in the field of image processing
Ondriga, T.: Controlling of step motor with the aid of an assembler
Palkovič, J.: The realisation and provision of a home ad-hoc WiFi network
Petrušek, I.: The realisation of the information system of operations with the technical orientation using UML
Potkány, G.: Design and implementation of an online dictionary interface
Repka, M.: Graphic formats of video
Rolinec, M.: GrabCut Segmentation Technique
Schir, J.: Proposal of a small information system using UML module for a pawn shop
Slovák, R.: Implementation of the automation solution for vehicle door assembly
Šebeň, T.: Designing and editing a student´s journal
Škorec, Ľ.: The creation of an interface and software to control a stepper motor
Šperka, A.: System automation of a house
Šuchaň, J.: Controlling of a virtual model by Simatic S7-300
Šusta, M.: Tool for data import to the DBMS MySQL for different types of coding (the WEB application)
Tadanai, O.: The use of Visual Studio Tools for Office in statistics analysis
Tamaškovič, D.: The design and implementation of secure computer network for small business
Turanec, T.: A module for work with genetic algorithms in Matlab
Ujlacký, V.: Implementation of information system for the purchase of secondary raw materials
Urban, R.: Design and development of small IS using CMS Joomla
Varga, R.: Suggestion and realisation of a control system for a model of a vehicle
Žarnócai, D.: Design and implementation of a web site for hotel Phoenix using CMS

Master's Theses

Andris, F.: Design of the Information System for company, Electrooprav
Babiarová, D.: Determination of the optimal production time of the selected product using simulation optimisation
Bánovský, P.: The determination of optimal production size with the usage of simulating optimisation
Bekéniová, J.: Metropolitan Data Network
Beták, M.: Analysis of linear thermal expansion of selected steels
Blaško, B.: The design and realisation of IS for a logistics company with the use of BPMN and UML
Bobák, I.: Supporting software for planning of production quality
Brázdovič, M.: The design of measurement and regulation for a heat source
Briestenský, M.: The design and implementation of measurement and heat control in a multifunctional building
Bugár, D.: The design and implementation of an air-conditioning control unit with the station Simatic S7-300
Buchálik, A.: The information system of repairs on LCD assembly lines
Bulla, M.: The design of a system for measuring the temperature curve of the building
Čačík, P.: Improving the efficiency of production of LCD and LED TVs using lean production metrics and simulation
Čelko, A.: Positioning of the samples using a laser scanner
Čuvala, P.: MS SharePoint Server 2010 employee portal
Daniš, L.: The design and realisation of an information system using UML and UP – module for client insurance
Daniš, M.: The proposal and implementation of small IS using BPMN and UML – guesthouse modulus
Dobšovič, M.: The communication of microprocessors on the RS485 bus
Domin, M.: Design and implementation of IS for a paintball centre
Dráb, Ľ.: The software application for solving of linear differential equations with special right-hand side
Ďuriš, R.: Performance analysis of SMT production lines by simulation
Farkaš, J.: The maximisation of using production machines by simulation optimisation
Furko, M.: Design improvements in manufacturing cabinets using simulation
Garaj, T.: Simulation of manufacturing components for the company, IKEA
Gašpar, G.: Distributed systems of temperature data collection
Gramblička, M.: A comparison of numerical methods for ordinary differential equations of the second order with initial conditions
Grman, P.: Simulation of the logistic processes in the electronic industry
Holička, P.: A virtual model of a production line for the production of concrete pressings
Holienčín, L.: Design of an information system for a pharmacy
Horáčik, P.: An integrated security system for an office building
Horka, M.: The issue of computer networks security using IP protocol filtering
Horváth, A.: Improvement of the quality of digitised technical drawings
Horváth, P.: The implementation of a depot system into the CMS Joomla!
Hraňo, M.: Design and realisation of store IS with BPMN and UML
Hrašna, P.: The proposal and realisation of warehousing and commercial IS for a company with the use of BPMN and UML
Hříbal, J.: Tester of rotary incremental encoders
Hýroš, M.: A draft of the communication interface with a smart house
Chobot, T.: Simulation of front car seat manufacturing
Imanbakiev, A.: The creation of theses in the www-environment
Jančarek, D.: Virtual model of a tube heat exchanger
Janiš, M.: Changing the parameters of assembly in Inventor VBA
Jonáš, P.: Implementation of business intelligence in controlling
Joštiak, R.: The design and implementation of a portal within the specified area of computer science
Juroš, M.: Paperless web system verification of knowledge
Kamenár, P.: Search of the road routes with the smallest distance
Kelecsényi, Z.: Creating an electronic information portal on the topic "Numerical and functional sequels"
Kessel, S.: Virtual model of hydraulic system
Kočišová, J.: Options of a production costs reduction by means of simulation optimisation
Kojnok, J.: Visualisation of photovoltaic power plant operation on the touch screen operator dialogue terminal
Koňuch, R.: Information System in the web environment (support modules for full-time combined method of study)
Kopecký, R.: Implementation of the inertial system for mobile robot control
Kopilec, L.: Optimisation of selected strategies for the management of a flexible manufacturing system
Kopúnek, L.: The design of an information system service and maintenance of vehicle
Kostka, M.: Solving input assembly of integrated circuits using simulation
Kotrík, M.: Analyses and proposal of an automated data collection solution and data integration into the ERP system from manufacturing lines
Kozma, P.: Design and implementation of web hosting based on Microsoft Technologies
Krajčovič, Ľ.: The virtualisation of Linux domain server cooperating with LDAP
Královič, R.: A simulation of child seat production
Krarak, J.: Restructuring of the optical data network in a corporate network
Krchňák, T.: Realisation control of the stepper motors by microcontroller
Krumpál, P.: Software calibration of a digital camera
Krupa, L.: Module for managing attachements in the B2C system, Magento
Krupánszki, M.: Design of heating system regulation for a detached house
Kukumberg, M.: Metropolitan multifunctional camera system
Kuprinay, A.: Information system for print and online media
Kutenič, P.: Improvement to the manufacturing process of interior and exterior doors by simulation
Lečko, J.: Monitoring Vmware ESX Cluster
Lehotský, M.: Database application in WEB (module of production of allocation actions for DPM studies)
Lehotský, S.: Fuzzy temperature control in MATLAB – SIMULINK
Libošvár, K.: Information system design for the warehouse of a gastronomic facility
Lipnický, M.: A proposal of a central control interface for smart houses
Maculʼa, J.: Creation of process control flow diagrams in LaTeX
Mačanga, P.: The design and implementation of the small information system - module sale and service of the computer technology
Maček, P.: CAx Technologies utilisation by proposal, by production and by controlling of the measuring gauge
Makva, M.: Calibration parameters of digital cameras and portable devices.
Matúš, M.: Design intranet portal for company
Mečír, T.: The design and implementation of small IS-module for a dental ambulance
Mihalik, P.: A proposal of an information system to the technical operation of the transport company
Mihočka, M.: The issue of implementation of voice transmission over IP protocol
Michaličková, K.: Creating a database assistance program for simulation requirements
Milo, A.: Processing graphic datas in DTP
Minarovič, J.: Calibration of digital camera in Matlab and Photomodeler
Moravčíková, Z.: The design of information system – module of car sales
Mudroch, P.: An application for the creation of courses in a web environment (module for DCM trial)
Neštický, M.: Implementation of INS for sensing the position of the pendulum in real time
Obal, M.: Design and implementation of an information system for the Avon-Shop using UML and UP
Ondrejička, M.: Design of system for generating class schedules
Ondruška, J.: Virtual model of a filling line for PET bottles
Pagáč, I.: Information system design and implementation with design patterns usage
Péči, M.: Design of the portal for controlling sales channels
Pekar, R.: Content Management System using the jQuery API
Petrovič, Ľ.: Implementation of the hike map portal
Pikna, J.: The design of an information system for the manufacturer of sports jerseys
Podkonický, B.: Implementation of algorithms for the determination of distances in graphs and digraphs
Predný, M.: Improving the process of production in food production by means of simulation
Púchly, F.: Design of an information system for Ahold Retail Slovakia
Putnok, M.: Simulation application software of an industry regulator
Rášo, O.: A simulation study of sorting and incineration of municipal waste
Rosinský, M.: A virtual model of the production system
Schavel, F.: A proposal for object security
Simon, P.: A production simulation of selected food commodities
Sítková, V.: Technical systems for early detection of risks in the operation of the business centre
Skýpala, M.: Creating an electronic teaching portal on the topic of "Graph Algorithms"
Sobota, M.: Design and implementation of virtual object and control program
Socha, T.: Presentation of selected graph algorithms
Spevár, M.: Electronic store in the field of the web
Sroka, M.: Inference Engine of Rule-Based Expert System
Šimúnek, P.: A proposition of informative system for stock control
Škuta, L.: Assessment of accuracy for determining the size of the manufacturing benefit by means of simulation optimisation against classical methods
Šlauka, M.: Modification of parameters in the four-speed gearbox of Inventor VBA
Šlauka, R.: Extracting data from the title block of digitised technical drawings
Šternócky, M.: The automation process treatment and identification of Heineken Slovakia products
Štofan, M.: Network security and MPLS VPN connection usage in a company
Štulajter, J.: Information Lifecycle Management (ILM)

for SAP system based on file-base archives
Štuller, J.: Optimising the production of plastic windows by simulation
Táčovský, M.: Project and implementation of information system for a retirement home
Talajka, D.: The technological process of the desktop in the web environment
Taranda, O.: Simulator of network composed of ADAM 4000 modules with a virtual serial interface
Tarr, P.: Creating a 3D model and modifying its parameters using Autodesk Inventor
Tibenský, S.: Searching the shortest road routes using algorithms involved in the determination of distances in graphs and digraphs
Tóth, D.: The utilisation of mobile phones in technical documentation recording
Turičík, M.: The implementation of SCADA and distribution of data via radio modem in the existing dispatcher workplace
Turzík, P.: Planning software for correction planning on machines
Valach, Ľ.: Project of Attendance Information System (AIS) for the IT department
Vávrová, L.: The design of an information system in UML notations for the city library
Vereš, J.: Design optimisation of an assembly line in the environment Witness
Vontszemü, O.: The issue of security of computer networks, using IP protocol filtering
Vystrčil, R.: Virtual model of a manufacturing system
Záhumenský, M.: The design and implementation of the small information system - Production Stock Control Module
Zelenay, L.: Design measurement and control of a gas boiler
Žák, R.: The utilisation of algorithms which deal with distance determination in graphs and digraphs

PhD Theses

Bartúnek, M.: Car automatic safety system for collision avoidance on road danger zones
Haluška, T.: A draft of SOA architecture utilisation for the integration of control systems
Hamerník, P.: A proposal of information and control systems for smart homes
Kováč, M.: Drawing faces with genetic algorithms
Ľupták, V.: Optimisation of the production process using the metrics of lean manufacturing
Masár, A.: Changes during the software life cycle
Mydlo, P.: Fuzzy control for nonlinear continuous technological processes
Ondriga, M.: System for automatic creation of morphological dimensions database
Pauliček, R.: Simulation optimization in the manufacturing process control
Škampla, M.: The use of priority rules in scheduling production and their impact on production targets
Škulavík, T.: Fuzzy control for robotic arm
Špendla, L.: The proposal of a model for testing communication subsystem of safety critical control systems
Trnovský, P.: The specifics of software design for control systems of safety critical procesess
Zobok, M.: The integration of data flows for the synthesis of heterogeneous systems

RESEARCH AT THE INSTITUTE

Areas of Research
- Control systems of technological and production processes (including of the regulation of quality questions, regulation optimisation, intelligent regulation systems, sensitivity and robustness of regulation systems).
- Information and Control systems IRS (reliability and security of IRS, IRS for safety critical processes, IRS of real time, SCADA systems, PLC).
- Mathematical modeling and system simulation.

Research characteristics
Research at the institute is focused on the informatisation and automation of control processes on all levels of industrial production, meaning technological, production and management with an emphasis on new trends in the mentioned areas (development of intelligent control methods, new products in software aided areas, and new trends in data integration and Knowledge Discovery). The other developing area of research is the mathematical modeling and simulation of dynamic systems with fast feedback, especially in connection with design and effective control of high-frequency oscillators in electronic circuits as well as other technological areas where it is needed to generate non-linear vibrations with the possibility to modify amplitude and frequency of these vibrations.

Areas of expertises:
- Automation and Control of Processes
- Software Engineering and Information Systems

PROJECTS OF THE INSTITUTE

Project title Identification and evaluation of shapes and surfaces of materials scanned by laser confocal microscope
Coordinator Ing. Tomáš Bezák, PhD.
Start Date 01/01/2012
Programme KEGA
Annotation Laser confocal microscopy (LCM) is gradually being applied in many workplaces in Slovakia despite its undisputed financial costliness. Scientific disciplines of biology seem to be the core area where the application of LCM is growing at a particularly high speed, while LCM with an episcopic illumination system typical for metallurgical applications systems is limited. Currently, there are two devices in Slovakia and they may still be considered as unique. When compared to conventional light microscopy, the advantage of laser confocal microscopy is in markedly increased depth of sharpness, reaching a value up to 10 mm at the magnification of 100-times. However, this benefit is achieved with a substantial timeconsumption of scanning and subsequent need for the robust image-processing software tools. Complexity, robustness and effort for universality of commercial tools results in difficulties with satisfying specific application requirements.

Project title Model of teaching Mathematics by using new technologies
Coordinator Assoc.Prof. RNDr. Mária Mišútová, PhD.
Start Date 10/06/2011
Programme KEGA
Annotation The project deals with the teaching of Mathematics using new technologies in the full-time and part-time study forms in technical universities. In the first stage of the project, designed was the proposal of a teaching model with the use of open sourced mathematical software with the application of the methods supporting creative thinking. In the second stage, multimedia programs as well as ematerials for students will be developed. In the final stage, didactic effectivity will be verified by means of pedagogical experiment. The final stage will be the implementation of the model into teaching.

Project title Elaboration of interactive multimedia textbook "Mechatronics" for secondary vocational schools
Coordinator Assoc.Prof. Ing. Pavol Božek, CSc.
Start Date 01/01/2012
Programme KEGA
Annotation Various multimedia techniques allow for better, more intensive and efficient perception of information (texts, drawings, pictures, speech, music, animations and videos) in specific subjects. Students are not able to remember the enormous amount of information in the current teaching/learning practice. It is therefore crucial to be able to organise the information, grasp the aim and fundamnetals of the subject studied. Multimedia and hypertext are the right tools for supporting the work with information in the related study material, it is easy to search and focus on it. The project is centred on the preparation and elaboration of a new educational application for engineering secondary schools in the Slovak Republic with the aim of increasing quality of teaching within the subject of "Mechatronics".

Project title The data mining usage in manufacturing systems control
Coordinator Assoc.Prof. Ing. Pavel Važan, PhD.
Start Date 01/01/2011
End Date 31/12/2013
Programme VEGA
Annotation The project is focused on the use of data mining techniques for gaining knowledge of manufacturing systems. The knowledge will be used in the management of these systems. The simulation models of manufacturing systems will be developed in order to obtain the necessary data about controlled production systems. Various control strategies will be implemented in these simulation models. The researchers will develop a way of storing the data obtained from the simulation models in the data warehouse (it will include thousands of records) and create a data mining model using specific methods and selected techniques for specific problems of production system management. The collected knowledge about production management system and designed parameters of a particular management strategy will be tested on a simulation model of the production system. Proposal of the data-mining methodology for storing operation data of the production process will be an important benefit of the project.

Project title Research into the monitoring and assessing the non-standard states in the vicinity of a nuclear power plant

ITMS of project 26220220159

Duration of project 04/2012- 09/2014

Workplace Institute of Applied Informatics, Automation and Mathematics + Qintec, s.r.o. Trnava

Operational programme OPVaV - 2011/2.2/07-SORO

Annotation The project aim is to support research and development in the field of ICT. It will support the economic growth via technological improvement of the system of monitoring and assessing/evaluating of non-standard states in the vicinity of a nuclear power plant. The intention is that the results will markedly influence the environment. The project also supports co-operation between enterprises and universities and sustainable development in three fields: economic (increasing innovativeness, competitiveness and added value of research into small and medium-sized companies; social (life quality, safety and health protection); environmental (power security and environmental protection).

Project title Implementation of the internal system of quality assurance in education

ITMS of project 26110230042

Duration of project 01/2012 - 12/2013

Operational programme OPV - 2010/1.2/02-SORO

Annotation The aim of the project is to design and verify the system of objective quality assessment and effective and purposeful education in order to achieve continual adaptation of tertiary education institutions to current and future needs of knowledge society. It will enable the introduction of the system of direct quality measurement of tertiary education, while improving the outputs and approximating the educational system to the society needs. The project objectives are:

- to design and verify the system of objective quality assessment of education in the Bachelor's study programmes in STU MTF;
- to design and verify the measures aimed at eliminating the information disproportion in the bachelor study programmes in STU MTF;
- to design and verify the measures for increasing the education quality in the Bachelor's study programmes in STU MTF;
- to design and verify the evaluation of measures in the Bachelor's study programmes in STU MTF.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Employee	Country
Ing. Tomáš Bezák, PhD.	Germany
Assoc.Prof.Ing. Pavol Božek, CSc.	Russia Czech Republic
Ing. Michal Eliáš, PhD.	Germany
Ing. Martin Juhás, PhD.	Czech Republic
Ing. Bohuslava Juhásová, PhD.	Czech Republic
Ing. Dominika Jurovatá	Austria
Ing. Michal Kebísek, PhD.	India
Ing. Michal Kopček, PhD.	Czech Republic USA
Alena Kopčeková	Czech Republic
Ing. Gabriela Križanová, PhD.	Czech Republic
Ing. Júlia Kurnátová	Austria Estonia
Assoc.Prof.Ing. German Michaľčonok, CSc.	Czech Republic
Prof.Dr.Ing. Oliver Moravčík	Hungary Greece
Moravčík Oliver, Prof.Dr.Ing.	Germany Germany Spain and Canary Islands Canada Croatia Columbia
Ing. Eduard Nemlaha, PhD.	Czech Republic
Martin Neštický	Czech Republic
Ing. Ľuboš Ondriga	Czech Republic, Estonia
Matúš Péči	Czech Republic
Assoc.Prof.Ing.Schreiber Peter, CSc.	Czech Republic Croatia
Ing. Lukáš Smolárik	Estonia Bulgaria
Bc. Michal Sroka	Czech Republic
Ing. Andrej Strašifták	Estonia Czech Republic
Ing. Tomáš Škulavík, PhD.	Czech Republic
Ing. Milan Štrbo	Estonia
Assoc.Prof.Ing. Pavol Tanuška, PhD.	Japan Croatia
Trnka Kamil, Ing.	Estonia
Assoc.Prof.Ing. Pavel Važan, PhD.	Japan

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Association of Slovak Scientific and Technological Societies
Assoc.Prof. RNDr. Mária Mišútová, PhD.

Mensa Slovakia
Mgr.Marcel Abas, PhD.

Slovak Association for Geometry and Graphics
Assoc.Prof. RNDr. Mária Mišútová, PhD.

SSKI - Slovak Society for Cybernetics and Informatics of Slovak Academy of Sciences (member of IFAC)
Assoc.Prof. Ing. Peter Schreiber, CSc.
Assoc.Prof. Ing. Pavol Tanuška, PhD.
Assoc.Prof. Ing. Pavel Važan, PhD.
prof. Dr. Ing. Oliver Moravčík
Ing.PhD. Michal Eliáš
Ing. PhD. Michal Kopček
Ing. PhD. Martin Juhás
Ing. PhD. František Miksa
Ing. PhD. Eduard Nemlaha
Assoc.Prof.Ing. Maximilián Strémy, PhD.
Ing.Tomáš Bezák, PhD.
Ing.Michal Kebísek, PhD.
Ing. Miriam Iringová, PhD.
Assoc.Prof. Ing. German Michaľčonok, PhD.
prof. Ing. Dušan Mudrončík, PhD.
Assoc.Prof. Ing. Jozef Vaský, PhD.
Ing.Andrej Eliáš, PhD.
Ing.Gabriela Križanová, PhD.
Ing. Bohuslava Juhásová, PhD.
Assoc.Prof. Mgr. Róbert Vrábeľ, PhD.
Assoc.Prof. Ing. Pavol Božek, PhD.
Ing.Igor Halenár, PhD.
Ing. Pavol Bezák, PhD.

SASI - Slovak Association of Machining Engineers
Assoc.Prof. Ing. Pavol Tanuška, PhD.
Assoc.Prof. Ing. Pavel Važan, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

IIA - International Informatization Academy, USA
prof. Dr. Ing.Oliver Moravčík

International Society for Geometry and Graphics, USA
Assoc.Prof. RNDr. Mária Mišútová, PhD.

IUMB - International Union of Machine Builders, Ukraine
Assoc.Prof. Ing. German Michalčonok, PhD.
Assoc.Prof. Ing. Peter Schreiber, CSc.
Assoc.Prof. Ing. Pavol Tanuška, PhD.
Assoc.Prof. Ing. Pavel Važan, PhD.

IACSIT – International Association of Computer Science and Information Technology, Singapore
prof. Dr. Ing. Oliver Moravčík
Assoc.Prof. Ing. Peter Schreiber, CSc.
Assoc.Prof. Ing. Pavol Tanuška, PhD.
Assoc.Prof. Ing. Pavel Važan, PhD.
Assoc.Prof. Mgr. Róbert Vrábeľ, PhD.
Ing.Igor Halenár, PhD.

European Platform of Women Scientists
prof. Dr. Ing.Oliver Moravčík

IAENG - International Association of Engineers, Hong Kong
Assoc.Prof. Ing. Pavol Tanuška, PhD.

IEEE - Institute of Electrical and Electronics Engineers, USA
Assoc.Prof. Ing. Pavol Tanuška, PhD.

PUBLICATIONS (most important publications in 2012)

Vrábeľ, Róbert: On the approximation of the boundary layers for the controllability problem of nonlinear singularly perturbed systems. – **registered in: Web of Science, Master Journal List, Scopus**. In: Systems and Control Letters. - ISSN 0167-6911. - Vol. 61, Iss. 3 (2012), pp. 422-426

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This part of Annual Report 2012 was verified by Assoc. Prof. Ing. Pavol Tanuška, PhD.

INSTITUTE OF INDUSTRIAL ENGINEERING, MANAGEMENT AND QUALITY

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STAFF

- Professors: 6
- Assoc. Professors: 11
- Senior Lecturers: 19
- Research Fellows: 5
- PhD Students: 67

EDUCATION AT THE INSTITUTE

STUDY PROGRAMMES

- Industrial Management
- Production Quality (offered from 30/08/2012)
- Production Quality Engineering (offered from 30/08/2012)
- Personnel Policy in Industrial Plant (offered since 01/09/2012)

Number of students (at 30/10/2012) registered on study programmes offered by the institute: 1052
Number of the graduates (2011/2012) of the study programmes offered by the institute: 366

ACTIVITIES OF THE INSTITUTE

08-10/02/2012 - Concluding Conference, two excursions and 9th project meeting of the AUTOCLUSTERS (SEE/A/594/1.2/X) project on the creation of an "Internation co-operation network of educational and research institutions with sub-contactors and other organisations active in the automotive industry"
27/02/2012 - Meeting with Bauer Gear Motor GmbH
27/03/2012 - "Dialogues with practice" delivered by Dr. h.c. Ing. Jozef Uhrík, CSc.
02/04/2012 - Excursion in Kia Motors Slovakia
13/04/2012 - "Day of the Institute" to celebrate the anniversary of its establishment, presentation of its achievements and the jubilee events. The event was presented by Prof. Ing. Alexander Linczény, CSc.
30/04/2012 - 2nd year of Ph.D. competition on "Innovation in the automotive sector 2012", for the best thesis focused on the field of innovation in the automotive industry.
17/07/2012 - Visit from the United Arab Emirates, Dr. K. Prakash Vel of "University of Wollongong" in Dubai
09-14/09/2012 - Presentation as part of the International Engineering Fair in Brno (Czech Republic)
01-10/09/2012 - Evaluation of PhD students' contributions to the Ph.D. competition on "Innovation in the automotive sector 2012"
03/10/2012 - Participation in 15th National Forum of Productivity 2012
11-12/10/2012 - CO-MAT-TECH 2012: Internationa Research Conference
22/10/2012"Dialogues with practice" delivered by Ing. Peter Čirka of Johnson Controls, CEO for Central Europe
26/11/2012 - Dialogues with practice" delivered by Assoc.Prof. Ing. Ján Lešinský, CSc., head of the Institute of Life-long Education at the Slovak University of Technology in Bratislava.
10/12/2012 - "Dialogues with practice" delivered by Assoc.Prof.Ing. Štefan Rosina, PhD., president of Board of Directors and CEO of Matador Holding, a.s.

Invited talks 2012

03/2012 "Innovative good practice" – European conference on gender and innovation-maximising innovation potential through diversity in research organisations – Stuttgart/Germany (Assoc. Prof. Ing. Jana Šujanová, PhD.- Assoc. Prof. Mgr. Dagmar Cagáňová, PhD. – Assoc. Prof. Ing. Miloš Čambál, CSc.)
04/2012 "Gender diversity in industrial research institutions" – conference Women in Indiustrial Research, session Gendered Innovation – Budapest/Hungary (Assoc. Prof. Ing. Jana Šujanová, PhD.)
06/2012 "Language policy in the Slovak Republic – Die Rolle der Nationalsprachen in Europa – Koethen/Germany (Assoc. Prof. Ing. Jana Šujanová, PhD. ; Assoc. Prof. Mgr. Dagmar Cagáňová, PhD.)
10/2012 "Corporate blogging as an IT management innovation tool within the automotive industry" – Internet as Innovation Eco-System Summit and Exhibition – Riva del Garda/Italy (MSc. Paul Woolliscroft - Assoc. Prof. Ing. Jana Šujanová, PhD.- Assoc. Prof. Mgr. Dagmar Cagáňová, PhD. – Assoc. Prof. Ing. Miloš Čambál, CSc.)
09/2012 "The issue of education in industrial engineering in relation to the automotive industry in the Slovak Republic and its consequences on rural areas" – 5th Jonas Pranas Aleksa International Scientific Conference Pural contemporary vision – Siauliai/Lithuania (Assoc. Prof. Ing. Jana Šujanová, PhD.- Assoc. Prof. Mgr. Dagmar Cagáňová, PhD. – Assoc. Prof. Ing. Miloš Čambál, CSc.)

GRADUATE PROFILE

BACHELOR'S PROGRAMMES (Bc.)

Industrial Management
The graduate will gain an understanding of the social and technical systems integrating human resources, information, materials, devices and processes within the complex life cycle of products and services. The graduate will possess a fundamental knowledge of natural sciences, technical, technological and human disciplines, as well as knowledge of informatics and specific knowledge of industrial engineering focused on plant management, the economy, production management, marketing and accounting. The emphasis on practical application of the aforementioned knowledge will enable the graduate to be able to apply the knowledge and skills gained in practice, primarily as a team-leader or team-member in middle management or to setup and run small businesses or company.

Personnel Policy in Industrial Plant
The graduate will have gained an understanding of the strategy of personnel management and its connection with the theory and practice of market mechanics. The knowledge and skills gained, including computer literacy, will enable the effective management of human resources. The individual will be able to solve complex personnel problems regarding the requirements and economic, legal and moral restrictions on business. The graduate will successfully perform as a personnel or finance manager on various levels of management in large, medium-sized or smaller companies, in agencies and in both governmental/non-governmental and profit/non-profit organisations. The graduate will be well prepared to become a highly competent member of management in lower organisational structures, including the field of financial management.

MASTER PROGRAMME (Ing.)

Industrial Management
The graduate will gain a complete university education focused on planning, designing, implementing and managing production systems and also creativity development in engineering projects or processes. The individual will gain an indepth knowledge of natural sciences, technical, technological disciplines and humanities with expertise in industrial management, company management, production management, plant economy, theoretical knowledge of operation and system analysis, logistics, personnel, investment, finance, innovation and information management. The graduate is ready either to continue studying at postgraduate level and develop a research career in industrial management, or to enter the job market immediately. The graduate will successfully perform as a middle or top manager in organisations within various sectors of industry requiring the synergy of managerial, economic, technical and soft skills and knowledge.

POSTGRADUATE PROGRAMME (PhD.)

Industrial Management

The graduate will have gained a complete university education in Industrial Management focused on the knowledge development in the field of managerial activities, tools and methods applied in various types of companies. The graduate will have mastered research and development methods of gaining knowledge autonomously. The graduate will be able to develop creative methods in the field of industrial management and design, provide social, technical and managerial systems in various types of companies, accelerate the development of innovative processes, and apply various management improvement approaches. The graduate will be quipped with the skills to succeed in top managerial positions in various types of organisations, consulting companies and universities, in both research and teaching careers.

LIST OF SUBJECTS OFFERED BY THE INSTITUTE

- Accounting
- Bachelor's Project
- Bachelor's Thesis
- Basics of Ergonomy
- Basics of Quality Management
- Business Economy Basics
- Business Economy I, II
- Business Strategies for Small and Medium-sized Enterprises
- Calculation and Prices
- Computer Aided Quality Management
- Controlling
- Customer Protection and Complaint Management
- Designing and Management of Manufacturing Processes
- Master's Project
- Master's Theses
- Dissertation Thesis I, II, III, IV, V, VI
- Economy
- Economy of Non-metallic Materials Production
- Ergonomy
- Exact Methods in Managerial Decision making
- Financial and Investment Management
- Financial Management
- Human Resource Management
- Change Management
- Industrial and Intellectual Property of the Firm
- Information Management -
- Information Technologies II
- Innovation Management
- Integrated Management
- Intercultural Management
- Labour Rationalisation Basics
- Logistics
- Management
- Management Basics
- Management Information Systems
- Management of Investment Progresses
- Management of Projects
- Managerial Ethics
- Marketing
- Marketing Management
- Market Research and Monitoring of Customer Satisfaction
- Marketing Strategies
- Monitoring of Customer Satisfaction
- New Trends in Complex Quality Management
- Operation and Maintenance of Machines
- Operational Research
- Pedagogical Activity I, II, III, IV, V, VI
- Personnel Management
- Practice
- Production Management I, II
- Project Management
- Project of Conformity Assessment
- Project and Process Management in Quality Management
- Quality Audits
- Quality Management Systems
- Quality Management Case Studies
- Research Thesis I, II, III, IV, V, VI, VII
- Standardisation, Certification, Conformity Assessment
- Statistical Methods
- Statistical Methods of Quality Control
- Statistical Methods in Process Improvement
- Strategic Management
- Supply and Distribution Based Logistics
- Tax Management
- Tools and Techniques of Quality Management
- Total Quality Management

GRADUATE THESES

Bachelor's Theses

Ančicová, N.: Development and human resources management
Antal, A.: A proposal for organising improvement in an industrial company
Babišíková, Z.: A study using the measurement and monitoring of products in Slovak industrial organisations
Babišová, M.: Design recommendations for sustainable strategies of corporate social responsibility for small and middle companies in the field of sustainable production
Bad'ura, B.: Measurement, monitoring and improvement of the processes in an industrial factory
Bad'urová, L.: Analysis of redundancies in LOTN, a. s.
Bajzíková, M.: A proposal of measures to streamline the process of selecting and evaluating suppliers of LEONI Autokabel Slovakia
Baleková, S.: The working environmnent as a motivating factor in the company
Bálintová, M.: A proposal of measures to improve the education of employees in TEAM INDUSTRIES, Ltd
Baloghová, E.: Education of employees in Slovnaft Montáže a Opravy a.s. Bratislava
Bariš, R.: Design measures to visualize the results of business in Vetropack Nemšová Ltd.
Bartek, P.: Concept of measures – how to make material flow more effective in the process of material preparation in production in Vacuumschmelze Ltd.
Bařinka, S.: Design of a motivation programme for manufacturing employees in TRYON Ltd. Brumov-Bylnice

Běhalová, N.: Draft measures for improving the remuneration and motivation and its influence on employment output and working satisfaction in Grafobal a.s.
Bendiková, M.: Forms of employee motivation to improve quality in production department
Benedikovičová, M.: Suggested improvements on the use of business information systems in BESYN, s r.o.
Beňo, T.: Improvement proposals of material flow processes in Techklima, s.r.o. Nové Mesto nad Váhom
Blaho, M.: The proposal of suitable measures to improve the employee educational system in T-Industry Ltd.
Blahutová, M.: Design of basic ergonomic measures to rationalise in Inalfa Roof Systems Slovakia, s.r.o., Krakovany
Blažo, R.: Proposed measures to streamline the information flow in the context of Faurecia Slovakia Ltd. – Hlohovec
Blesáková, V.: Applying the basic tools of quality management in the plant site
Bobáková, J.: Training of employees as a part of the personnel work in Sapa profily, a.s.
Borovský, J.: Improvement in time structure of the production process in a workplace with a horizontal boring machine in ZTS-LR NaJUS Dubnica nad Váhom
Branišová, M.: Suggested forms of quality management improvements in industrial enterprises
Brehovský, L.: Proposed measures to improve the system of motivation of employees in Pankl Automotive Slovakia, Ltd.
Brizlák, M.: A proposal of measures to improve the education system in the context of Jasplastik-SK, s.r.o. Galanta, focusing on the identification of educational needs
Brošová, K.: Proposals for improving employees´ motivation in Georgia-Pacific Slovakia, p. r. a.
Buday, M.: Proposed measures to improve the process of supply in Vetropack Nemšová Ltd.
Bucha, P.: A proposal to improve the stock management and stock holding of Metalport, s.r.o.
Bysterská, J.: Training of employees in an industrial enterprise
Černák, M.: A proposal of measures for improving the effectiveness of the material flow and handling of the materials in Bohuš, s.r.o. Závadka nad Hronom
Čuláková, A.: Education of employees in Johnson Controls International, Inc. Trencin division
Dananaiová, B.: Personality and status of an executive in ŽOS Trnava, a.s.
Dávidová, Z.: A proposal of measures for improving work incentives to increase labour productivity in Mochovce ENERGOSTROJ
Debnár, R.: A proposal of a system of search and selection of employees in Eissmann Automotive Slovensko, s. r. o.
Dedíková, K.: Proposed measures for the use of outdoor activities in the education of employees in HPM Therm, s.r.o.
Demian, M.: Analysis into the effectiveness of recruiting private secondary school graduates in Železiarne Podbrezová a. s.
Doupníková, L.: Methods of recruitment, focusing on the interview in OMS, s. r. o.
Dóza, P.: Proposed measures to improve corporate culture as a tool for motivating employees in Matador Holding, Inc.
Drábik, M.: Proposed measures for advancement and the motivational system of employees at PROHTERM PRODUCTION Co. Ltd., Skalica
Drobná, D.: The proposal of measures for streamlining the soft skills of employees at Praktik Textil s.r.o., Trnava
Drottner, P.: Machine capability monitoring and process capability to achieve specified requirements
Dužeková, M.: Recruitment, selection and hire of new employees
Eliáš, P.: Employee stabilisation and its significance for enterprises
Farkasová, D.: Motivational incentives of employees in Hörnlein, p. r. a. Šahy.
Farkašová, R.: The use of statistical methods to improve processes
Fatranská, A.: Draft measures for the employee educational system improvement as a method of company culture optimisation in Bekaert Hlohovec, a.s.
Feješová, V.: Analysis of the system of personnel work in ZSNP a.s., Žiar Nad Hronom
Florian, B.: Application of measures of development by using information system in company NES Nová Dubnica s.r.o.
Franklová, P.: Proposed measures to improve the system of recruitment and selection of employees in RIEKER OBUV, s.r.o. Komárno
Fulek, R.: A proposal of measures for the improvement of recruitment and selection of employees in Continental Matador Rubber, s.r.o.
Fúsek, M.: A proposal of measures to improve the use of the Internet as a marketing communication tool in Continental Matador Rubber s.r.o.
Gajdošová, L.: Corporate culture in MIBA STEELTEC Ltd. Váble
Gregušková, M.: Motivational incentives to employees
Grulišová, L.: The company educational system for employess in Vaillant Industial Slovakia s. r. o.
Hašková, K.: The proposal of measures for improvement in the use of marketing activities to promote brand building in Železničné opravovne a strojárne Zvolen, a.s.
Herega, R.: Proposed measures to improve the education system as a method of increasing work performance in HKS Forge, Ltd.
Hlinka, M.: Analysis of quality assurance in the manufacturing process of GeWiS Slovakia, s.r.o company
Hodulíková, K.: Recruitment, selection and employing of new employees in PCA Slovakia, s.r.o.
Holečková, L.: Analysis of corporate culture in the company KONŠTRUKTA – Industry plc. and proposal measures for its development
Holosová, V.: Personal growth of employees career and its formation in Duslo Šaľa a.s.
Homolová, A.: A proposal to address the recommendation effects of cost externalisation of transnational corporations on the economy of small and medium-sized enterprises in Slovakia
Horňáková, J.: The system of education and expansion of employees in Delphi Slovakia, LTD. Senica
Horňáková, M.: Recommendations to improve the image of products in Heineken Slovakia, a.s.
Horníková, R.: The analysis and rationalisation of the personel activity in a company
Horváth, T.: Proposal of measures to optimise the process of selection, adaptation and care about employees in SLOVNAFT MONTÁŽE A OPRAVY, a.s. BRATISLAVA
Hradilová, V.: Improving the motivational system of employees in SILCOTEC EUROPE (SK), s.r.o.
Hrachová, S.: Labour recruitment, selection and recruitment of employees
Hrnčiříková, L.: Motivational Stimuli of the employees in EC-Tech Plc.
Hucíková, J.: A proposal of measures in production and the use the profit
Hudáková, D.: Valuation of the business financial situation in an industrial company
Hudecová, D.: The development and training of employees in SES Tlmače
Hujsová, M.: Motivating stimuli of manufacturing employees in industrial enterprise
Chmelíková, M.: Lifelong learning in ŽOS Trnava, a.s.
Chodúrová, M.: Personal growth and career development of employees in SEMIKRON, Ltd. Vrbové
Chovancová, Ľ.: Analysis of relationships in the workplace
Ištvánová, M.: A proposal of measures to improve the motivation of employees in the ContiTech Vibration Control Slovakia s.r.o. company
Jakabovičová, D.: Measures proposed in the area of job description creation ZF Boge Elastmetall Slovakia, a.s.
Jakubek, Ľ.: A proposal for the procedure of applying ergonomic principles of rationalisation in the industrial enterprises in the Slovak Republic
Janíčková, M.: A proposal of improvements for corporate culture in Arnold izolácie, k.s.
Janík, N.: Training of employees in the company
Jankechová, M.: Education of employees in Hubert J. E. spol. s r. o.
Jurigová, M.: Recruitment, selection and employing of new employees in the Matador Industries, Inc Dubnica nad Váhom.
Juriš, T.: Recruitment, selection and hire of new employees in VACUUMSCHMELZE, s.r.o.
Juroš, J.: A proposal of measures to improve the material flow on the tube mill operation in Železiarne Podbrezová, a.s.,
Kabát, Ľ.: A proposal of recommendations for the development of interpersonal skills of managers in Jutex Slovakia, s. r. o.
Kačíková, L.: Draft action in the system of education and development of employees in PCA Slovakia, s.r.o.
Kadlečík, J.: Quality assurance in the production process
Kajan, T.: Corporate culture as part of corporate identity in ZSVS, a.s.
Kákoš, J.: Suggested operations to objectification the cost pricing in PÖTTINGER STROJE, s.r.o.
Kalužová, M.: Education and training of employees in the corporation METSA TISSUE SLOVAKIA s. r. o., Žilina
Karnasová, H.: A proposal of measures for the utilisation of new marketing tools in Jozef Macho ZAMA INTERIÉR
Kaščáková, D.: Analysis of communication in Chemosvit Folie, a. s. and suggestions for its improvement
Kázmérová, D.: Proposed measures of depreciation of tangible and intangible assets in ZVS holding, a.s.
Kiššová, I.: Human resources analysis and development in companies
Klokner, M.: A proposal for measures to improve the planning of the marketing strategy in Tatrachema. v.d. Trnava
Kolesárová, K.: Proposition of measures to improve the methods of review and evaluation of employee educational effectiveness in TECHNOS, a.s.
Kollariková, M.: Suggestion of arrangements to implement selected lean methods in STREIT TRNAVA s.r.o.
Kolmanová, Z.: Training and development of employees in EVPU-ZVS Inc.
Konc, M.: A proposal for improving of the incentive system in terms of selected company
Kovács, P.: Proposed measures to reduce fluctuation and absence of employees in JAV – AKC, s.r.o.
Kováč, V.: A proposal of the measures streamlining the suppliers and customers relations in the company VLM MIHALIK, s. r. o.
Kovárová, Z.: Adaptation and training programmes for newly recruited employees in Etop-Trading a.s.
Kozák, A.: Proposal of actions for improvement of the motivation system in Continental Matador Rubber s. r. o.
Krajčír, M.: Proposed measures for improving the use of statistical methods and tools in the processes of ArcelorMittal Gonvarri
Krajčo, V.: A proposal of measures for the development of management roles in the middle stage of management in Enviral, a.s.
Královičová, K.: Recruitment and hiring of new employees
Krcheňová, V.: A proposed set of measures to improve the system classification of costs and revenues in the enterprise ZTS – Výskum a vývoj, a. s. for management needs
Križan, J.: Suggestions for improvements to the motivation system of employees in the company Hörnlein, ks
Kružliaková, V.: The proposal of measures for an efficient evaluation system of the employees in the selected company
Kubašová, M.: Proposal of measures to improve adaptation process of the employees in the context of Hollen, Ltd. Trnava
Kucharičová, J.: The draft measures to improve corporate culture in INA Skalica spol. s r.o.
Kukuľová, M.: Proposal of measures for better utilisation of the marketing mix in the company MAJK, s. r. o., Heľpa
Kunovská, P.: Proposal of measures to improve the recruitment system and selection of employees in the company ASSA ABLOY Czech & Slovakia, Imt.
Kuricová, R.: Recruitment, selection and intake of employees in the firm Exhaust Systems Product Group
Kurová, M.: Suggestion of proposals for improvement of the procces efficiency of suppliers services in the company Transplus (Slovakia) s. r. o.
Kusovský, P.: Application of the continuous improvements principle in the industrial company
Kutlišová, M.: Education of workers as an integral part of personnel work in the company
Kuzmová, L.: Package of measures to promote efficiency of book-keeping internal directives in FREMACH Trnava s.r.o.
Kvasnicová, K.: Training of employees in the company Halla Climate Control Slovakia s.r.o.

Labudová, Z.: Quality assurance in the production process in the selected manufacturing company
Lackovič, M.: Suggestions to streamline transportation and manipulation with metal scrap which is produced by plant P2 in Bekaert Hlohovec, a.s.
Lamanec, M.: Draft of the basic ergonomic measures of rationalisation in selected workplaces of Slovak Road Administration, Bratislava
Lány, M.: Draft precautions for improving the work motivation of employees in KOVOSPOL Ltd. plant.
Lenický, M.: The proposal of measures to streamline the management process in the enterprise Slovnaft a.s.
Lilková, M.: Proposal of arrangements for interpersonal skills development of managers in Neida Ag
Lošonská, D.: Proposal of measures for shaping corporate culture in LYCOS- Malthouse, s.r.o., Trnava
Lukáčová, D.: The system of personnel working in industrial companies
Ľuptáková, J.: Selection of suppliers in the organisation in terms of quality management
Macko,S.: Proposal of arrangements using the AHP method application to evaluate customers of POSS-SLPC, s.r.o. in the context with corporate social responsibility
Magálová, M.: Analysis of communication in the workplace energy systems in Emerson, stock company
Mahajová, M.: The management of accounts receivable in the company
Machovičová, M.: Draft recommendations for the use of managerial competence in industrial enterprises in Slovakia
Malíková, P.: System of employees design in the enterprise
Mancoš, T.: The education of employees in the company
Marcinek, J.: A system of managing the claims in an industrial company
Margušová, S.: Education of employees in the company Makyta, a.s. Púchov
Marušincová, Z.: Proposed programme of social enterprise
Masláková, M.: A proposal of measures to improve the process of education of employees in the company Hanil E-Hwa Automotive Slovakia, s.r.o.
Matejová, M.: Evaluation of employees in a company
Matonok, L.: Proposed measures to solving senior problems of the company REA SLOVTEAM , s r. o.
Matúš, P.: Proposal to improve the education of employees in the industrial sector in Slovakia
Mazanovský, P.: Marketing, sustainable development and corporate social responsibility
Medňanská, B.: The optimalisation of recruitment, selection and receiving new employees in MAGNA SLOVTECA, s.r.o.
Medová, E.: Customer satisfaction and its measurement in the management quality
Michálíková, M.: Career promotion of employees in PSA Peugeot-Citroën
Mikulovičová, V.: The recruitment, selection and recruitment of new personnel
Mikuš, O.: Measures proposed to improve the evaluation of the effectiveness of training workers in the industrial enterprise Saint-Gobain Construction Products Ltd. - Trnava branch division ISOVER
Miterková, M.: Proposal for an alteration of the motivation system at Isover, s.r.o.
Molnár, G.: Proposals of measures to streamline processes, inventory management and stock management in Leoni Cable Slovakia, Ltd.
Moncmanová, N.: Status and role of HR staff in the company
Možnár, M.: Design measures to improve the production process in Forlit Ltd.
Nagy, M.: Proposals of measures to improve the workflow differential disposal
Nehézová, A.: Design of measures for applying the method of VSM in the fiting workroom of the Power-One company
Nepšinský, M.: Proposed measures to develop the core competencies of employees in industrial enterprise SLOVMAG, a.s. Lubeník
Niklová, P.: Corporate culture
Nitka, T.: Supplier relationship management – a form of improving quality management system
Novák, J.: Proposal of measures to improve internal communication within the company PROTHERM PRODUCTION Ltd.
Ondreášová, D.: System and organization of human resources
Oravcová, E.: Proposed measures for improvement of the educational process in Pankl Automotive Slovakia
Orolín, J.: Proposed measures to streamline the purchase of logistics companies in KENT Slovakia s. r. o., Banská Bystrica
Ovečková, M.: Recruitment, selection and recruitment of new employees
Pagáčová, M.: System education and staff development in business RKS Trenčín s.r.o.
Pajtinka, A.: Proposal for improvement of the system for supplier defect complaint solving in an industrial factory
Pančíková, M.: Proposal to improve the management process in ZLH PLUS a.s
Pastýr, A.: Proposed measures to use the annual report to assess the financial and economic outcomes of Slovenské lodenice Komárno, a.s.
Patková, P.: Staff training in the company Sauer-Danfoss Inc. as a component of personnel work
Pavlovičová, M.: A proposal of arrangements for developing the key employee competences in the area of logistics in Fremach Trnava Ltd.
Pazinová, J.: Proposed measures to improve teamwork in the company PROTHERM PRODUCTION Ltd.
Pethö, D.: Gauges capability analysis and measurement system analysis
Petráš, E.: A proposal of the measures to streamline the processes of management of inventory and warehouse management in the company SEHWA SK s.r.o.
Petríková, V.: Proposal for a social programme in the company Tesla, Liptovský Hrádok
Petrovičová, I.: Providing quality in the process of buying
Pilch, P.: Proposal to improve the adaptation and deployment of employees
Pinďáková, A.: The education and development of employees in the company Signalbau, a.s. Prerov
Pirožák, J.: Proposal of measures focusing on streamlining the material flow at Vidox, p. l.
Plaščiaková, V.: Proposal of measures to improve the use of marketing activities supporting the brand building in a company Bekaert Hlohovec, a. s.
Pobiecky, L.: Suggestion of arrangements of AHP method application to evaluate ŽOS Trnava, a.s. suppliers in the context of corporate social responsibility
Podhradský, T.: System of remuneration of employees in Silgan Metal Packaging Nové Mesto, a.s.
Pokusová, A.: Use of statistical tools and methods to improve processes
Poláček, I.: The system of recruiting and selection of employees in the company Protherm Production s.r.o. Skalica
Polačková, J.: Application of claim management in the organisation
Popperová, M.: Proposed improvements to corporate employee training in Cestné a stavebné mechanizmy Tisovec, a. s.
Prekopová, N.: Work environment as a motivating factor in the company
Prítrská, V.: Application of the basic instruments in quality management in an industrial establishment
Prna, A.: A proposal to improve the application of communication mix tools in selected company
Putalová, M.: Making Continental Matador Truck Tires s.r.o. more attractive for graduates in the labour market
Remenárová, K.: The training and development opportunities of employees in the company VUJE, a. s.
Rosa, P.: Proposal for improving material flow for apex lines in Continental Matador Truck Tires s. r. o., Púchov
Rovenský, D.: Suggestion of recommendations to improve the delivery and customer relations in the context of corporate social responsibility using the analytical hierarchy process method
Rumančíková, B.: Proposal of measures for improvement of corporate culture in ZOS Trnava
Rumlerová, L.: Personality of the manager
Rusková, A.: Proposal of a reward system of employees in companies
Sabo, L.: A proposal of measures for the development of key competences of employees in industrial enterprises
Sabová, D.: Meaning of the ethical code for management development in business
Sedláčková, L.: Management of complaints as a part of the quality management system
Sedláková, D.: System of personnel work in the Magna Slovteca, s r. O company
Sedláková, M.: Suggestions for a company employee reward system
Sedláková, M.: Suggestions for improvement of employee placement and adaption in MENERT spol. s r.o.
Selič, V.: Evaluation of the working environment and corporate culture in the Holcim (Slovakia), in Rohožník
Schiffel, L.: Draft recommendations for the sustainable strategies of CSR for SMEs in Slovakia in the field of-sustainable logistics
Schiffel, M.: Draft recommendations for the introduction of a flexible environmental oriented system of balanced indicators of industrial enterprises in Slovakia
Sivák, M.: The proposal of measures for the more effective process of operative logistics in the company PCA Slovakia, s.r.o.
Sládeček, I.: Suggestion of arrangements for the improvement of the adapting programmes for newly accepted employees in the company INA Skalica, s.r.o.
Slobodová, E.: Proposal of competitivness in TOPOS Tovarniky ltd, industrial company, in the global environment in line with SZP
Smoleková, V.: Analysis of working satisfaction in company HS-Tec, Ltd., Trenčín
Spišáková, A.: Motivational incentives for employees
Stanková, I.: A proposal of measures for the implementation of a flexible, environmentally oriented system of balanced indicators in the company Scheuch, s.r.o.
Straka, M.: Proposed measures to improve material flow in the company ZF SACHS Slovakia, a.s., Trnava
Streličáková, V.: A proposal of measures to improve the financial structure of business RONA, a.s.
Synáková, L.: Adaptation and allocation of employees in a company
Szalayová, E.: Values and rituals in the company KONŠTRUKTA-Industry, a.s.
Šebeň, P.: Proposal to rationalise the recruitment process
Šimlaštík, M.: Financial and economic analysis of a company
Šimonffyová, J.: Proposed measures to improve worker motivation in the industrial company EVPÚ – ZVS, a. s.
Šimonffyová, M.: Design to improve the use of marketing communication in company EVPÚ – ZVS a.
Šimová, P.: The proposal of measures for the implementation of coaching in the management of human resources in Chirana-Dental, s.r.o. company, Piešťany
Šipoš, I.: Optimisation of the adaptation process in STAVKOV, Ltd company
Škrobáková, I.S.: Proposal to improve the admission process of foreign employees Samjin LND s.r.o.
Šmidáková, J.: Proposed measures for advanced selection and recruitment of employees in the company
Štefaniková, M.: Education and development of staff in the company, ESA-logistika Co., Ltd.
Šteruská, B.: New forms of communication and communication technology in the workplace
Števanková, S.: Training of employees in the company, Delta Electronics, s.r.o. Dubnica
Šubjaková, M.: Proposals of measures to develop effective processes in material flow of production clamping tool 924 in the company LKT, Ltd
Šujaková, M.: Proposed measures to improve the use of information systems in enterprise Delta Electronics (Slovakia) s.r.o.
Šurinová, R.: Suggestion of improvements on the use of business information systems in the company TECHKLIMA Ltd.
Šuryová, N.: Education of employees in companies
Švantnerová, M.: Ensuring quality in the manufacturing process in an industrial enterprise
Švrčková, I.: Fluctuation of employees in a company and the possibilities to decrease it in BK group a.s. Piešťany
Talašová, A.: Proposed measures for improvement of educational standards in the company ZVS holding, a.s.
Tarišková, Z.: Proposed suggestions to improve the system of evaluation of employees in the industrial company, SES, a. s. Tlmače
Tóth, A.: Proposed measures to improve the use of information systems in Maehler & Kaege Systems CZ s.r.o. company
Tóth, M.: Application of statistical regulation in industrial practice
Tóthová, B.: Application of arrangements for improved motivation system in the Slovak Dock-Yard in Komárno,

Joint Stock Company Bratislava
Trnka, S.: Draft measures for cost reduction in conditions of a specific company
Turanovičová, B.: Recruitment, selection and hiring of new employees
Uhlár, M.: Analysis of motivation systems in the company, DEUFOL Slovensko s.r.o.
Václav, Ľ.: Monitoring the capability of machines or manufacuring equipment and processes to keep specified requirements
Váleková, I.: Proposal of using the "5S" method in industrial enterprises in the SR
Valentová, H.: The proposal for the improvement of market research in organisations focused on quality management
Veselková, A.: Proposal of measures to improve the management of production process in SACHS Slovakia Company
Vidlička, J.: Proposal of measures for streamlining processes of supply chain management in AT – ENGINEERING spol. s r.o.
Viktorová, V.: Proposal for improvement of application of the knowledge continuity management in industrial companies in Slovakia
Vu Huuová, L.: Selection of employees in company ADTOOL, s.r.o.
Vychopenová, D.: Proposal of measures to improve the lifecycle management brand SLOVAKRYL
Vyskočová, L.: Analysis of effective communication in the enterprise, JAF HOLZ SLOVAKIA, s.r.o.
Vystavil, Š.: A proposal of measures to improve the process of selection and evaluation of contractor suppliers and the implementation of ABC analysis into inventory management in VLM MIHALIK, s.r.o.
Zajíčková, I.: The elements of corporate culture and their analysis within an industrial enterprise
Zaťková, M.: A proposal of measures to improve the acquisition and the selection of employees in TSS GRADE a. s.
Zigová, I.: Design of the measures in the field of creation and use of economic result in the company GASTRO-SERVICE, Inc
Zubalíková, Z.: Motivational incentives of employees
Zubáriková, Ľ.: Education of employees in the company AVC Raková a.s.
Zurvalcová, L.: Proposals of measures to improve the company inventory and warehouse management processes in the production of a winch 2N in the company LKT, s. r. o.
Žigová, M.: Suggested steps to optimise the application of strategic planning elements in the industrial enterprise
Živčicová, B.: Recruitment, selection and acceptance of new employees in the company BEZ Transformátory, a.s.

Masters Theses

Ághová, J.: A proposal for the use of network analysis for sustainable production in the context of corporate social responsibility (CSR) in the company, MONTEX-PRO, s.r.o.
Bachratá, M.: The application of correlation analyse by improving the production process for a torque damper
Baláž, I.: The design of self-assessment reports for the selected criteria of the EFQM Excellence Model
Balážová, E.: Implementation of the methodology G8D as a tool for structural problems solution in GEFCO SLOVAKIA s.r.o
Balgavá, M.: Design for the usability of the marketing mix in 3M Plast s.r.o.
Balogová, D.: Proposal for the effective usage of the FMEA method in ELEKTRONIKA SLOVENSKO, a.s. company
Bartek, T.: Proposal to rationalise the maintenance and repair
Bartovičová, L.: The proposed application of selected methods of quality management in the workplace of final inspection
Bašnáková, M.: Design process for the implementation of self-assessment in compliance with ISO 9004-:2010 in the selected company
Bašo, M.: The draft assessment report for the selected criteria of the EFQM Excellence Model
Bat'ková, M.: Proposal to increase the efficiency of manufacturing and warehousing systems in the company, Hammerbacher SK, a. s.
Báto, R.: A proposal of harmonisation of maintenance and repair machinery in the field of metal forming machines UAP in the company, SUBTIL Slovakia, s.r.o.
Belavá, M.: A proposed competency model for ZKW Slovakia, s.r.o.
Bittnerová, M.: A proposal to streamline the process of changes to products during production in Foxconn company, company Ltd., Nitra
Bobulová, L.: The project for improvement of costing in the company TOPOS Továrniky j. s. c.
Bognár, P.: Design of indicators for measuring and evaluating the financial performance of the company, HYDRAULIKA DS, Ltd.
Boldiš, R.: Application process of supply handling complaints in SES Tlmače a.s.
Bordáč, P.: Proposal to improve employee performance management system in PCA Slovakia, Ltd.
Brachová, D.: A proposal for the improvement creation of business plans and budgets in the company KONŠTRUKTA - Industry, a. s.
Brehovská, M.: Design and innovation of marketing mix and products, in the joint stock company KONSTRUKTA – Industry
Brůhová, A.: Implementation of integrated management systems in a selected organisation
Bubánová, A.: Design and the application of the theory of constraints in improving the quality and throughput of the production processes
Buch, M.: System design career management of employees in the company, I.D.C. Holding, a.s.
Cuninka, T.: A study of using the Method AHP for determining the strategic goals within the CSR process in the company KIKA – Furniture Slovakia, s.r.o.
Čagánek, F.: A proposal for the optimisation of assembly processes and ergonomics at the assembly workplace in the company, ZF Boge Elastmetall Slovakia a. s.
Čambor, T.: Proposal for the rationalisation of the supply and stock holding process in Hyza, JSC.
Čellárová, E.: An ergonomical rationalisation plan in company SWEDWOOD SLOVAKIA, s.r.o., o.z. MAJCICHOV
Čermanová, B.: The application of DOE method for parameter settings of ultrasonic welder Branson X2000
Čvapková, A.: The application of integrated management system in LAGO – nástrojáreň spol. s.r.o.
Dočkal, J.: A proposal of improving methods of using lean principles in production management in the enterprise Continental Automotive Systems Slovakia s.r.o., Zvolen
Drobný, J.: A proposal of tools and methods application for the reduction of TV sets defects caused by FFC cable failure in assembly lines
Dudžíková, M.: A proposal of methods to prevent wastage in production, as part of the process improvement in the quality management system
Ďuriš, R.: Proposal to improve the maintenance and repair system of the company I.D.C. Holding, a.s., o. z. Pečivárne Sereď
Dvorská, J.: Rationalisation proposal of ergonomic solutions in the selected operating company Delta Electronics (Slovakia), s. r. o. in Dubnica
Dvorská, M.: Proposal for the use of marketing communication tools to create a positive image of the company Orgeco spol. s r. o. and its products
Endresová, P.: Design of social policy improvement for the company DUFREX s.r.o. (Ltd.) Sereď
Fedáková, D.: A proposal for the implementation of quality tools and methods in the company Techklima Ltd.
Fiala, Ľ.: A proposal of improvements to employee education and development systems in the company GE Energy Slovakia, s.r.o.
Fodor, R.: Rationalisation of inventory control systems in companies
Gábrišová, V.: Solutions proposed to improve the functioning of the material flow in the HYKEMONT spol. s r. o. company
Gajarský, P.: Improvements to selected processes of quality management systems in an industrial company in Slovakia
Gajdošová, Z.: A proposal for the adaptation programme of new employees in Saargummi Slovakia s.r.o.
Galbičková, D.: A proposal of self- assessment reporting for the selected criteria of the EFQM Excellence Model
Gálová, A.: A proposal for the improvement of corporate culture in Duslo, Inc.
Galovičová, D.: Proposed use of the new trends in marketing communications in the context of Pezinské tehelne - Paneláreň, a. s.
Gazdaricová, Z.: Recommendations for a restructuring plan of the plant - AFC-ZTS, Ltd.
Gerek, R.: A study to increase the efficiency of vehicle control on the module verification of painted bodywork
Grznár, A.: A proposal to improve the innovative potential of Pankl Automotive Slovakia Ltd
Guzmická, M.: Proposal of application tools for increasing employee involvement in Muehlbauer Technologies company
Habalová, V.: A proposal for effective teamwork in managing project in the GRAFOBAL company, joint stock company, Skalica
Havel, M.: Proposal to improve marketing communications in LAMDA-MODRA, s.r.o.
Hermanský, J.: A proposal to address the issues of reducing the reject rate in the manufacturing of Wheel 286 GM
Hlavatá, M.: A proposal for streamlining the environmental management system within an integrated management system process approach in the context of a sustainable strategy for corporate social responsibility in the company, TSS GRADE, a.s.
Hlavatovičová, S.: A proposal for improvement of the handling of complaints in selected industrial enterprises
Hodasová, R.: A proposal for the rationalisation of stockholding in the company NMB-Minebea Slovakia, s.r.o., Bratislava
Holásková, M.: A proposal for improvements to ensure the internal company directives are more effective in the context of Trans-Motocentrum, s.r.o., Boleráz
Horňáková, N.: A proposal of Corporate Social Responsibility implementation in LYCOS – Trnavské sladovne, spol. s.r.o., Trnava
Horváthová, Z.: A proposal for improvement of team work management systems in the company, DOKA DREVO, Ltd. Banská Bystrica
Hrnčár, J.: A proposal for the use of competency models in human resources management of the company, SLCP Consulting, s.r.o., Žilina
Hrušková, N.: A proposal of steps to improve the system motivation and stabilisation of employees in the company, SLUŽBA NITRA, s.r.o.
Hrušovský, R.: Design of the career management of employees in the company, Foxconn Slovakia, Ltd.
Hudák, J.: A proposal for improving the management of production processes in an industrial company
Hupková, A.: A draft competency model for the selected company
Chovanec, M.: An adaptation programme of new employees
Izakovičová, P.: A proposal of procedure for implementing self-assessment according to ISO 9004:2010 in the selected organisation
Jakubička, J.: Recommendations for improvement of the use of FMEA in the company PSL, a.s.
Janíčková, J.: Proposed options for implementation of the CSR concept in the company, Ekom Ltd. Piešťany
Janková, M.: A proposal for the management of teamwork in a company, ŽOS Trnava, a.s.
Jozefovičová, G.: A proposal of streamline material items type A, G assembly segment of the INA SKALICA company, Ltd.
Jurík, R.: A proposal to rationalise the maintenance and repairs
Jusková, L.: A recommendation of self-assessment reporting for the chosen criteria of EFQM model of excellence
Klocháňová, E.: The proposal of planning and management for the personal career of employees in Automotive Plastics Slovakia s.r.o.
Kocian, T.: A proposal for improvement of the maintenance-repair system in the enterprise, ZOS Trnava
Kočanová, Z.: A proposal of ergonomical rationalisation in the working environment in area of noise, dustiness and aerosols in Brezno industry, s. r. o. company
Kolarovič, J.: Proposals for the concept of the future state of the material flow in the warehouse of finished products in ZF Boge Elastmetall Slovakia a.s.
Kollárová, T.: A proposal of solution for the development of key competencies of intercultural manager in an industrial company
Korčeková, K.: A survey of the application of management complaints in economic organisations in the Slovak Republic
Kotlánová, P.: A proposal to improvements of the lifecycle management process of I.D.C. Holding, a.s. company's trademark

Kovačičová, K.: Production competency model for the company TI Automotive Ltd.
Kováčová, L.: The design of the employees´ personal career planning and management system in the company, INA SKALICA
Kozák, J.: A project aimed to improve the management of claims in the selected engineering company in Slovakia
Kubál, M.: A proposal for the improvement of corporate culture in ENERGOMONT s.r.o.
Kubíčková, D.: A proposal of using the FMEA method for improving product quality in Enics Slovakia s.r.o.
Kubovičová, L.: A proposal for streamlining the management and staff development in PCA Slovakia, s.r.o., Trnava according to competencies
Kudičová, J.: The process capability assessment of production of the product "Box Finger Cot"
Lašutová, M.: A proposal of self-evaluative work for the chosen measure of EFQM model of exceptionality
Lattová, V.: A proposal of solutions for ergonomic rationalisation in the company ILMONT, Ltd., Komarno
Lukáč, S.: Proposed solutions to improve the use of project management in the company Osram, a.s.
Lukačovič, B.: A proposed maintenance system for the minimisation of production machine ATOX 42.5 defects at company HOLCIM (Slovakia) a.s.
Lužáková, M.: Recommendations for the implementation of selected methods of rating the performance of the quality management in the selected organisation
Mahútová, A.: A proposal for manufacturing the cells for MQB Pendestütze production in the ZF Boge Elastmetall Slovakia, a. s.
Macharová, M.: A proposal for the application of selected quality improvement methods in rope production workplaces
Markušová, I.: A proposal for the initiation of an ergonomic programme into the control room at Slovenské elektrárne a.s., závod Atómové elektrárne Mochovce
Matija, J.: A proposal to improve the remuneration of employees in the company, AGC Trenčín s.r.o.
Medveďová, J.: A proposal of the tasks carried out by management in the formation of corporate culture in the company, TECHNOS, Inc.
Megová, B.: A proposed innovation creation model for SWEDSPAN Slovakia, s. r. o.
Minarovič, M.: The application of the FMEA analysis in the manufacturing of wheel-sets in ŽOS Trnava, a.s.
Miškovská, Z.: Proposed solutions to improve the use of project management in the company VÝVOJ Martin, a.s.
Mitický, T.: A proposal for utilisation of energies and alternative materials in more effective ways in the production of hydraulic components and gearboxes in Sauer-Danfoss inc.
Mordáčiková, J.: A proposal for the initiation of ergonomic programmes in the company, ZORNICA BANKO FASHION Ltd. Bánovce nad Bebravou
Mrvová, Ľ.: The design and application of a statistical assumption in the industrial company
Muráň, M.: A proposal of more effective processes of the acquisition logistics in TATRACHEMA VD
Nikmonová, L.: A proposal for the improvement of corporate training and development of employees in the company, Camfil Farr Ltd.
Nováková, P.: A proposal to improve the competency approach to human resource management in the company PCA Slovakia, sro.
Novotný, J.: Application methods of QFD near progress new pumps aggregate in an industrial company
Ondrigová, L.: Proposed solutions to improve the use of FMEA in the company, Zentiva, a.s.
Pálinkásová, M.: The suggestion of an ergonomic rationalisation in ZF SACHS Slovakia, plc. in Trnava
Pašek, L.: A proposal of Ergonomic Rationalisation in the selected operating mill and bakery business Skoluda, Trstin
Pavlík, P.: The application of statistical methods to improve the manufacturing process of the selected components
Petruš, P.: A proposal of methods for employees representation in the company, Trens, a.s, Trenčín.
Pokorná, E.: A proposal of steps for improving the use of project management in the company, PPS Group a.s.
Poláková, B.: A proposal of systemic measures to improve the management of personal careers for employees of the company, Protherm Production s.r.o., Skalica
Polková, M.: A proposal to increase the flexibility and effectiveness of preventive maintenance for downtime minimisation in the production process in the company, Swedwood Slovakia, s. r. o.
Potkányová, S.: A recommendation of the concept of corporate identity in the industrial company
Prekopová, K.: Application design of selected methods and tools for improving the quality of products in critical project JD
Princzová, F.: A Proposal and solution to the initiation of an ergonomic program in the company, COM-KLIMA I. I. c
Pšeneková, M.: A proposal for the implementation of instruments of business ethics in the company, ZVS-ENCO, a.s.
Púčiková, L.: The use of internal benchmarking to increase the efficiency of the surface treatment department in Swedwood Slovakia, s. r. o.
Rákocyová, J.: A proposal for control of the corporate culture by the management in the company, Hammerbacher SK, a.s.
Rákocziová, M.: A study of the firms culture utilisation in personnel management in the company, RIBE Slovakia, k.s.
Rakús, L.: A proposal to increase the efficiency of assembly processes and ergonomics in the assembly workplace of the company, ZF Boge Elastmetall Slovakia a. s.
Ridzoňová, L.: A proposal for streamlining the upstream and downstream relationship processes in the company, SUNIK, s.r.o.
Richtárik, M.: A proposal to improve the system of rewarding of manufacturing employees with the aim of ensuring their growth performance in the company, PSL, ltd.
Róka, J.: A proposal to improve the process of creating business plans and budgets in Západoslovenská energetika, a. s.
Rosypalová, A.: A proposed methodology for the development of a maintenance strategy in Duslo, a.s., Šaľa
Rothová, V.: A proposal of ergonomic rationalisation in the operation of the torque converter in ZF SACHS Slovakia, corporation, Trnava
Rovná, R.: A proposal for the implementation of a self-assessment according to the ISO 9004:2010 standard in a specified organisation
Sekera, J.: A proposal to improve selected logistics processes in the company ŽOS Trnava, a.s.
Selická, K.: The elaboration of the project for the application of marketing mix tools in accordance with quality management in the studied company
Serišová, K.: Development of the application of marketing mix instruments in accordance with quality management in the organisation under investigation
Schultzová, D.: A proposal of applying lean principles in the process of assembling orders in the company, FM SLOVENSKÁ Ltd. Sered'
Sitárová, Z.: A proposal for streamlining the processes of inventory management and warehouse management in the company, TRIM LEADER, a.s.
Siváková, I.: System design and development of multicultural work teams in PCA Slovakia, p. r. a., Trnava
Slimáková, L.: Design of material flow and streamlining processes in the company HYCA, s. r. o.
Sojčiaková, M.: Proposal of a system for the stabilisation of employees
Sojková, E.: Proposals of innovative application for the tools of the marketing mix in IKEA Components, s. r. o.
Sollár, M.: A proposed draft of the future deployment of empty shipping packages in the logistic´s shipping warehouse in the company, ZF Boge Elastmetall Slovakia, a.s. Trnava
Sporímska, G.: A proposal of possible formation of corporate culture of business management in Biotika, as.
Srb, M.: A proposal to optimise the process of developing new products in the company INA SKALICA Ltd.
Stračár, R.: Design of the evaluation system of economic parameters of the FREMACH TRNAVA's, Ltd. transformation process
Strečanská, K.: A proposal of employee performance management system improvement in KOAM ltd. company, Dubnica nad Váhom
Svíteková, L.: A proposal for the improvement of project management utilisation in the company, MAGNA SLOVTECA, s.r.o.
Sviteková, M.: A study of the selected company's customer satisfaction measurement and monitoring
Szemová, A.: A proposal of applied methods for eliminating wastage in generation as an implement part of the processes improvement in quality management system
Šaštinský, M.: A proposal of methods to avoid wastage in production as part of process improvement in the quality management system
Šefčík, D.: The design of marketing mix tools in accordance with quality management in selected enterprises
Šefčovič, E.: A proposal for more effective use of statistical methods to improve processes
Šimková, B.: A proposal to improve the corporate culture in ZF Boge Elastmetall Slovakia, a.s.
Šimončičová, H.: Proposal of the possibilities for the use of the accounting output in management of ZF Sachs Slovakia, Inc., Trnava
Šipkovská, J.: Recommendations to improve key competencies of top management in the industrial company, TAT, Ltd.
Škvarková, A.: The proposal of a methodology for the application of production waste prevention as a part of the process improvement in the quality management system
Šlambora, T.: Proposal for streamlining the development of workers' skills in INA Skalica spol. s.r.o
Šmida, Ľ.: Contribution (to the vision) of socially useful and responsible entrepreneurship of Mkem, spol. s r.o. in the context of sustainable development
Šmotláková, J.: Improving processes of better management related to the human resources in Purgina Ltd.
Šotníková, M.: A proposal of competitive differentiation in the ETI ELB Ltd. Company in the process of creation the market position
Štulrajterová, D.: Proposal to improve marketing research in accordance with the principles of quality management in the selected organisation
Tokárová, M.: The use of sustainable marketing in creating a positive image of the enterprise, Železiarne Podbrezova Inc. (within the context of CSR)
Tokošová, V.: Improvement plan of data transmission from the production process to the controlling database of the company, OMS LLC
Tonhauserová, S.: Design of a system for measuring and evaluating financial performance in the company, STROJARNE PKH, a.s.
Tóth, J.: Improving the level of reclamations management in the company, TOMA INDUSTRIES, s.r.o.
Trubač, I.: A proposition for lowering costs in the company, Chladiace veže Bohunice Ltd., Jaslovské Bohunice
Turčanová, J.: Improvement to the level of the complaint managment in the selected industrial enterprise in Slovakia
Tužinská, M.: Application of the Six Sigma methodology for the improvement of processes in the selected industrial company
Tvarošková, L.: Performance management of employees in industries
Urminský, T.: Application design techniques to avoid wastage in production as part of process improvement in the quality management system
Valášek, J.: A proposal for the use of the FMEA method in the production of a selected part in ZF Boge Elastmetall Slovakia, a.s.
Vandáková, A.: Improvements to the production process in the company, Volkswagen Slovakia a.p.
Vargová, B.: A proposed competency model design and use in the management and human resource development in the company, SWEDSPAN Slovakia, s.r.o.
Vavrík, T.: A proposal to streamline the maintenance-repair system in the company ZTS-KABEL, s.r.o. Dubnica nad Váhom
Vicianová, S.: The application of appropriate tools and methods for continuous improvement in the selected processes
Viden, R.: Recommendations to make more effective the material flow of doorframes mass production in KOVODRUŽSTVO
Volek, V.: Proposal of measures for the improvement of maintenance-repairing system in the company, Bohuš, s. r. o.
Voleková, E.: A proposal for the application of competency training in the selected industrial enterprise
Vraniaková, Z.: Draft planning and management of personal career employees in the company, PCA Slovakia, ltd.
Vrbovský, M.: Project application of statistical process control in the manufacturing door seal project A9
Vyskočová, B.: A proposal for effective application of intercultural/multicultural management in industrial enterprises in the Slovak Republic
Zadubanová, L.: A design for more effective processes of acquisition logistics in ETI ELB s.r.o. company

Záhorec, P.: Applying appropriate tools and methods for continuous improvement in the selected processes
Zacharová, E.: The proposition of using competency models in the management and human resource development in Volkswagen Slovakia, Inc.
Zaťko, M.: Suggested improvements in the management of production processes in the company AGRO - MOVINO, spol. s.r.o., Veľký Krtíš

PhD Theses

Andrašová, A.: A proposal for an assessment methodology of the economic investment efficiency in corporate social responsibility
Betinová, Z.: A proposal of the talent management methodology for industrial companies in Slovakia
Bielik Marettová, M.: The proposal of a methodology for the application of continuity knowledge management in industrial enterprises in the Slovak Republic
Drozdová, A.: The recpmmendation of a system of accounting management in small and medium sized enterprises
Herbácskóová, A.: Adaptation of marketing information system in business practice
Hodulíková, P.: A proposal for the use of controlling as a tool for the holding´s control
Chatrnúchová, L.: A methodology of the evaluation of the social effectiveness of the investment
Janák, E.: The proposal of a methodology of synergistic to increase the efficiency of business logistics processes using the radio frequency identification technology
Kelemenová, Z.: The proposal of the methodology of implementation and retention the collaborative management in industrial companies in Slovakia
Koltnerová, K.: A proposal of the methodology of personnel planning in terms of industrial enterprises in Slovakia
Kyzek, J.: The proposal of modifications to the ergonomic programme in order to increase the efficiency of human work for the application in enterprises in Slovakia and abroad
Samáková, J.: A proposal of project communication management methodology as a tool for quality improvement of projects in industrial enterprises in the Slovak Republic
Stacho, Z.: A proposal of complex evaluation methodology of innovative industrial enterprise characteristics
Stankovský, P.: Integrated logistics as the base of raising company competitiveness
Straková, N.: Process application of the ergonomics programme in business practice
Syč, M.: The use of exact scientific methods for project planning
Talnagiová, V.: The impact of the way of measurement of TFA on the calculation of costs of company performance and pricing
Vaškovičová Zibrínová, E.: A proposal for the methodology of marketing communication in industrial enterprises in the Slovak Republic
Zlocha, J.: A proposal of the motivation system for sustainable development in the context of industrial enterprises

RESEARCH AT THE INSTITUTE

Areas of Research
- Progressive approaches in the area of the Organizational Management
- Financial Management
- Corporate Culture
- Knowledge Management
- Multicultural Management
- Corporate Social Responsibility
- Gender Diversity in Industrial Enterprises and Research Institutions
- Human Resources Management
- Information Quality
- Development of Managerial Competences
- Project Management
- Ergonomics
- Green Management
- Lean Management

Research characteristics
The Institute of Industrial Engineering, Management and Quality has wide scientific cooperation with foreign universities: Leeds University Business School, UK; Czestochowa University of Technology, Poland; Technical University Ostrava, Czech Republic; Tomas Bata University in Zlín, Czech Republic; University of Iowa, USA; The "Gheorghe Asachi" Technical University of Iasi, Romania; University of Gabrovo, Bulgaria; Ufa State Aviation Technological University, Russian Federation; Izhevsk State Technical University, Russian Federation. The cooperation is focused on the organisation of conferences, the preparation of international projects, study visits, common publications and lectures. During the last years, the Institute has also extended its cooperation with domestic and foreign industrial enterprises and organisations: Create-Net Italy, West-Panon Regional Development Company; Automotive Cluster Croatia, Automotive Cluster of Slovenia, Automotive Cluster Serbia, Automotive Cluster - Vienna Region, VW Slovakia, PSA Peugeot Citroën Trnava, KIA Motors Slovakia, Johns Manville Slovakia. The cooperation is focused on study visits, diploma thesis, training and participation in international projects.
As a result of this cooperation during 2012 the Institute has prepared proposals for 7 VEGA projects, 2 KEGA projects, 2 APVV projects, 5 7FP projects, 3 CEE projects and 1 V4 project.

The research areas comprises human resources management, operations research, logistics, innovation management, information management, financial management, project management, quality management, production management with the special emphasis on competencies models, IFRS, creative accounting, financial management of the holding company, financial analysis of enterprise and holding, knowledge management, multicultural management, quality, corporate social responsibility, green management, ergonomics and lean management.

Areas of expertise
- Innovation Management
- Intercultural Management
- Ergonomy, Ergonomic Programmes
- Human Resources
- Corporate Culture
- Development of Manager Competencies
- Corporate Social Responsibility
- Systems of Quality Management
- Gender Diversity

PROJECTS OF THE INSTITUTE

Project Title Rationalisation and improvement of the "Industrial Management" study programme with the aim to support career consultancy
Coordinator Assoc.Prof. Ing. Jana Šujanová, CSc.
Start Date 01/01/2012
End Date 31/12/2013
Programme ESF
Annotation The project is aimed at improving the Industrial Management study programme by using ICT and other modern methods of education in terms of career consultancy. Based on the "Principles of education quality management in STU Bratislava" as well as the practice requirements for graduates of the Industrial Management study programme, the project will introduce the changes with the aim to:
- improve the graduates' employability in the labour market,
- train graduates for the development and implementation of innovations of work procedures, products and services,
- enable the checking of the study achievements,
- respond to the requirement regarding the implementation of the European Qualifications Framework,
- provide prerequisites for the continual monitoring of the study achievements and thus enabling flexible innovation of the study programme contents and methods.

Project Title Identification of key parameters of sustainable performance of industrial companies under the conditions of a multicultural environment
Coordinator Assoc.Prof. Ing. Miloš Čambál, CSc.
Start Date 01/01/2012
End Date 31/12/2014
Programme VEGA
Annotation This project investigates the approaches to organisation performance management in terms of performance sustainability. The emphasis is on "sustainability", since currently used models of performance management have a detrimental impact on the decisive groups of employees (long-time over-loading, burnout syndrome, health troubles of various character), decreased their performance and thus also performance of the whole organisation and its competitiveness. The project is aimed at solving the subject under the specific conditions of multicultural organisations (with orientation on industrial companies), requiring the approaches different from those applied in monocultural organisations.

Project Title Concept of the HCS model 3E vs. concept of the Corporate Social Responsibility (CSR)
Coordinator Prof. Ing. Peter Sakál, CSc.
Start Date 03/09/2009
End Date 31/08/2012
Programme LPP Programme
Annotation This project is aimed at disseminating the results of research projects No. 019/2001: "Transforming Industry in Slovakia Through Participatory Ergonomic" (financially supported by a joint SlovakAmerican fund for scientific and technical co-operation) and KEGA project of Ministry of Education of SR No. 3311105. Currently, the research continues in co-operation with CHIRANA PROGRESS, s.r.o. Piešťany in the field of sustainable development and Corporate Social Responsibility (CSR). The aim of the research is to contribute to the implementation of Agenda 21 and Lisbon strategy in individual pillars of sustainable development strategy in terms of research and development activity and teaching process in the workplaces of STU MTF Trnava.

Project Title Information Quality Management in project management of industrial companies in SR
Coordinator Assoc.Prof. Ing. Jana Šujanová, CSc.
Start Date 01/01/2012
End Date 31/12/2014
Programme VEGA
Annotation The project focuses on the results of the projects worked on in the Institute of Industrial Engineering, Management and Quality of STU MTF in Trnava:
VEGA 1/2578/05: Analysis of current world-wide trends of project management, research of current state of the subject in Slovakia and a proposal of its implementation in the conditions of Slovakia;
ESF 11230220391: Modular system of distant education in project management with elearning and information technologies support;
VEGA 1/0491/09: Maturity inspection of project management processes as a tool of increasing competitiveness of industrial companies.
Partial outcome of the above-mentioned projects was the identification of shortcomings in the field of information and information management quality, negatively influencing the projects' impact.
The project aim is to design a methodology of information quality management in project management of industrial companies in SR.

Project Title Research into the factors influencing the selection and implementation of the tools of integrated marketing communication with regard to the information security and customer protection
Coordinator Prof. Ing. Jarmila Šalgovičová, CSc.
Start Date 01/01/2012
End date 31/12/2014
Programme VEGA
Annotation The project is aimed at investigating and evaluating the factors influencing selection and subsequent implementation of the tools of integrated marketing communication in the conditions of various types of organisations. The application of tools should represent an optimum model corresponding with various aspects of information security management in compliance with the EU rules on one hand, and security and safety requirements on the other hand. Project output will be a proposal of the methodology procedure of practical application of evaluation, verification, selection and following implementation of the integrated marketing communication tools in various types of organisations via utilising optimum software with the aim to improve the level of integrated marketing communication in the organisations oriented on customer, product quality and information security.

Project Title Implementation of the subject "Corporate Social Responsibility Entrepreneurship" into the study programme Industrial Management in the second degree at MTF STU Trnava
Coordinator prof. Ing. Peter Sakál, CSc.
Start Date 01.01.2012
End Date 31.12.2014
Programme KEGA
Annotation The content of the project concerns the implementation of the subject " Corporate Social Responsibility Entrepreneurship" into the study programme Industrial Management in context of the strategy of corporate social sustainable development of the EU. Firstly accepted in Gothenburg in 2001 and consequently revised in 2006 and 2009. The strategies include, Europe 2020 for Employment and Growth, Enterprise 2020, key findings from the council meeting on 19th November, 2010 about education for sustainable development (2010/C 327/05), and also from the Organisation of United Nations (OSN) summit from 20th22nd September, 2010 regarding the millenium development aims and the present accepted norms. The project also considers ISO 26000 relating to corporate social responsible entrepreneurship

Project Title AUTOCLUSTERS
Type of the project South East Europe Programme
Number of the project
Investigators Assoc.Prof. Mgr. Dagmar Cagáňová, PhD.
Assoc. Prof. Ing. Miloš Čambál, CSc.
Assoc. Prof. Ing. Jana Šujanová, PhD.
Ing. Zdenka Gyurák Bábeľová, PhD.
Ing.Zuzana Lenhardtová, PhD.
Ing. Miriam Ševčíková, PhD.
Ing. Petra Marková, PhD.
Ing.Martina Jakábová, PhD.
Time period of the project 01/04/2009 – 31/03/2012
Annotation The Project brings together Universities, R&D institutions, SME support facilities from EU-15, NMS as well as IPA to prepare and create the first automotive network in South East Europe. The second level clustering activities proposed by the project are strictly oriented on the activities, which are improving the innovation capacities in the region and improve technology and know-how transfer - improving the innovation circle. The project in the first stage analyses the cluster's development and best practices across the regions as well as creating the connection with other existing European activities in the automotive clustering. The project focuses highly towards producing concrete results and addresses the main challenges that are particularly specific for SEE region, particularly the same across the whole EU territory.
The project is built up on experience from previous activities in the automotive industry (NEAC, Automotive Clusters, Belcar, TCAS, I-CAR-O) and in line with EU policies, especially in clustering and automotive industry. The framework's project aims to:
- Create the first sustainable network in automotive industry in SEE region with specific focus on innovation activities
- Create partnerships which consist of institutions from New Member States, non-EU members as well as well experienced institutions from EU-15
- Invite in the network not just clusters and other SME supporting facilities but directly also R&D institutions and universities
- Improve innovative capability by realising studies of innovation capacities, exhibition in universities and dissemination outputs of our activities, exchange studies and networking activities
- Prove the concept by realising the project samples and by generating of the proposals to FP7

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Employee	Country
Prof.Ing. Dušan Baran, PhD.	Czech Republic
Ing. Roman Bednár	Czech Republic
Ing. Martin Beluský	Czech Republic Estonia
Ing. Rastislav Beňo, PhD.	Russia China Cyprus
Ing. Lucia Božiková	Czech Republic Russia Ukraine
Assoc.Prof.Mgr. Dagmar Cagáňová, PhD.	Italy Germany Estonia Lithuania Finland Denmark
Assoc.Prof.Ing. Miloš Čambál, CSc.	Germany Estonia Italy Finland
Ing. Katarína Drieniková	Czech Republic Russia Ukraine
Ing. Helena Fidlerová, PhD.	Czech Republic
Bc. Monika Hlavatá	Ukraine
Ing. Marián Hodulík	Czech Republic Estonia
Ing. Petra Hodulíková	Turkey Estonia
Mgr. Janka Hokina	Ukraine
Ing.Jaroslav Holeček,	Germany
Ing. Jacinto de Assuncao Andrea	Czech Republic
Ing. Martina Jakábová, PhD.	Poland Czech Republic
Ing. Veronika Kaiserová	Russia
Ing. Zuzana Kelemenová	Estonia
Ing. Edina Kocsisová	Estonia
Ing. Jana Makraiová	Italy Croatia
Ing. Petra Marková, PhD.	Czech Republic Austria
Ing. Tomáš Naňo	Russia
Prof.Ing. Jozef Sablik, CSc.	Czech Republic
Prof.Ing. Peter Sakál, CSc.	Czech Republic Russia
Bc. Ľubomír Šmida	Russia Ukraine China
Assoc.Prof.Ing. Jana Šujanová, CSc.	Italy Germany, Poland Lithuania Italy
Bc. Michaela Tokárová	Ukraine Russia
Ing. Jana Urdziková, PhD.	Czech Republic Denmark Poland
Ing. Jaromíra Vaňová, PhD.	Austria
Ing. Veronika Videnová	Cyprus Ukraine Estonia
Assoc.Prof.Ing. Helena Vidová, PhD.	Czech Republic Croatia
Paul Woolliscroft	Italy, Croatia

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Academy of Management
Assoc.Prof. Ing. Miloš Čambál, CSc.
Ing. Marta Kučerová, PhD.
Ing. Miroslava Mĺkva, PhD.
Ing.Jaromíra Vaňová, PhD.

Project Management Society
Assoc.Prof. Ing. Miloš Čambál, CSc.
Ing.Henrieta Hrablik Chovanová, PhD.
Ing.Martina Jakábová, PhD.

Slovak Ergonomics Society
Prof. Ing. Jozef Sablik, CSc.
Assoc.Prof. Ing. Andrea Holková, PhD.
Assoc.Prof. Ing. Karol Hatiar, CSc.
Ing.Rastislav Beňo, PhD.

Association of Management Training and Development
Assoc.Prof . Ing. Miloš Čambál, CSc.
Assoc.Prof. Ing. Andrea Holková, PhD.

District Council for Professional Education and Preparation TTSK
Assoc.Prof. Ing. František Horňák, PhD.

Committee for Scientific Management ZSVTS
Assoc.Prof. Ing. Miloš Čambál, CSc.
Ing.Marta Kučerová, PhD.

Association of Institutes for Adult Education (AIVD)
Ing. Zuzana Lenhardtová, PhD.
Ing.Zdenka Gyurák Bábeľová, PhD.

Slovak Office of Standards, Metrology and Testing, National Technical Commission for Quality
Prof. Ing. Jarmila Šalgovičová, CSc.

Slovak Anthropological Society
Assoc.Prof. Ing. Karol Hatiar, PhD.

Slovak Association of Finance and Treasury
Assoc.Prof. Ing. Jana Šnircová,PhD.

Slovak Association of PhD students
Ing.Zdenka Gyurák Bábeľová, PhD.
Ing.Martina Jakábová, PhD.

Best Practice User Group Slovakia
Ing.Martina Jakábová, PhD.

MEMBERSHIP IN EVALUATION COMMITTEES (VEGA, KEGA, APVV, SAIA, EU STRUCTURAL FUNDS)

Assoc.Prof. Ing. Miloš Čambál, CSc.
Assoc.Prof. Ing. Jana Šujanová, PhD.
Ing. Zdenka Gyurák Bábeľová, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

International Coaching Federation
Assoc.Prof. Ing. Miloš Čambál, CSc.

Czech Pedagogical Society – Citizens Association
Assoc.Prof. Mgr. Dagmar Cagáňová, PhD.

CASAJC-Czech and Slovak Association of Teachers of Foreign Language at Universities
Assoc.Prof. Mgr. Dagmar Cagáňová, PhD.
Asian School of Management and Technology
Assoc.Prof. Ing. Helena Vidová, PhD.

European Alliance of Innovation
Assoc.Prof. Ing. Miloš Čambál, CSc.
Assoc.Prof. Mgr. Dagmar Cagáňová, PhD.
Assoc.Prof. Ing. Jana Šujanová, PhD.

European Society for Enginnering Education
Assoc.Prof. Mgr. Dagmar Cagáňová, PhD.
Assoc.Prof. Ing. Miloš Čambál, CSc.

European Association for Education in Electrical and Information Engineering
Assoc.Prof. Ing. Miloš Čambál, CSc.
Assoc. Prof. Mgr. Dagmar Cagáňová, PhD.
Assoc.Prof. Ing. Jana Šujanová, PhD.

European Platform of Women Scientists
Assoc.Prof. Mgr. Dagmar Cagáňová, PhD.

Czech Society for Operations Research
Ing. Henrieta Hrablik Chovanová, PhD.

International Academic Network „Human Potential Development in Central and Eastern EU States"
Assoc.Prof. Ing. Miloš Čambál, CSc.
Assoc.Prof. Mgr. Dagmar Cagáňová, PhD.
Assoc.Prof. Ing. Jana Šujanová, PhD.

PUBLICATIONS (MOST IMPORTANT PUBLICATIONS IN 2012)

Horňák, František - Cagáňová, Dagmar - Čambál, Miloš: Development of Managerial Creativity. - článok je publikovaný v časopise: Applied Mechanics and Materials, ISSN 1660-9336, Vol. 482-484, 2012, str. 996-999. - **registered in: Web of Science, Scopus**. In: Advanced Materials Research. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 482-484 : 3rd International Conference on Manufacturing Science and Engineering (ICMSE 2012), China, 27-29 Marec 2012 (2012). - ISBN 978-3-03785-373-3, s. 996-999

Cagáňová, Dagmar - Čambál, Miloš - Šujanová, Jana - Woolliscroft, Paul - Holeček, Jaroslav: Gender Diversity Research in the Slovak Republic and the Participation of Women in Top Management Positions in Science and Research. - In: Applied Mechanics and Materials, ISSN 1660-9336, Vol. 482-484, 2012, str. 136-148. – **registered in: Scopus, Web of Science**. In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 482-484 : 3rd International Conference on Manufacturing Science and Engineering (ICMSE 2012), China, 27-29 Marec 2012. - , 2012. - ISBN 978-3-03785-373-3, s. 136-148

Delgado Sobrino, Daynier Rolando - Moravčík, Oliver - Cagáňová, Dagmar - Košťál, Peter: Hybrid Iterative Local Search Heuristic with a Multiple Criteria Approach for the Vehicle Routing Problem. - **registered in: Web of Science, Scopus**. In: Advanced Materials Research. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 383-390 (2012), pp. 4560-4567

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Šujanová, Jana - Gabriš, Peter - Ličko, Miroslav - Pavlenda, Pavel - Stašiak-Betlejewska, Renata: Aspects of Knowledge Management in Slovak Industrial Enterprises. - **registered in: Scopus**.In: Proceedings of the 13th European Conference on Knowledge Management : Universidad Politécnica de Cartagena, Spain 6-7 September 2012. - Reading : Academic Publishing International, 2012. - ISBN 978-1-908272-63-8. - pp. 1135-1144

Vančová, Viera - Čambál, Miloš - Beňo, Rastislav - Cagáňová, Dagmar: Encouraging Innovation and Entrepreneurship Through International Cooperation. - **registered in: Scopus**. In: Proceedings of the 13th European Conference on Knowledge Management : Universidad Politécnica de Cartagena, Spain 6-7 September 2012. - Reading : Academic Publishing International, 2012. - ISBN 978-1-908272-63-8. - S. 1247-1254

Jakábová, Martina - Babčanová, Dagmar - Cagáňová, Dagmar - Hrablik, Martin - Urdziková, Jana - Beňo, Rastislav: Developing the Competence of the Managers in Selected Manufacturing Enterprises Operating in the Slovak Republic. In: Proceedings of the 8th European Conference on Management Leadership and Governance : Neapolis University, Pafos, Cyprus, 8 - 9 November 2012. - Reading : Academic Publishing International Limited, 2012. - ISBN 978-1-908272-76-8[E]. - pp. 256-264

Makraiová, Jana - Cagáňová, Dagmar - Čambál, Miloš: A proposal to improve adaptation control system within automotive enterprises. In: Proceedings of the 8th International Conference of DAAAM Baltic Industrial Engineering : Tallinn, Estonia 19-21 April 2012. - Tallinn : Tallinn University of Technology, 2012. - ISBN 978-9949-23-265-9. - pp. 536-541

Videnová, Veronika - Cagáňová, Dagmar - Woolliscroft, Paul - Makraiová, Jana - Vančová, Viera: Resolving Conflicts Within Multicultural Teams in Industrial Enterprises in Slovakia. In: Proceedings of the 8th European Conference on Management Leadership and Governance : Neapolis University, Pafos, Cyprus, 8 - 9 November 2012. - Reading : Academic Publishing International Limited, 2012. - ISBN 978-1-908272-76-8[E]. - pp. 426-432

This part of Annual Report 2012 was verified by Assoc. Prof. Ing. Miloš Čambál, CSc.

INSTITUTE OF SAFETY AND ENVIRONMENTAL ENGINEERING

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INSTITUTE DEPARTMENTS

- Department of Environmental Engineering
- Department of Safety Engineering
- Department of Industrial Safety

STAFF

- Professors: 1
- Assoc. Professors: 2
- Senior Lecturers: 10
- Research Fellows: 4
- PhD Students: 22

EDUCATION AT THE INSTITUTE

STUDY PROGRAMMES

Bachelor's Level
- Occupational Health and Safety

Master's Level
- Integrated Safety

Postgraduate Level
- Integrated Safety

Number of the students (at 30/10/ 2011) registered on the study programmes offered by the institute: 499
Number of the graduates (2010/2011) registered on the study programmes offered by the institute: 143

ACTIVITIES OF THE INSTITUTE

25/01 – 01/02/2012 - Exhibition of equipment within the project "Hybrid electric source for a technical consulting laboratory for the utilisation and promotion of renewable energy sources"
10/02/2012 - Opening of the research and education centre established within the ITMS 262 202 200 56 project "Hybrid electric source for a technical consulting laboratory of utilisation and promotion of renewable energy sources "
06/08/2012 - Online voting to support the Botanical garden
02/09/2012 - 13/09/2012 - International summer school on "Selected issues of safety engineering and utilisation of nuclear power plants within the context of the EU power policy"
04/10/2012 - Co-organisation of a scientific conference "Power sources of regions – presence and future"
30/11/2012International research conference "Integrated safety 2012"

GRADUATE PROFILE

BACHELOR'S PROGRAMME (Bc.)

Work Safety and Health Protection
Graduates from the programme will have gained a thorough theoretical knowledge of natural, economic and social sciences and will have developed knowledge of technical sciences with a focus on safety and reliability of production technologies, safety of work environment and environmental protection. The graduate will also have learnt how to assess the safety of technical systems, production technologies, analysis of failures and disasters, risk identification and quantification, suggestion of preventive measures aimed at the staff and safety improvement and health protection. Those completing the programme will also have gained knowledge in the field of legislative tools for managing dangerous activities, testifying and certification of materials and products and application of safety and technological procedures and parameters of materials. After completing the programme, graduates could find employment as a safety officer in industry, organisations, governmental bodies, insurance companies, or an advisor/consultant in the engineering organisations dealing with designing and assessing safety systems and also utilising knowledge gaining during the programme in order to contribute to the design of a safe and healthy working environment.

MASTER'S PROGRAMME (Ing.)

Integral Safety
Graduates from the programme will have gained knowledge in the field of environmental and safety risks management. The graduate will be able to control activities within work and environment safety, carry out risk analysis and related documentation, and propose system measures to increase the efficiency of control systems of integrated safety. After completion of the programme it would be possible for the graduate to secure employment in administration, labour inspectorates, technical inspection and environmental inspection, and also in positions of a leader and consultant in engineering organisations dealing with designing and assessing the safety systems in industry, insurance companies and manufacturing.

POSTGRADUATE PROGRAMME (PhD.)

Integral Safety
The graduate will have mastered the research and experimental methods within safety and security administration systems and safe working environments. The graduate will be able to develop and apply the theory in accordance with requirements of practice focusing on technical and human aspects of the man-machine-environment system. After completion of the programme the graduate will be able to carry out scientific research in teams, bringing solutions to complex tasks of theory and practice, risk management, safe working environment, fire protection and other related sectors. The graduate could operate as a highly qualified expert in institutions of base and applied research, a researcher and teacher in universities, advisor and consultant within engineering organisations dealing with designing and assessing safety systems, as well as in insurance companies.

LIST OF SUBJECTS OFFERED BY THE INSTITUTE

- Assessment of Environmental Effects
- Bachelor's Project
- Bachelor's Work
- Basics of Environmental Studies
- Basics of Safety Engineering
- Blast and Fire Protection
- Blast Protection and Industrial Safety
- Connoisseurship of Commodity
- Management of Dangerous Activities
- Psychology of Dangerous Activities
- Danger Effects and Processes Simulation
- Hazardous Materials
- Dissertation Project
- Educational Activity
- Emergency Preparedness for Accidents and hazardous Situations
- Engineering Work Environment
- Environmental and Safety Information Science
- Environmental Engineering
- Environmental Chemistry
- Evaluation of Indoor Environment Aspects of OSH
- Fire Dynamics
- Fire Engineering
- Fire and Accident Modelling
- Fire Protection of Buildings
- Fundamentals of Environmental and Safety Information Science
- Hazardous Materials
- Human Reliability in Technical Systems
- Selected Chapters of WSHP Control in Companies
- Technological and Natural Emergencies
- Industrial Toxicology
- Informative Techniques in Risk Analysis
- Information Sources in the Field of Integrated Safety
- Inorganic and Organic Chemistry
- Integrated Management of Systems
- Law and Technical Directions of WSHP
- Major Industrial Accidents
- Risk Management
- Management of Hazardous Operations
- Management Systems of the OSH
- Monitoring of Risk Factors in Environment
- Occupation Safety and Health
- Practice
- Processes of Environmental Technologies
- Progressive Methods of Integrated Protection of the Environment
- Quality Control and Standardization in WSHP Domains
- Research Work
- Risk Analysis Methods
- Risk Control Methods
- Risk Assessment in the Environment
- Risk Theory and Casual Processes
- Safety and Reliability of Systems
- Safety Engineering
- Safety Management
- Safety of Industrial Technology
- Safety of Technical Systems
- Social and Economic Aspects of WSHP
- Technical and Safety Conditions of Materials and Constructions
- Technical Apparatus Risks
- Technical Systems Reliability
- Technologies of Waste Management
- Theory and Management of Safety Control
- Theory of Diagnostics, Maintenance and Repairs
- Thesis / Diploma Work
- Thesis Project / Diploma Project
- Work Safety and Health Protection

GRADUATE THESES

Bachelor's Theses

Bako, R.: Health and safety when working with motor trucks
Bátora, E.: Risk analysis for the selected intervention of fire and rescue service members
Blanárik, R.: Safe handling of spent nuclear fuel
Blašková, Z.: The quality of ozone concentration in various conditions of work procedures activities
Cingel, Z.: Coolilng systems assurance
Čendek, P.: OSH in the public administration systems of assesment
Dermísek, M.: Principles for the safe manipulation and transportation of samples of dangerous chemical substances
Dikejová, V.: A proposal of advancement for working with unwanted radioactivity entering into scrap
Drhová, J.: Emergency planning in the handling of hazardous substances
Fedorco, J.: Safety work with explosives
Fridrichová, A.: The ion exchangers attributes and the disposal methods in nuclear power engineering
Gerincová, S.: Heat flow and its measurement
Grebeči, M.: Health and safety at events in the theatre
Hajdúch, J.: The safety of transport, loading and unloading of cement products
Halenárová, S.: Addressing occupational accidents in selected construction enterprises
Hornický, J.: Safety at work in the process of command, control and signaling in the context of the railways in the Slovak Republic
Horúcka, M.: Determining the influence of fire on the voltage drop and insulation resistance of electrical wiring
Hudecová, K.: New trends in the use of water as an extinguishing agent
Jančeková, M.: Monitoring the safety of blasting
Kaiser, P.: Analysis of residual risks
Kolarik, I.: Safety requirement for the operation of moving railroad engines
Kotúčková, M.: Health and safety in the production of steel construction
Král, L.: Emergency planning for chlorine leakage in Slovalco a.s. Žiar nad Hronom
Královič, M.: Fire – technical characteristics of plastic packaging from retail chains
Kravárik, I.: Effect of heat flux on thermal resistance of intumescent coating
Laurinčík, J.: Emergency planning in manipulating and handling process liquids
Lehutová, S.: The safety and ergonomic assessment of accounting work
Lelák, M.: Safe work with sewage sludge
Lipovský, M.: The determination of hazardous substances in waste water
Lužáková, L.: Complex safety appraisal of ADLO door fabrication process
Michelčíková, V.: Risk analysis of the technological line in the stone-pit of Malužiná
Mikulčík, R.: Labour safety in maintenance and repair activities within the profession of a mechanic for control and management systems
Mikulová, M.: Comprehensive safety solutions for the storage operation of steel components
Mokrá, V.: Degradation of dangerous organic substances
Novák, V.: Labour safety within the manufacturing of a steel fibre concrete container
Ondrejička, M.: Fire Protection in cultural and memory institutions
Pénzeš, M.: Determination of the coefficient of thermal conductivity established in organic layers of dust and its impact on the propensity to spontaneous combustion
Perlák, M.: Assessing the effectiveness of intumescent coatings
Petrík, P.: The life cycle of intumescent coatings
Pfeiffer, R.: Safety requirements in the reconstruction of the production plant
Polák, E.: Risk analysis of activities the Fire and Rescue Service on public roads
Ružbacká, I.: Safety at work blasting in quarries
Schreiber, P.: Methods of risk assessment human factor
Slováková, J.: Hazard storage
Smolka, J.: Chemical hazards and their description
Srniak, J.: Fire protection in the paper industry
Stano, F.: The principles of safe working on machines in the tyre industry
Steinhübel, S.: Health protection against electric shock

Svátek, J.: Safety aspects of the operation of substations
Szarka, R.: Risks of water and bottom sediments sampling
Šroba, M.: Determination and use of fire technical characteristics in practice
Štetinová, R.: Transport of dangerous goods exempted from the requirements of ADR
Števík, I.: Arbitration of ways of hydrogen holding on the level against the explosive security
Švehla, M.: Impact assessment of predictive maintenance for safety and health at work and fire safety
Vargová, A.: Health and safety at work, protection of staff at COOP Jednota Trnava, SD.
Váryová, S.: Environmental and safety audit in the pharmaceutical company
Wachter, I.: Physical risk and its description
Zabáková, M.: The use of fire-fighting foams in practice
Zavadanová, M.: Risk assesment at work with disinfectants
Žažo, R.: Lighting assessment of the operating room in the railways of the Slovak Republic.
Žemlová, J.: Noise at work in a welding workshop and its consequences

Master's Theses

Andeloková, V.: Monitoring of selected quality indicators for waste water
Belčík, M.: Risk analysis by method event tree analysis
Belianská, V.: Evaluation of the degradation of hazardous sustances by progressive methods
Belko, P.: The estimation of work factors in relation to the safety of drivers of goods transportation
Birčák, B.: Increasing the efficiency of radiation control in the area of discarded atomic power plant A1
Blejštil, V.: Radiation protection in the processing of high-level chrompik vitrification in JAVYS, a.s.
Bobušová, M.: Safety in the use of renewable energy sources for biogas production
Bočková, K.: Possibilities of using a thermal imager for predictive maintenance in the engineering industry
Boldiš, P.: Safety and environmental reporting of organisations with established EMS in SR
Bučková, Š.: A preliminary study of metalworking fluids such as Adrana D 2420, Mobilcut 222 and Zubora TXS treatment by the activated sludge bacteria's in a laboratory bioreactor
Caletka, R.: Alternative methods in fire protection and substantiation the need of fire-technical equipment
Černeková, T.: The determination of EC50 of the process fluids Adrana D 2420 and Mobilcut 222 by the bacteria of the activated sludge
Čurila, M.: Monitoring the selected indicators of quality in surface waters
Dovičič, M.: Analysis of factors at work in a biogas power station
Dragulová, Z.: Assessment of municipal waste management in Partizánske
Ďurechová, D.: The safety at work on completion of Mochovce powerplant block 3 and 4
Ďurica, A.: A study into the conditions of electrolytic hydrogen production and its utilisation in fuel cells
Fabianová, K.: A study of biodegradability of selected process liquids Adrana D 2420, Mobilcut 222 and Zubora TXS with variable TOC
Fančovičová, K.: Changes to the optical properties of humic substances in soil affected by fire
Frajka, B.: Disposal of radioactive waste and their impact on the environment, NRR Mochovce
Galbička, I.: The processing of radioactive waste in relation to radiation protection
Golej, M.: Analysis of ignition sources present in the living area
Hanusková, M.: Selected indicators monitoring surface water quality
Haruštiak, P.: The use analysis of renewable energy sources
Hilka, M.: Work safety in chemical weed control on the lines ZSR
Horváth, J.: The resultant effect of the initiating source amount for the formation of a flame burning of lignocellulosic materials
Hrdá, A.: The impact of oil and oil products receiving a body of water
Hubinská, T.: Study of sorption process fluids in biodegradability tests in order to distinguish biotic from abiotic degradation elimination by sorption
Husarčík, M.: Establishment of main burning products and thermal decomposition of selected organic polymers
Il'ko, J.: Safety and environmental aspects of the desulphurisation process on boilers 1 and 2 at Slovenské elektrárne a.s., Thermal powerplant in Nováky
Janečková, G.: Safety and environmental aspects of sewage sludge production
Káloši, Š.: Management of change in the dangerous substances environment
Kocsis, A.: Reduction of risk by using acoustic emission
Kubovičová, B.: Analysis of the influence of the human factor on engineering manufacturing
Lacko, T.: Determination of the thermal decomposition rate and the main combustion of selected products of lignocellulosic materials
Laczo, M.: Exposure scenario – the new method of evaluating chemical substances
Lehotová, K.: The safety usage of renewable resources of energy in bioethanol production
Lukačovičová, R.: Safety and environmental labeling of selected commodity as an information tool
Lunáková, Z.: Work environment and health and safety protection of cash desk clerks in the Slovak Railway company
Mačalková, J.: Hazard analysis during the realisation of accumulating place and composting place in a village
Malovcová, M.: Determination of the concentration of ozone in the workplace
Marinescu, M.: An analysis of safety in the manufacturing enterprise
Mašková, I.: A study the effect of ozone for selected properties of cutting fluids
Matejová, M.: Determining the effectiveness of the flame retardance of a protected material by the activation energy of flash-ignition and spontaneous-ignition
Melicherová, J.: The safety of using renewable energy in electrochemical processes
Mokošová, M.: EHS policy application in VÚSAPL a.s., Nitra
Mydliar, K.: Alternative forms of minimum extinguishing concentration determinations with a physical extinguishing mechanism
Nikel, P.: Safety requirements for the reconstruction of the selected building
Orgoň, P.: Exploitation motional method of times measurement in work safety
Peričková, K.: Fire hazard of burning candles
Pietriková, D.: Environmental and safety aspects of the pyrolisys process and technology
Polák, T.: Analysis of the causes and consequences of technological accidents
Požgay, M.: Hazard analysis for lighting in the gardens
Ridzoňová, J.: Pretreatment of biomass for the subsequent production of bioethanol
Salay, V.: Analysis of the impact of the accidental release of hazardous substances at Senec railway station
Siebenstich, D.: Valuation of technology sludge incineration at a mechanical – chemical biological waste water treatment plant
Sihelská, M.: Interaction of Slovak Republic legislative requests and OHSAS 18001 requests besides building management system of industrial safety in the manufacturing company
Strémiová, H.: Monitoring and hydraulic prevention of subterranean waters
Szalóová, E.: Assessment of the level of work safety in AMEC Nuclear Slovakia s.r.o. in the context of the solidification of radioactive sludge
Šarvaic, P.: Analysis of microclimate conditions in the selected departments of a production company
Ščípa, M.: The verification of an electric fire alarm detector operation depending on the source of combustion
Škrhová, H.: The proposal of air-conditioning and the optimalisation of the microclimate conditions for selected building
Škvarková, D.: Assessment fire and explosion risks in the storage of dangerous substances
Štefko, T.: Study of biodegradability using parameters O2 and CO2 in the laboratory bioreactor
Šuran, J.: Nuclear and radiation safety in the phase of decommissioning nuclear power plants
Tkáčová, M.: Requirements for safe escape from buildings and emergency lighting in case of fire
Tureková, B.: Work safety of hair and beauty operation workstations
Tušš, A.: Fire protection paints and its application on cables
Valentín, E.: Hazardous emissions from open burning
Valentová, V.: The determination of selected factors influence for the fire spread speed on the surface of a settled dust layer
Vargová, O.: The development of water quality in selected water resources for the key proposal of a possible roundwater treatment from the Jelka water resource
Vengrínová, H.: Study of sorption of selected hazardous substances by alternative adsorbents
Víglaš, Ľ.: Application of measures using the HAZAN Method
Vretenárová, O.: Risk analysis through use of the cause-consequence analysis method
Zigo, J.: Health protection of non-smokers in the workplace
Žitňanský, T.: Use of thermal imagery for predictive maintenance of apartment house switchboards and lifts

PhD Theses

Hrušovský, I.: Investigation of thermal conditions for the self-ignition of solids
Kordošová, M.: Safety level of working conditions for selected groups of employees
Očenášová, D.: Environmental safety and BAT technologies in waste incineration

RESEARCH AT THE INSTITUTE

Areas of Research
- fire protection and fire prevention
- modelling the impacts of industrial accidents
- health and safety aspects of occupational indoor environments
- biodegradability of cutting fluids
- advanced oxidation processes
- renewable sources of energy
- extinguishing agents and application techniques
- fire investigation
- fire hazard of materials

Research characteristics

Laboratory testing
The research includes the testing of the combustibility and explosiveness of substances, product and wastes in different states, the appraisal of fire-fighting foam and spray properties in the aging process, the monitoring of chosen factors in the work environment and the appraisal of noise and lighting at the workplace. Research is also conducted to analyse of drinking water quality, determine the of biodegradability of cutting fluids and determination organic pollutants using analytical methods.

Document elaboration
The processes are documented for hazard assessment and risk analysis of selected substances, products, wastes and technologies to meet company requirements, fire and technological investigation, protocol for identification of the external effects, explosion protection documentation and emergency plans in accordance with legislation. Risk assessment and risk analysis of fires in industry, implementation of occupational health and safety assessment series (OHSAS), (internal audits, preparation for certification audits) are also compiled.

Research studies
Research studies are conducted in the areas of fire hazard of polymers, wood, industrial powder and flammable materials and environment issues in fire protection, foam extinguishing agent and systems, the environmental cost of the usage of foam as extinguishing agents, assessment of biological degradability of selected foaming agents and the fire hazard of PVC cables and their protection. Research is also carried out in order to create a knowledge database and expert system for the risk assessment of dangerous substances, products, wastes and technologies, to model the impacts of industrial accidents on the environment, fire modeling and comparison of different types of modelling pro-

grams in the field of materials dispersion to the environment. Studies are conducted into the health and safety aspects of occupational indoor environments, the progress and utilisation of small hydro-energetic source in combination with solar equipments for engineering, the establishment of a technical-consulting laboratory for utilising and consequent propagation of solar energy. The exploitation of advanced oxidation processes in the removal of organic pollutants from wastewaters by the use of wastes from production and treatment of metals as catalysts and the establishment of a botanical garden as an instrument for escalation of environmental consciousness of citizens.

Consulting, training and courses
Training and courses are focused on health and safety at work, safety education based on international standards, research coordination for specific application targets and requirements for the increase of the safety of industrial regions. Guidance is also given for implementation of the Occupational Health and Safety Assessment Series (OHSAS), consulting in the field of emergency planning and consulting in the utilisation of renewable sources of energy.

Areas of expertises

- Analysis of Fire Danger
- Safety of Technological Processes and Systems
- Extinguishing Substances and Technologies
- Systems of Management of Safety and Occupational - Health Protection according to the OHSAS 18 001
- System of Environmental Management according to the ISO 14 001
- Fire and Safety Engineering
- Flammable Liquids, Solids and Powder
- Work with Dangerous Substances
- Analysis and Risk Regulation with the Methods Checklist, Failure Modes and Effect Analysis, Hazard and Operability Study, Fault Tree Analysis
- Safety of Chemical Technologies
- Safety in Area of Explosive Substances and Explosions
- Fire Hazard Analysis
- Fire Safety of Buildings
- Alternative Energy Sources
- Air Emmisions
- Processing with Waste
- Progressive Technologies of Water Cleaning
- Integration of Systems of Safety and Occupational - Health Protection (BOZP), Quality and Environment
- Environment Evaluation
- Explosion Prevention
- Risk Analysis
- Storage of Danger Substances – Toxicology of Substances including Risk Definition
- Prevention of Dangerous Industrial Accidents
- Implementation of the OHSAS and EMS Systems in Enterprises

PROJECTS OF THE INSTITUTE

Project title Utilisation of laboratory methods for the quantification and flamability of wood, wooden composites and polstering materials
Coordinator Danica Kačíková (Zvolen)
Start Date 01/1/2012
End Date 31/12/2014
Programme VEGA
Annotation The research focuses on the quantification of flamability by determining fire, technical and safety characteristics of selected types of wood, wooden composites and polstering materials. The selection of materials will correspond with the materials of products used for internal equipment of buildings. Selection of the determined characteristics will correspond with the key properties important for evaluation of their influence on the origin and development of fires. Results of standardised methods will be compared with the results of laboratory methods. A new method will be designed for the exact evaluation of a cigarette test of polstering materials. The equipment will be constructed for evaluating flamability by using emanating heat source. Determined will be the dangerous components of products of thermodegradation and burning in relation to the physical and chemical properties of materials. Assessed will be the formation of dangerous explosive concentrations during thermodegradation of materials. The complex fire-protection of selected materials will be evaluated.

Project title **Hybrid power supply for technical consultancy laboratory for the use and promotion of renewable sources and energy**
Type of the project: OPVaV
Number of the project: ITMS 26220220056
Main Investigator: Assoc. Prof. Ing. Bohunil Taraba, PhD.
Time period of the project: 2009-2012
Annotation Prototype of a hybrid source-based RES construction (hydro-potential, solar, biogas and bioethanol) for the long term testing and promotion. Through the proposed interventions the prestige of research will be increased, which will also lead to increased interest in the search for talent and higher employment in this field. The benefits will be new creative ideas and flexible responses to the needs of small enterprises and their closer cooperation. The resulting effect will be more competitive research teams within national research, greater interest from small and medium enterprises to conduct research focused on innovation in public research institutions, universities and other research centres. Slovak research teams will also compete at the international level, bringing the Slovak research development greater cooperation with the international environment and higher success of Slovak applicants in the 7th Framework Program of EU and other EU initiatives.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Employee	Country
prof.Ing. Karol Balog, PhD.	Czech Republic Slovenia
Ing.Alica Bartošová	Estonia
Ing. Blanka Galbičková	Estonia
Ing. Kristína Gerulová, PhD.	Poland
Ing. Jozef Harangozó, PhD.	Czech Republic
Ing. Ivan Hrušovský, PhD.	Czech Republic
Ing. Richard Kuracina, PhD.	Czech Republic
Ing. Jozef Martinka, PhD.	Czech Republic Poland
Ing. Martin Pastier	Czech Republic Estonia
RNDr. Maroš Sirotiak, PhD.	Poland
Assoc. Prof. Ing. Ivana Tureková, PhD.	Czech Republic USA Poland
Ing. Zuzana Turňová, PhD.	Austria
Ing. Dominika Urbanová,	Estonia

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Academy of Science / Slovak Botanical Society
RNDr. Miroslav Rusko, PhD.

Slovak National Accreditation Society SNAS
Prof. Ing. Karol Balog, PhD.

Slovak Standards Institute TC 15
Ing. Jozef Martinka, PhD.

Slovak Standards Institute TC 17
Prof. Ing. Karol Balog, PhD.
Ing. Jozef Martinka, PhD.
Ing. Tomáš Chrebet, PhD.
Slovak Standards Institute TC 31
Assoc. Prof. Ing. Maroš Soldán, PhD.

Slovak Standards Institute TC 39
Assoc. Prof. Ing. Ivana Tureková, PhD.

Slovak Standards Institute TC 29
Ing.Jozef Harangozó, PhD.

Slovak Standards Institute TC 72
RNDr. Miroslav Rusko, PhD.

Slovak Standards Institute TC 91
Ing.Ivan Hrušovský, PhD.

Slovak Standards Institute TC 105
Ing.Richard Kuracina, PhD.

Slovak Academy of Sciences / Slovak Chemical Society
Ing. Richard Kuracina, PhD.
Ing.Anna Michalíková, PhD.
Assoc. Prof. Ing. Maroš Soldán, PhD.

Slovak Academy of Science / Slovak Ecology Society
RNDr.Miroslav Rusko, PhD.

Civic Association UMBRA - Union for Management of Biotops and Re - Activities
RNDr. Maroš Sirotiak, PhD.

Slovak Geochemical Association
RNDr. Maroš Sirotiak, PhD.

Slovak Association for Landscape Ecology
RNDr. Miroslav Rusko, PhD.

Slovak Society for Environment – The Association of Slovak Scientific and Technological Societies
Miroslav Rusko, RNDr. PhD.

Futurological Society in Slovakia
Miroslav Rusko, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

Czech Republic Fire and Safety Engineering Association
Prof. Ing. Karol Balog, PhD.
Ing. Jozef Martinka, PhD.

International Institute of Welding IIW
Prof. Ing. Karol Balog, PhD.

European Network Education and Training in Occupational Safety and Health (ENETOSH)
Prof. Ing. Karol Balog, PhD.
International Association for Landscape Ecology
RNDr.Miroslav Rusko, PhD.

International Association of Fire Safety Science
Ing.Jozef Martinka, PhD.

PUBLICATIONS (most important publications 2012)

Chrebet, Tomáš - Martinka, Jozef - Balog, Karol - Hrušovský, Ivan: Monitoring of thermal degradation of fireproof coating. In: Annals of DAAAM for 2012 & Proceedings of the 23rd International DAAAM Symposium, Volume 23, No. 1, ISSN 2304-1382, ISBN 978-3-901509-91-9, CD ROM version, str. 1111-1114. – **registered in: Scopus**. In: Advanced Materials Research. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 598: 2012 Global Conference on Civil, Structural and Environmental Engineering,GCCSEE 2012 and the 3rd International Symposium on Multi-field Coupling Theory of Rock and Soil Media and Its Applications, MCTRSM 2012, Yichang, 20-21 October 2012 (2012). - ISBN 978-303785537-9, pp. 379-383

Manová, Alena - Čacho, František - Beinrohr, Ernest - Rusko, Miroslav - Kollár, Vojtech - Kotovicová, Jana - Vaverková, Magdalena: Preconcentration of Hg in Waters for ET AAS in a Flow-Through Electrochemical Cell. – **registered in: Master Journal List, Scopus**. In: Polish Journal of Environmental Studies. - ISSN 1230-1485. - Vol. 21, No. 5 (2012), pp. 1313-1318

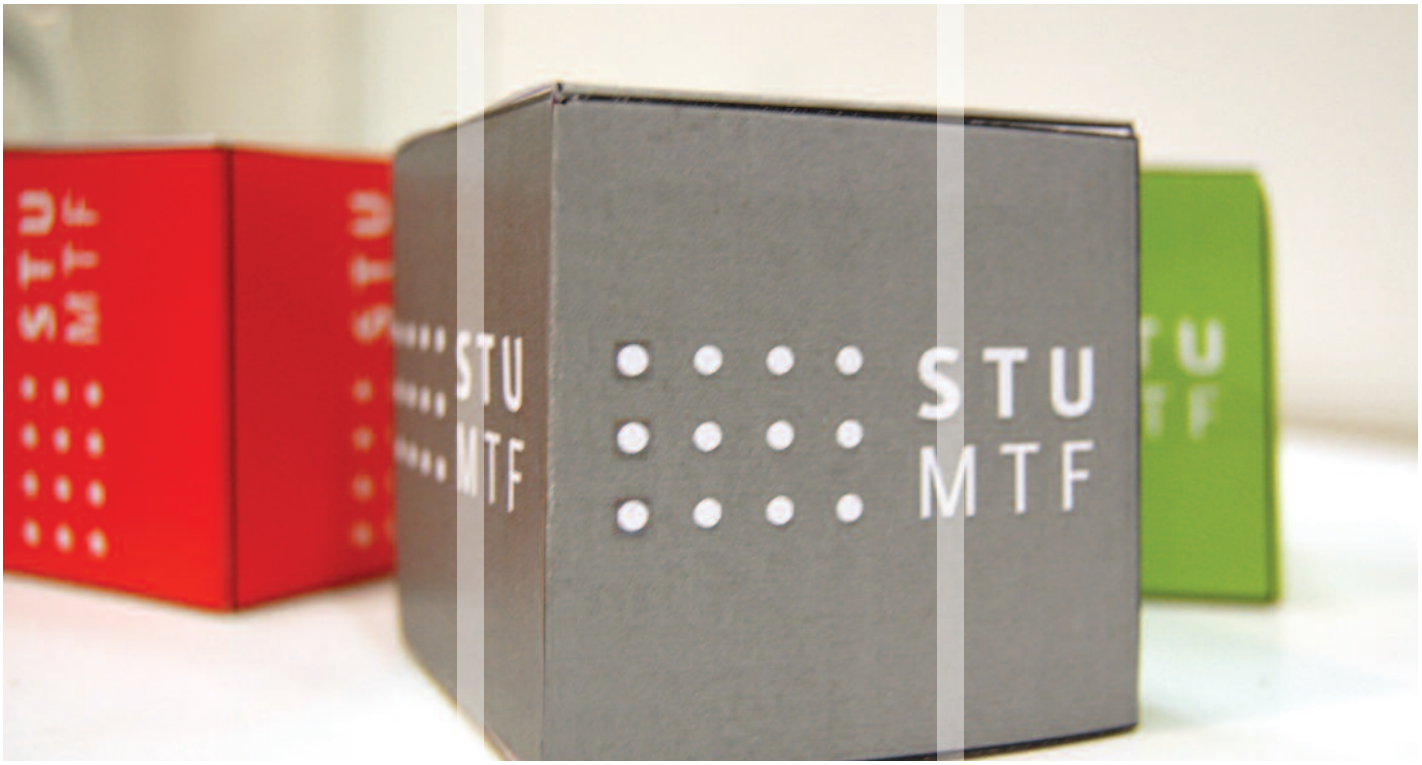
Martinka, Jozef - Balog, Karol - Chrebet, Tomáš - Hroncová, Emília - Dibdiaková, J.: Effect of oxygen concentration and temperature on ignition time of polypropylene. – **registered in: Web of Science, Master Journal List, Scopus**. In: Journal of Thermal Analysis and Calorimetry. - ISSN 1388-6150. - Vol. 110, Iss. 1 : CEEC-TAC1 Conference Special Issue (2012), pp. 485-487

Martinka, Jozef - Kačíková, Danica - Hroncová, Darina - Ladomerský, Juraj: Experimental determination of the effect of temperature and oxygen concentration on the production of birch wood main fire emissions. – **registered in: Web of Science, Master Journal List, Scopus**. In: Journal of Thermal Analysis and Calorimetry. - ISSN 1388-6150. - Vol. 110, Iss. 1: CEEC-TAC1 Conference Special Issue (2012), pp. 193-198

Tureková, Ivana - Turňová, Zuzana - Pastier, Martin: Advanced Alert and Warning Systems. – **registered in: Scopus**. In: Advanced Materials Research. - ISSN 1022-6680. - ISSN 1662-8985. - Vol. 594-597 : 2012 Global Conference on Civil, Structural and Environmental Engineering, GCCSEE 2012 and the 3rd International Symposium on Multi-field Coupling Theory of Rock and Soil Media and its Applications, MCTRSM 2012, Yichang, 20-21 October 2012 (2012). - ISBN 978-303785536-2, pp. 2232-2236

This part of Annual Report 2012 was verified by Prof. Ing. Karol Balog, PhD.

DIVISION



DIVISION OF KNOWLEDGE MANAGEMENT

CONTACT

Head of the Division
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DEPARTMENTS

- Academic Library
- Publishing House
- Public Relations

STAFF: 14

- Academic library: 8
- Publishing house: 2
- Public Relations: 3

PRIORITIES OF THE DIVISION OF KNOWLEDGE MANAGEMENT

1. The Division of Knowledge Management is the technical-administrative and service unit of the Faculty which provides activities and functions in the field of the academic library, publishing and public relations.
2. The Division of Knowledge Management is responsible for:
   a) processes and operations of the academic library which includes:
   - the storage of research and bibliographic information, in addition to coordination and provision of knowledge management advice for the Faculty,
   - storage and registration of qualification theses,
   - the provision of a workplace for the storage of Faculty publications and their references,
   - the provision and processing of information funds according to the Faculty profile and the provision of bibliographic-information services on the basis of user categorisation,
   - administration of bibliographic- information databases related to the academic activities of the Faculty and participation by creating and accessing file catalogues,
   - fulfilment of the role as a specialised research library for the specific fields of the Faculty,

   b) operation of the Faculty publishing house and the provision of editorial activities
   c) public relations activities of the Faculty
   d) acting as a point of contact between the Faculty and the alumni society.

PROJECTS OF THE DIVISION OF KNOWLEDGE MANAGEMENT IN 2012:

Project title Centre of knowledge organisation of intellectual property

Type of Project Operational programme: research and development

Number of Project ITMS 26220220054

Responsible Supervisor PhDr. Kvetoslava Rešetová, PhD.

Time Period of Project 2010-2012

Annotation The project was approved as part of the Slovak Ministry of Education project call for the operational programme – research and development. The aims of the project is the creation of a centre with the functions of a virtual library and digital archive, complex care of rights of intellectual properties, expert research and the creation of an education workplace for intellectual property. The project will be a response of the trends for the development of a knowledge Faculty as a knowledge society centre. It will represent a model of knowledge management which is defined on the basis of information surveys, information behaviour, knowledge organisation, interaction and access to information.

Project title	Knowledge management system of monitoring instruments of the graduates' employment within the integration into the EU
Type of Project	Operational programme: education
Number of Project	ITMS 26110230024
Responsible Supervisor	PhDr. Kvetoslava Rešetová, PhD.
Time Period of Project	2010-2012
Annotation	The project was approved as part of the Slovak Ministry of Education project call for the operational programme – education. The strategic aim of the project is focused on the support to increase the quality and flexibility of the tools for observation of graduates' careers. The objective is to measure the adaptation of the education system to the needs of a knowledge society via innovative forms of development of the Faculty intellectual capital. It is based on the long-term aim to increase the responsibility of knowledge transfer and the development of a knowledge society. The extent of an intellectual and knowledge institutions' potential and intensity of its development is connected with knowledge management. The transfer of knowledge presents a revision of the position of knowledge in the organisational value hierarchy. The project presents educational integrity - innovations and knowledge.

ACTIVITIES OF THE DIVISION OF KNOWLEDGE MANAGEMENT IN 2012:

Academic Library
- analysis of renowned publishing houses
- presentation of Master Journal List in the premises of Thomson Reuters
- export of data into the central register of publication activity
- categorisation of publication activity according to accreditation criteria
- continual digitalisation of final theses
- consultancy and verification of sources for publishing (verification of creditability of sources for the MTF outputs)
- modification and restructuring of the AL webpages

Publishing House
- publishing activity in the field of electronic textbooks, series of monographs, MTF journals, proceedings
- coordination of the process to add the Faculty journals to the Versita system (journals are indexed in the current databases: RePeC, Astrophysics Data System, INSPEC and TEMA database
- implementing the changes of the statute of editorial activity, including administration of anonymous reviewing
- updating and administering the publishing portal of MTF
- providing the English translation of the "Research papers" journal on the Faculty website
- mapping the publication space in the publishing houses of Pearson and Cengage for STU MTF
- introducing custom publishing at MTF
- updating the Slovak language corner on the publishing house webpages
- modification and restructuring of the publication house webpages

Department of Public Relations
- establishment of the virtual sight-seeing of STU MTF
- English translations of the main website sections
- monthly schedule providing information on the Faculty events
- supplying information to the webpage of companies and the Faculty for economic practice (in co-operation with Division of Academic Activities)
- preparation of the Annual Report 2012
- innovation of poster display
- implementation of the new re-design of STU, including the new Faculty logo
- responsibility for the website and monitoring of the news
- provision of updates to websites of the Institutes
- update of the MTF photo-gallery portal
- acquisition of the technology museum
- activities related to promotion of the Faculty in the media
- displays at the exhibitions: International Engineering Fair in Brno, Exhibition of Centres of Excellence in Bratislava and an exposition of photographs of STU MTF
- regular organisation of Thursday afternoon meetings (until November 2012)
- activity to support the Bank of Quality - Alumni MTF society
- production of invitations, business cards, leaflets and posters
- regular announcements in print media (Spektrum, Trnavský hlas, Novinky z radnice, Produktivity and Innovation)
- video-recordings of events
- organisation of the Faculty activities guaranteed by the division (New Year's meeting, MTF Day, St. Nicholas Day, International Children Day)
- organisational support for shooting the documentary "Spectrum of Science"
- modification and restructuring of the PR webpages (including presentation map)

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Association of Libraries – membership of the whole academic library

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

Knowledge Management Professional Society (KMPro)
PhDr. Kvetoslava Rešetová, PhD.

Slovak Academy of Management (SAM)
PhDr. Kvetoslava Rešetová, PhD.

Association of Authors of Scientific and Research Literature (SAVOL)
PhDr. Kvetoslava Rešetová, PhD.

PUBLICATIONS

Rešetová, Kvetoslava: Contribution to the development of tools for monitoring the graduates' performance in practice. - ITMS 26110230024. In Transfer. - ISSN 1337-9747. - Vol. 4, No. 2 (2012), pp. 16-17.

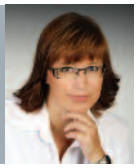
Rešetová, Kvetoslava: The marketing concept in an academic environment. In Research papers. Faculty of Materials Science and Technology Slovak University of Technology in Trnava. - ISSN 1336-1589. - Vol. 20, No. 32 (2012), pp. 28-34.

Rešetová, Kvetoslava. Custom publishing. In Academia, 2012.

Rešetová, Kvetoslava - Prelovská, Alena. Renowned publishing houses versus evaluation of outputs in publication activity. In Knižnica, 2012.

Rešetová, Kvetoslava - Otčenáš, Jaroslav - Závacký, Pavol - Štefánková, Jana - Moravčík, Oliver: The impact of infrastructure on knowledge processes in an institution. In: Comec 2012 : VII International Scientific Conference of Mechanical Engineering. November 5th to 8th 2012, Villa Clara, Cuba. - : Central University of Las Villas, 2012. - ISBN 978-959-250-757-9. - [8 p.]

This part of Annual Report 2012 was verified by PhDr. Kvetoslava Rešetová, PhD.



DIVISION OF ACADEMIC ACTIVITIES

CONTACT

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DEPARTMENTS

- Registrar's Department
- Department of Research and International Relations

STAFF: 15

- Registrar's Department: 10
- Department of Research and International Relations: 4

PRIORITIES OF THE DIVISION OF KNOWLEDGE MANAGEMENT

1. The Division of Academic Activities is the administrative-service division of the Faculty which provides administrative and service activities connected with the study and research activities of the Faculty, the foreign relations of the Faculty and the system of quality in the pedagogical process.
2. The Division of Academic Activities is responsible for:
   a) recording the student life cycle and related activities for all three study degrees (Bc., Ing., PhD.),
   b) processing and administration of admission procedures in all three study degrees,
   c) preparing of publicity materials directed to applicants for study,
   b) processing of a complex agenda for motivational and social scholarships,
   e) recording of research projects and grant activities,
   f) organising of business and study travel for the Faculty employees and students abroad,
   g) organisation of development support for the international contacts of Faculty employees and students with universities and other foreign institutions, and support of their participation in international programs,
   h) organisation of growth in the complex scientific academic qualification of the Faculty employees – including habilitation and inauguration procedures,
   i) organising and administration of agendas related to activities for defence of dissertation theses, habilitation and inauguration commissions,
   j) provision of a complex agenda for meetings of the Faculty Scientific Board,
   k) organisation and administration of the accreditation process and implementation of a system of quality,
   l) administration of agendas connected with awards for the Faculty and memberships in scientific communities,
   m) organisation of the Faculty academic ceremonies,
   n) organisation of activities related to the promotion of companies and presentations of companies with the aim of providing job offers to the Faculty students

PROJECTS OF THE DIVISION OF ACADEMIC ACTIVITIES:

Head of the Division Ing. Jana Štefánková contributes to the project (2010-2012) Knowledge management system of monitoring instruments of the graduates' employment within the integration into the EU.

ACTIVITIES OF THE DIVISION OF ACADEMIC AFFAIRS IN 2012:

- Organisation of the International Doctoral Seminar 2012
- Organisation of the Students Research Conference at the Faculty 2012
- Organisation of the "Open-house Day at MTF STU"
- Organisation of "Doctoral Week"
- Organisation of promotional activities, presentation events and preparation of collated materials for study
- Participation at education trade fairs
- Organisation of presentation/promotion activities delivered by companies with the aim of providing job offers to the Faculty students
- Organisation of questionnaire on student satisfaction with study (study conditions, level of teachers – study conditions, teacher qualifications and the quality of education process)
- Cooperation in organising the "New-year's meeting of employees"
- Maintenance of the web page including information for Faculty and students, throughout the year
- Maintenance of the Academic Information System (AIS)

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

The Slovak Academy of Management
Ing. Jana Štefánková

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

SEFI- European Society for Engineering Education
Ing. Jana Štefánková

PUBLICATIONS

Moravčík, Oliver - Sakál, Peter - Drieniková, Katarína - Hrdinová, Gabriela - **Štefánková, Jana**: European union policy in the field of university education within the context of sustainable development. In: Materials Science and Technology [online]. - ISSN 1335-9053. - Vol. 12, No. 2 (2012), pp. 25-32

Moravčík, Oliver - Sakál, Peter - Drieniková, Katarína - Hrdinová, Gabriela - **Štefánková, Jana**: Education policy of the European Union in the field of university education in the context of sustainable development. In: Výkonnosť podniku (Effective company). - ISSN 1338-435X. - Vol. 2, No. 1 (2012), pp. 126-133

Rešetová, Kvetoslava - Otčenáš, Jaroslav - Závacký, Pavol - **Štefánková, Jana** - Moravčík, Oliver: The impact of infrastructure on knowledge processes in an institution. In: Comec 2012: VII International Scientific Conference of Mechanical Engineering. November 5th to 8th 2012, Villa Clara, Cuba. -: Central University of Las Villas, 2012. - ISBN 978-959-250-757-9. - [8 p.]

Svetský, Štefan - Moravčík, Oliver - **Štefánková, Jana** - Schreiber, Peter: IT Support for Knowledge Management within R&D and Education. In: ICL 2012: 15th International Conference on Interactive Collaborative Learning and 41st International Conference on Engineering Pedagogy, 26 - 28 September, Villach, Austria. IEEE Catalog Number: CFP1223R-USB. - Piscatawey: IEEE, 2012. - ISBN 978-1-4673-2426-7. - [6 p.]

Svetský, Štefan - Schreiber, Peter - Moravčík, Oliver - **Štefánková, Jana**: Some Aspects of Computer Supported Teaching. In: EAEEIE 2012: 23rd EAEEIE Annual Conference, Cagliari, Italy, February, 26-27, 2012. - Cagliari: University of Cagliari, 2012. - [4 p.]

Svetský, Štefan - Moravčík, Oliver - **Štefánková, Jana** - Schreiber, Peter: The Educational - Driven Approach for Technology Enhanced Learning. In: Lecture Notes in Engineering and Computer Science. - ISSN 2078-0958. - WCECS 2012. Vol. I: World Congress on Engineering and Computer Science 2012. Proceedings IAENG & IET. San Francisco, USA, 24-26 October, 2012. - Hong Kong: International Association of Engineers, 2012. - ISBN 978-988-19251-6-9, pp. 290-296

Svetský, Štefan - Moravčík, Oliver - Tanuška, Pavol - **Štefánková, Jana** - Schreiber, Peter - Važan, Pavel: The Particular Approach for Personalised Knowledge Processing. – **registered in: Scopus**. In: Advances in Intelligent and Soft Computing. - ISSN 1867-5662. - Vol. 166. Advances in Computer Science, Engineering and Applications: Proceedings of the Second International Conference on Computer Science, Engineering and Applications (ICCSEA 2012), May 25-27, 2012, New Delhi, India, Volume 1. -: Springer-Verlag Berlin Heidelberg, 2012. - ISBN 978-3-642-30156-8, pp. 937-946

Štefánková, Jana - Porvazník, Ján - Moravčík, Oliver: The Academic Institution Quality and Managerial Capability Valuation of University Management. In: Proceedings of the 9th International Conference on Intellectual Capital, Knowledge Management and Organisational Learning: Colombia, Bogota, 18-19 October 2012. - Bogota: Universidad del Rosario, 2012. - ISBN 978-1-908272-71-3. - pp. 245-253

This part of Annual Report 2012 was verified by Ing. Jana Štefánková

DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS

CONTACT

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DEPARTMENTS

- Department of Information Systems Operation
- Department of System and Technical Services

STAFF: 13

- Department of Information Systems Operation: 7
- Department of System and Technical Services: 6

PRIORITY OF THE DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS

1. The Division of Communication and Information Systems is a technical-administrative and service Faculty unit which provides procedural, consultative and informational services in the area of communication and information technology to other organisational units of the Faculty. This division prepares documents for acquisition, maintenance and repairs of the Faculty information technology.
2. The Division of Communication and Information systems is responsible for:
   a) processing and administration of Faculty computer systems,
   b) provision of casual maintenance and repairs to devices of the Faculty information technology and infrastructure,
   c) provision of consultation services for the system and selected application program equipment,
   d) development, innovation and implementation of technical and program means for the Faculty's information technology,
   e) organisation of training and short-time courses for users of information technology, training of application program equipment and operation of the computer network,
   f) creation, development, innovation and distribution of the Faculty's computer network and its connection to the university network,
   g) provision of IT devices to the Faculty workplaces in cooperation with directors of institutes and heads of divisions,
   h) casual repairs of technical devices as required,
   i) support for cooperation with the Centre of Information Technology STU and other information workplaces at STU,
   j) provison of suggestions for short-term and long-term plans for the implementation of information technology and the preparation of documents for decisions made by the management of the Faculty,
   k) entrepreneurship activity,
   l) issuance of permissions for connection of devices to the Faculty computer network,
   m) administration of the Faculty servers and components of the Faculty information system.

PROJECTS OF THE DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS IN 2012

Project title Support of university infrastructure to improve the conditions of education.

Number of Project 5.1.2 and 5.1.3

Responsible Supervisor Ing. Jaroslav Otčenáš

Time Period of the Project 2010-2012

Annotation The aim of project is to create the university infrastructures and modernisation of their internal equipment to improve the conditions of the education process. The project results will be the modernisation of computer networks, a creation of a data centre building on Bottova and Botanicka streets, improvement of the printing system, and modernisation of classrooms. In the classrooms, data projectors and other modern education tools will be provided. In the Faculty buildings, there will be additional internet access for students. Additionally, multimedia classrooms will be created and the number of connection points for WiFi internet will be increased. The next important step is the creation of information Faculty security, especially by network monitoring, firewall solutions for all LAN MTF, and provision of computers for students in the dormitory.

ACTIVITIES OF THE DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS IN 2012

- active help in organising SANET - connection of secondary and elementary schools to the central node of the internet, which is located at the Faculty
- reconstruction of the IT infrastructure
- administrating of the Mobile data center with server and storage backend technologies
- network intrusions detection and prevention
- servers installing and maintenancing
- developing of web portals for Faculty needs (www.idssmolenice.sk, dokumenty.mtf.stuba.sk and foto.mtf.stuba.sk)
- WiFi Access points administration (Cisco WLC)
- implementation of system for net points regulation (LMS)
- management of UPC for servers and datastorages
- administration of CCTV and security system
- mobile (cellular) and landline phones agenda administration
- preparation of transition to the Active Directory for whole faculty.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

SANET – Slovak Academic Network

PUBLICATIONS:

Rešetová, Kvetoslava - **Otčenáš, Jaroslav - Závacký, Pavol** - Štefánková, Jana - Moravčík, Oliver: The impact of infrastructure on knowledge processes in an institution. In: Comec 2012 : VII International Scientific Conference of Mechanical Engineering. November 5th to 8th 2012, Villa Clara, Cuba. - : Central University of Las Villas, 2012. - ISBN 978-959-250-757-9. - [8 p.]

Strémy, Maximilián - Strašifták, Andrej - **Závacký, Pavol**: Concept of the Virtual Distributed Control System. In: Lecture Notes in Engineering and Computer Science. - ISSN 2078-0958. - WCECS 2012. Vol. II. : World Congress on Engineering and Computer Science 2012. Proceedings IAENG & IET. San Francisco, USA, 24-26 October, 2012. - Hong Kong : International Association of Engineers, 2012. - ISBN 978-988-19252-4-4, pp. 1159-1165

This part of Annual Report 2012 was verified by Ing. Jaroslav Otčenáš

DIVISION OF ECONOMIC AND ESTATE ACTIVITIES

Contact

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DEPARTMENTS

- Department of Operations and Maintenance
- Department of Estate Management
- Student Hostel and Canteen
  - Facility: Student Dormitory
  - Facility: Student Canteen

STAFF: 103

- Department of Operations and Maintenance: 52
- Department of Estate Management: 9
- Student Hostel and Canteen
  - Facility: Student Dormitory: 32
  - Facility: Student Canteen: 10

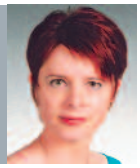
PRIORITY OF THE DIVISION OF ECONOMIC AND ESTATE ACTIVITIES

1. The Division of Economic and Estate Activities is the economic-administration unit of the Faculty which provides economic, operative, administrative, and other services related to the proper Faculty and division operation.
2. The Division of Economic and Estate Activities is responsible especially for:
   a) preparation, securing and implementation of economic, administrative and operative Faculty logistics,
   b) logistical and controlling functions of the Faculty,
   c) maintenance of the registry system of the Slovak University of Technology at the Faculty,
   d) organisation of the implementation of civil defence, fire protection and safety and health protection at work.

ACTIVITIES OF THE DIVISION OF ECONOMIC AND ESTATE ACTIVITIES IN 2012

- reconstruction of the indoor swimming pool
- reconstruction of floors in the student dormitory
- implementation of an innovative catering system
- verification of agreements connected with the Faculty maintenance
- provision of a complete economic agenda of the Faculty's student dormitory
- co-organising of Faculty events

This part of Annual Report 2012 was verified by Mgr. Elena Nemetzová



DIVISION OF PERSONNEL AND ORGANISATIONAL ACTIVITIES

CONTACT

Head of the Division
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tel: +421918646017

Address
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DEPARTMENTS

- Personnel Department
- Department of Employment and Economic Development
- Payroll Department (Wages and Salaries)
- Department of Safety & Health Protection at Work, Civilian Protection and Fire Safety
- Department of Security Systems

STAFF: 11

- Dean's secretariat: 3
- Personnel Department: 2
- Department of Employment and Economic Development: 2
- Payroll Department: 2
- Department of Safety & Health Protection at Work, Civilian Protection and Fire Safety: 1
- Department of Security Systems: 1

PRIORITIES OF THE DIVISION OF PERSONNEL AND ORGANISATIONAL ACTIVITIES

1. The Division of Personnel and Organisational Activities is the administration-service unit of the Faculty. It is responsible for securing all administrative and service activities connected with hiring and rewarding of the Faculty employees, social and health insurance of employees, recording and processing of income issues, activities of the Dean's secretary office and the security systems of the Faculty.
2. The Division of Personnel and Organisational Activities is responsible for:
   a) the personnel records of the Faculty employees,
   b) preparing a list and the structure of obligatory documentation which is processed by the central Division of Personnel and Organisational Activities and particular divisions and workplaces of the Faculty it has a right to control,
   c) operation of an information system for personnel work including administration of a system of the workplaces at the Faculty,
   d) processing a system for remuneration of employees including preparation of documents for the wage policy of the Faculty,
   e) preparation and organisation of interviews for the work positions of leading employees at the Faculty and pedagogical employees at institutes,
   f) activities according to the law on protection of personal data, operation of the Dean's office
   g) Organisation of Safety & Health Protection at Work, Civilian Protection and Fire Safety

ACTIVITIES OF THE DIVISION OF PERSONNEL AND ORGANISATIONAL ACTIVITIES IN 2012

- Charity event: Christmas bazaar
- Meeting of the Faculty employees at the occasion of 25th anniversary of the Faculty establishment
- Management of the attendance system ESED

PUBLICATIONS:

Odlerová, Eva - Rusková, Dagmar - Mrvová, Ľubica - Neupauerová, Andrea - **Ďurišová, J**: Ecological crisis and the need of its philosophical reflection. - Kega 037/STU-4/2012. In: Problemy funkcionirovanija i razvitija territorial'nych social'no-ekonomičeskich sistem (Problems of functioning and development of territorial, social and economic systems).: V. Vserossijskaja naučno-praktičeskaja internet-konferencija (All-Russian scientific internet conference). 15.10 - 15.11.2011, Ufa. - Ufa: ISEI UNC RAN, 2011. - pp. 1-5

Odlerová, Eva - Mironovová, Emília - **Ďurišová, J**: Ethical priorities in personnel management and training personnel managers at the Slovak University of Technology. In: Innovacionnyje technologii upravlenija social'no-ekonomičeskim razvitijem regionov Rossii: Materialy III.Vserossijskoj naučno-praktičeskoj konferencii s meždunarodnym učastijem (Innovative technologies of managing the social and economic development of Russian regions. Materials of the 3rd all-Russian scientific conference with international participation). 31.5. - 2.6. 2011, Ufa. Part I. - Ufa: ISEI UNC RAN, 2011. - ISBN 978-5-904122-49-2. - pp. 172-177

Odlerová, Eva - **Ďurišová, Jaroslava** - Šramel, Bystrík: Code of ethics in a multicultural company and its legal context. – paper published also in the CO-MAT-TECH 2012 proceedings, ISBN 978-80-8096-180-0, pp. 168-173. In: Research papers of Faculty of Materials Science and Technology, Slovak University of Technology in Trnava. - ISSN 1336-1589. - Vol. 20, Special Number (2012), pp. 108-113

This part of Annual Report 2012 was verified by Ing. Jaroslava Ďurišová

CENTRE FOR TECHNOLOGY TRANSFER

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STAFF: 8

PRIORITIES OF THE CENTRE FOR TECHNOLOGY TRANSFER

Priorities of the Centre for Technology Transfer involve the management of structural funds and implementation of projects for both research and practice. The workplace has expertise in managing the Faculty and university projects as well as international co-operation projects.

The tasks of the Centre for Technology Transfer are as follows:

- Preparation and technical provision of the projects in the initial launch,
- Implementation and administrative provision of projects,
- Economic activities in the initial launch and the project implementation phase,
- Evaluation, statistics and reports on the projects, both internal – to the Faculty management, and external – to STU, Managing Authority (MA), Intermediate Body under the Managing Authority (IBMA), agencies and inspection bodies,
- Publicity of projects,
- Provision of procurement processes by a professionally qualified person,
- Provision of entrepreneurial activity.

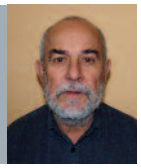
ACTIVITIES OF THE DIVISION OF ECONOMIC AND ESTATE ACTIVITIES IN 2012

- coordination of public procurement projects
- new contacts with domestic and foreign research and education organisations
- coordination of bidding processes and creation of methods for bidding processes at the Faculty, supervision of plans for bidding processes at the Faculty
- monitoring of project acquisition according to the Faculty profile
- development of the agenda for the Faculty entrepreneurial activity

MEMBERSHIP IN PROFESSIONAL ORGANISATIONS

Certified member of the IPMA (International Project Management Association) project tea
Ing. Peter Halada

This part of Annual Report 2012 was verified by Ing. Peter Halada



DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

CONTACT

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DEPARTMENTS

consists of three sections:

- Humanities
- Professional Language Communication
- Physical Education and Sport

Besides teaching, the Department staff are involved in research projects.

STAFF: 20

The Department of Humanities and Social Sciences was established on 01/01/2012, after the closing of the Institute of Engineering Pedagogy and Humanities.

ACTIVITIES OF THE DEPARTMENT IN THE YEAR 2012

05/11- 22/11/2012 - UNIcert course; 27/11. – written examination; 04 – 06/12 – oral exams;
29/03/2012 - Student Research Conference;
10 -11/03/2012 - The 38th International Swimming Meeting for students "Trnava Grand Prix"
22/06/2012 - Tennis tournament for the STU employees "Teacher's Cup"

PRIORITIES OF THE DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

The key tasks and aims of the Department include:

- professional preparation of the Faculty students in the field of human and social sciences in order to support their development and enhance and develop a social dimension to the engineering students' personalities;
- provision of professional English language training;
- physical training and sport to enhance the health and wellbeing of the Faculty students;
- preparation of students majoring in the study programme of Personnel Policy in Industrial Plant in the field of human and social sciences.

PROJECTS OF THE DEPARTMENT IN 2012:

VEGA 1/0226/12 Correspondence of Ján Kvačala 1860-1934
Research period: 2012-2014. Principle investigator: L. Bernát. The project deals with the unknown correspondence of Ján Kvačala, a renowned comeniologist (1862-1934).

KEGA (026STU-4/2012) Students of Slovakia at the Prague and Brno technical universities in the interwar period
Research period: 2012 – 2014. Principle investigator: L. Bernát. The project studies the social, confessional and nationality structure of the students of Slovakia at the Prague and Brno technical universities, as well as formation of technical intelligentsia in Slovakia in the interwar period.

KEGA (052STU-4/2013) Application of the standards of critical thinking in the innovation of the subject "Introduction into scientific work at STU"
Research period: 2013 – 2015. Principle investigator: M. Bednáriková.
The project is focused on the innovation of the subject "Introduction into scientific work at STU", accentuating the method of systems approach towards the development of critical thinking and research competences within Master's study. Proposal of the standard system for the field of critical thinking development and selected cognitive abilities of the engineering university students, as well as the framework for their evaluation are in compliance with the European Qualifications Framework and the National Qualifications Framework.

SUBJECTS GUARANTEED BY THE DEPARTMENT IN 2012:

- Bachelor Thesis
- Bachelor Project
- Biology of Teenagers
- History of Technology and Vocational Schooling
- European Integration Processes
- English Language I,II,III,IV
- English Language for PhD students
- Industrial Sociology
- Prognostics
- Psychology of the Work of a Manager
- Social Ecology
- Social Communication
- Social Policy
- Sociology
- Sociology of Work
- Sociology of Management
- Physical Education I,II
- Theory of Education
- Introduction into Scientific Work
- Introduction into University Study
- Entrepreneurial Education
- Selected Chapters of Work Psychology
- Fundamentals of Ethics
- Fundamentals of Communication
- Fundamentals of Law for Engineers and Managers I,II

PUBLICATIONS (the most important publications in 2012)

Šramel, Bystrík: Police in the American system of criminal justice In: Policajná teória a prax. - ISSN 1335-1370. - Vol. 20, Iss. 2 (2012), pp. 89-96.

Šramel, Bystrík: Position of the public prosecution office in the French legal system. In: Magister Officiorum: journal of The Learned Law Society. - ISSN 1338-5569. -Vol. 2, No. 1 (2012), s. 18-24.

Šramel, Bystrík: Prosecution of the Slovak Republic in the light of international documents. In: Justice Review: Journal for Legal Practice. - ISSN 1335-6461. - Vol. 64, No. 2 (2012), pp. 208-223.

Šramel, Bystrík: Control means of discretional powers of prosecutor in criminal proceedings. In: Justice Review: Journal for Legal Practice. - ISSN 1335-6461. - Vol. 64, No. 5 (2012), pp. 687-700.

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Hodúlová, Erika [author] - **Mironovová, Emília [translation]**: Research into the Interface of Lead-Free Solder Joints. - Köthen: Hochschule Anhalt, 2012. - 84 p. - (Scientific monographs). - ISBN 978-3-86011-045-4

Kebísek, Michal [author] - **Chmelíková, Gabriela [translation]**: Data Mining in Industry. - Ilmenau : Universitätsverlag Ilmenau, 2012. - 104 p. - ISSN 2193-6439 - ISBN 978-3-86360-048-8

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Slabá, Ivana [author] - Tureková, Ivana [author] - **Green, Jana [translation]**: Smouldering and Flaming Combustion of Dust Layer on Hot Surfaces. - 1st Edition. - Dresden : IFW, 2012. - 88 p. - ISBN 978-3-9808314-5-1

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MEMBERSHIP IN PROFESSIONAL ORGANISATIONS

CASAJC
(Czech and Slovak Association of Language Teachers at Universities)
Gabriela Chmelíková
Emília Mironovová
Dagmar Rusková

UNIcert
(Foreign language certificate for universities)
Gabriela Chmelíková

Czech and Slovak Association of the School Psychologists
Silvester Sawicki

CEDOFOP
(European Centre for the Development of Vocational Training)
Silvester Sawicki

Association of Process-oriented Psychotherapy in the Slovak Republic
Silvester Sawicki

Slovak Scientific Society for Physical Education and Sport
Rastislav Hlavatý
Marián Merica

Slovak Swimming Federation
Rastislav Hlavatý

Slovak Tennis Association
Elena Lukačovičová

Slovak Historical Society
Libor Bernát

Slovak Pedagogic Society
Libor Bernát

This part of Annual Report 2012 was verified by PhDr. Emília Mironovová

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