ANNUAL REPORT

2013

STU MTF

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

Edited by: PhDr. Kvetoslava Rešetová, PhD.
Translation: PhDr. Emília Mironovová
Preview: Paul Woolliscroft - U.K.

Trnava, 2014

ANNUAL REPORT 2013

PREFACE

Dear ladies and gentlemen,

The format of the Annual Report traditionally provides a chance to review the past year and to outline the Faculty plan for the New Year 2014. It is useful to glance back at the past year, 2013 and to evaluate both the scientific research and teaching activities along with the economic situation of the Faculty, and primarily to outline the key objectives for the new calendar year. The analysis cannot be introduced here to its fullest extent; I will therefore try to familiarise you with the decisive moments in the Faculty life in the previous calendar year as regarded by the Dean.

Within the past year, our remarkable position in the ARRA ratings and ranking has dropped by six places. When compared to other STU faculties, we were overtaken by the Faculty of Informatics and Information Technologies. The initial analysis has revealed that we failed in a single monitored indicator: the volume of foreign grants. Similarly to our competitors, we have simultaneously recorded a significant improvement in other indicators: we achieved the economic optimum in the students/teacher ratio, which shows our rational behaviour. On the other hand, numerous performance indicators in the ARRA evaluation are calculated based on the number of students, which is a distinct disadvantage when compared to the faculties with a much lower number of enrolled students. The good news is that, despite an overall decline of the secondary school graduates in the country, there are 3200 students currently registered at the Faculty. If the level of their proficiency especially in sciences corresponded with our expectations, we might be almost satisfied. In addition to the positive reputation of the Faculty, this success can be attributed to the attractive spectrum of the undergraduate study programmes, good employability prospects of the Faculty graduates confirmed by the national statistics, as well as effective study promotion carried out by the Division of Academic Activities, the Division of Knowledge Management and a wide range of devoted individuals such as the Faculty ambassadors of study and the Faculty ALUMNI, all of which disseminate positive information about the Faculty through well-prepared promotion materials and objects.

You may expect the answer to the question, why the volumes of the Faculty foreign grants have significantly decreased, despite the Faculty previously securing the first position in the ARRA evaluation in the past year. The answer is quite simple: in last year's Annual Report I stated that we were the most successful faculty in Slovakia in terms of obtaining finances from the European Structural Funds; such volumes logically could not be repeated in 2013. Nevertheless, besides preparing other projects in 2013, we launched construction of the first in Slovakia University Scientific Park in May 2013.

Generally, in the EU 2007-2013 planning period, we implemented or contracted projects for a total of € 90 million. The project entitled "Campus MTF STU – CAMBO" is primarily focused on the area of Materials Engineering, particularly the ion and plasma technologies, automation and ICT implementation in industrial processes. The project comprises the construction of two new buildings of global scientific workplaces for the total cost of € 42 million with a system of laboratories equipped with the latest technologies for the purposes of materials research and ICT implementation in production processes, located on the main Faculty campus in Trnava.

It is also satisfying that the tender for all positions in the USP has been almost accomplished. Those involved understand that public procurement is the alpha and omega of the success of any major project financed by public funds. It is important to realise that both time and intellectual capacity of the Faculty staff is limited, and it is therefore impossible to pursue challenging projects from the Structural Funds and simultaneously deal with the projects within foreign and domestic scientific grants.

The Faculty Management has decided to prioritise building the STU MTF device and human research base within the Structural Funds, and gradually use it to enter the HORIZON 2020 space on a comparable or even more modern platform than that of our partners in the European Research Area. For these purposes, we have also modified our organisational structure; at the end of the previous year, we launched the Research Centre of Progressive Technologies with more than 30 employees, including 23 scientists, partly from local staff, partly winners of a tender. Currently, 14 of them are being trained to operate the latest equipment and procedures in the field of ion technology within a two-year scientific internship at the Helmholtz Institute in Dresden.

Let me thank here all those Faculty teachers and researchers, professors, associate professors, senior and junior assistants who contributed to our success in the research and teaching activities over the past years.

We started uncovering reserves; publications of our youngest and smartest colleagues and PhD candidates brought some positive results last year. In the forthcoming comprehensive accreditation we therefore seriously support the extension of doctoral study to four years. Let me mention the "Week of doctoral students", a successful event organised with the support of our doctoral students. For the first time we managed to organise the International Doctoral Seminar (IDS) in Dubrovnik, Croatia, in close co-operation with our partners from the University of Zagreb, Faculty of Organisation and Informatics in Varaždin, Croatia. It was attended by 75 doctoral students and 13 professors from seven countries; they all provided a very positive feedback. This year, the IDS will take place in the University Zielona Góra, Poland. I would like to thank the involved PhD students, pedagogues and organisers for the last year's successful event and simultaneously express my belief that this year's event will be equally successful.

Let me mention two other gratifying facts:

- The notes criticising the Faculty teachers and quality of study are gradually abating from the student's contributions to regular polls and the Faculty electronic black box. I welcome this positive trend; a big "thank you" goes to all the Faculty teachers.
- I am extremely proud of the Faculty administration employees who strive to convince our customers and stakeholders, students and the Faculty staff about the high international standard of their work. They deal with tens of thousands of student applications each year, thousands of student requests as well as requests from our teachers and researchers, promotion of study abroad, all worth of tens of millions of Euros, just to satisfy the applicants fairly and with a smile. In addition, the share of both verbal and written communication in English keeps increasing.
- Six Faculty teachers successfully accomplished the habilitation procedure and two were appointed professors; Professor Čambál was bestowed the professorial decree from the President of the Slovak Republic last year, and Professor Tanuška will be bestowed it in the near future. Warm congratulations to all new associate professors and professors.

Ladies and gentlemen,

Our achievements would not be possible without our partners from the governmental, public and private sectors. I assume that those partnerships are beneficial to both parties; probably they would not exist otherwise. Let me mention the major domestic and foreign institutions: Trnava self-governing region, the city of Trnava, JAVYS a.s., DELCAM, Beakert, VUJE a.s., Orange Slovakia, The First Welding Co. a.s., ŽOS Trnava, Helmoltz Zentrum Dresden-Rossendorf, IFW Dresden, TU Dresden, TU Ilmenau, Zagreb University FOI Varaždin, University of Miskolc, University of Central Marta Abreu de Las Villas, Kecskemet College, University Koethen, Kalashnikov Izhevsk State Technical University and many other partners from the Czech Republic, Austria, Germany, Hungary, Poland, Croatia, Serbia and Russia. I apologize, but it is impossible to provide the full list here. Thank you all very much, ladies and gentlemen.

Following are the difficulties we have not managed to eliminate yet to complete satisfaction:

1/ The Faculty management was able to exactly differentiate and record the teaching and research activities of teachers and researchers. However, the first results show that educational activities are fully covered (disregarding the problem of unequal performance quality); however the research results have been achieved by less than 70 per cent of our employees, though all Faculty employees are paid equally.

2/ We keep tolerating the Faculty colleagues who did not publish a single line for the entire year.

3/ We are not able to find replacement and compensation for the departing professors and associate professors; there is still a lot of work (individual in particular) ahead us.

4/ The latest inconsistent amendment of the University legislation does not allow 2 x 100 per cent teaching load of a university lecturer, yet tolerates 298 per cent. It is really difficult to explain this to our foreign partners.

5/ Apparent discrepancies in the legislation concerning doctoral candidates and the associated problems such as clearly defined rights and obligations towards the Faculty and their supervisors still remain unsettled.

Following are some of the most important objectives of 2013:

- The Faculty Academic Senate will elect the new Faculty Dean in May; May the Senators make a wise decision beneficial for the Faculty.
- Each Faculty Institute will prepare at least one project for the current challenge of HORIZON 2020 - this is the only option on our way to a research faculty.
- We will focus on the current contents journals, highly recognised foreign conferences and monographs in order to improve the quality of publications.
- To accelerate the preparation of documents and outputs for the forthcoming 2014 comprehensive accreditation of this University and Faculty, we will introduce a quality assurance system in the Faculty, which is a crucial criterion of accreditation.
- We will establish and support the systemic steps for the gradual implementation of teaching in the English language.
- We will support the transition from meeting the quantitative criteria to meeting the qualitative criteria of education, i.e. systematically maintain and enhance the education quality at the Faculty with regard to all aspects of this complex problem.
- The Faculty sports grounds will be revitalised according to the elaborated plan of priorities.

In conclusion, let me restate the wishes for a fruitful and creative work climate for the Faculty and good relations with all the cooperating partners in 2014.

Vivat, crescat, floreat Slovak University of Technology, Faculty of Materials Science and Technology!

MANAGEMENT OF THE FACULTY

Dr. h. c. prof. Dr. Ing. Oliver Moravčík
Dean of the Faculty

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

doc. RNDr. Mária Mišútová, PhD.
Vice-Dean
- Bachelor's Degree
- Accreditation of Bachelor's Degree
- Motivation Scholarship
- Study Promotion

doc. Ing. Peter Schreiber, CSc.
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, CSc.
Vice-Dean
- Research
- International Relations
- Professional Development of Academic Staff

doc. 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 AND MANAGEMENT (since 01/11/2013 INSTITUTE OF INDUSTRIAL ENGINEERING, MANAGEMENT AND QUALITY)

INSTITUTE OF SAFETY, ENVIRONMENT AND QUALITY (since 01/11/2013 INSTITUTE OF SAFETY AND ENVIRONMENTAL ENGINEERING)

INSTITUTE OF APPLIED INFORMATICS, AUTOMATION AND MATHEMATICS

RESEARCH CENTRE OF PROGRESSIVE TECHNOLOGIES

DIVISIONS OF THE FACULTY

DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS

DIVISION OF ACADEMIC ACTIVITIES

DIVISION OF KNOWLEDGE MANAGEMENT

DIVISION OF ECONOMIC AND ESTATE ACTIVITIES (since 01/11/2013 DIVISION OF MAINTENANCE AND OPERATIONS DIVISION OF ECONOMIC ACTIVITIES)

DIVISION OF ESTATE ACTIVITIES (since 01/11/2013 DIVISION OF MAINTENANCE AND OPERATIONS DIVISION OF ECONOMIC ACTIVITIES)

DIVISION OF PERSONNEL AND ADMINISTRATION ACTIVITIES

FACULTY WORKPLACES

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

TRAINING CENTRE KOMÁRNO

TRAINING CENTRE DUBNICA n./VÁHOM

OTHER WORKPLACES

WORKPLACE OF PROJECT MANAGEMENT AND PUBLIC PROCUREMENT
(Previous name: CENTRE FOR TECHNOLOGY TRANSFER, since 01/11/2013 the workplace is a part of the RESEARCH CENTRE OF PROGRESSIVE TECHNOLOGIES)

FACULTY FACILITIES

STUDENT HOSTEL AND CANTEEN

SCIENTIFIC BOARD

Chair:
Dr.h.c. prof. Dr. Ing. Oliver Moravčík

Members:

prof. Ing. Karol Balog, PhD.
doc. RNDr. Mária Behúlová, CSc.
prof. Ing. Miloš Čambál, CSc.
prof. Ing. Alexander Čaus, DrSc.
prof. Ing. Peter Grgač, CSc.
doc. Ing. František Horňák, PhD.
doc. Ing. Andrea Chlpeková, PhD.
prof. Ing. Jozef Janovec, DrSc.
prof. Ing. Peter Jurči, PhD.
doc. Ing. Mária Kapustová, PhD.
doc. Ing. Martin Kusý, PhD.
prof. Ing. Ján Lokaj, PhD.
prof. Ing. Milan Marônek, PhD.
prof. Dr. Ing. Jozef Peterka
prof. Ing. Jozef Sablik, CSc.
prof. Ing. Peter Sakál, CSc.
doc. Ing. Peter Schreiber, CSc.
prof. Ing. Maroš Soldán, PhD.
prof. Ing. Peter Šugár, CSc.
doc. Ing. Pavol Tanuška, PhD.
prof. Ing. Koloman Ulrich, PhD.
doc. Ing. Pavel Važan, CSc.
prof.h.c. prof. Ing. Karol Velíšek, CSc.
doc. Ing. Helena Vidová, PhD.
doc. Mgr. Róbert Vrábeľ, PhD.

External members:

vis. prof. Ing. Peter Fodrek, PhD.	The First Welding Association, a.s. Bratislava (Slovakia)
doc. PhDr. Ing. Aleš Gregar, CSc.	University of Tomáš Baťa, Zlín (Czech Republic)
prof. Dr.- Ing. habil. Peter Husár	Technical University, Ilmenau (Germany)
prof. Ing. Ľubomír Jahnátek, PhD.	Ministry of Agriculture and Rural Development SR
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.	Technical University, Košice (Slovakia)
prof. Ing. Milan Oravec, PhD.	Technical University, Košice (Slovakia)
prof. Dr. Ing. Milan Sága	University of Žilina, 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.	Technical University, 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)
doc. Ing. Fedor Gömöry, DrSc.	SAV Bratislava (Slovakia)
prof. Dr. Ing. Bela Illes	FMEI Miskolc (Hungary)
prof. Ing. Jiří Kliber, CSc.	VŠB Technical University, Ostrava (Czech Republic)
Ing. Ľuboš Lopatka, PhD.	Zdravie, s r.o.(Slovakia)
Ing. Tibor Mikuš, PhD.	Trnava Self-governing Region (Slovakia)
Ing. Jozef Zelíska	HBPO Slovakia s r.o. Lozorno (Slovakia)

Bursar
doc. Ing. Roman Moravčík, PhD.

ACADEMIC SENATE

Chair:
prof. Ing. Miloš Čambál, CSc.

Chair of Academic Staff Chamber:
prof. Ing. Karol Balog, PhD.

Chair of Student Staff Chamber:
Ing. Michal Ondruška

ACADEMIC STAFF CHAMBER

Employees:

prof. Ing. Karol Balog, PhD.
prof. Ing. Miloš Čambál, CSc.
doc. Ing. Ľubomír Čaplovič, PhD.
Ing. Michal Kebíšek, PhD.
Ing. Marta Kučerová, PhD.
prof. Ing. Milan Marônek, CSc.
doc. Ing. Milan Naď, CSc
doc. Ing. Peter Pokorný, PhD.
doc. Ing. Róbert Riedlmajer, PhD.
prof. Ing. Jozef Sablik, CSc.
doc. Ing. Pavol Tanuška, PhD.
prof. Ing. Koloman Ulrich, PhD.
prof.h.c. prof. Ing. Karol Velíšek, CSc.
doc. Mgr. Róbert Vrábeľ, PhD.

Students:

Ing. Michal Ondruška
Bc. Martin Krivý
Ing. Jozef Horváth
Ing. Júlia Kurnátová
Miroslav Fulier
Bc. Miriama Kořínková
Ľubomír Gabriš

DEVELOPMENT OF THE STU FACULTY OF MATERIALS SCIENCE AND TECHNOLOGY IN 2013



The priorities of development in 2013 were as follows:

The **long-term plan** of STU MTF development for the period 2012 – 2017 and the update of the long-term plan of the Faculty development were approved in November 2013.

Key activities of the Faculty development in 2013:

15/03/2013 **Signing of the Contract to create the first University Scientific Park in Slovakia**
17/05/2013 **Kick off Meeting of the University Scientific Park**



The First University Scientific Park in Slovakia

The University Scientific Park is primarily focused on Materials Engineering in the field of ion and plasma technologies, automation and ICT implementation in industrial processes. The project comprises of two new buildings for the purposes of research, located on the Bottova campus.
Specific goals of the project are as follows:
- **Increasing the long-term competitiveness of the SR in the area of materials research based on ion and plasma technologies.**
- **Training the scientific and research personnel for URP CAMBO – workplace for materials research.**

Within the project, STU MTF will build two new research centres equipped with the most advanced technologies:
1/ Scientific Centre of Materials Research, with laboratories comprised of the:
Laboratory of ion beam technologies
Laboratory of plasmatic modification and deposition
Laboratory of analytical methods
Laboratory of computational modelling.
2/ Scientific Centre of Automation and ICT Implementation in Production Processes, with laboratories, comprised of the:
Laboratory of control systems
Laboratory of ICIM
Laboratory of information integration and control systems.

Besides creating the two new workplaces and purchasing unique technologies for materials research and research in the field of automation and ICT implementation in production processes and the related laboratories, **the additional activities** are planned:
3/ Applied research in the above-mentioned research centres
4/ Support to transfer the advanced technologies into practice, transfer of know-how, innovations and knowledge from the academic environment into practice and providing support for start-up and spin-off activities.

Building the University Scientific Park:
Operational programme: Research and development
ITMS code: 26220220179
Provider: Ministry of Education, Science, Research and Sport of the Slovak Republic
Start of the project: 01/03/2013
Completion of the project: 30/06/2015
Venue: ① J. Bottu 25, 917 24 Trnava ② Botanická 49, 917 24 Trnava
Investor: Slovak University of Technology in Bratislava
Volume of funding: 42 105 262.43 € (for the whole University Scientific Park)
Sources of funding: 85% EU structural funds, 10% state budget, 5% recipient
Stage 1 of the construction
started by building the pavilion of **Materials Research – Slovakion.**
Contractor of construction: ZIPP a.s. Bratislava
Financial value of the construction
and technology including laboratories: 25 330 141 €

OTHER ACTIVITIES OF THE FACULTY DEVELOPMENT IN 2013:

CO-OPERATION WITH PRACTICE

- New Faculty website aimed at co-operation with practice (editor: PhDr. Kvetoslava Rešetová, PhD.):

Intensive co-operation with practice is essential for a research university. It markedly enhances both educational and research activities by reflecting the current demand for providing unique solutions to acute engineering problems, accelerating the transfer of knowledge and simultaneously bringing financial benefits. It is the Faculty contribution to meeting the Lisbon strategy. Along with learned and acknowledged top University experts, also involved in the project are the Faculty students. Doctoral students in particular can thus directly focus their theses on the research projects applied in the industrial sector. Forms of the Faculty-practice co-operation are of various types: contractual projects from practice, research and innovation projects established together with partners from industry, involvement of small and medium-sized companies into international projects, student practice and mobility in the companies both at home and abroad and support for the establishment of small Faculty-related companies etc.

AWARDS IN 2013:

For the best results achieved for co-operation with practice and contribution in 2013:
doc. Ing. Martin Kusý, PhD. (Institute of Materials)

COMPANY PRESENTATIONS AT MTF STU IN 2013:

09/04/2013 **ESAB Slovakia, s.r.o.** - seminar within the cycle devoted to the issues of welding and weldability.

09/04/2013 Meeting between representatives from the Embassy of Portugal, representatives of companies operating in the **Plastics Industry in Portugal** and Slovakia and representatives of the Slovak Chamber of Commerce and Industry and the Automotive Cluster Western Slovakia.

25/04/2013 **JAVYS, a.s. Bratislava** – presentation on the "Concept of the nuclear power plants decommissioning".

14/10/2013 **Festo** – presentation on the "Trends in electro-pneumatics for automation".

21/10/2013 **SECO** - seminar of the SECO Tools Group Company on "Milling strategies II"; Lecturer, Patrick De Vos, MSc. Manager of Engineering Education.

27/11/2013 **Matador Holding a.s.** – lecture by doc. Ing. Štefan Rosina, PhD. – Chair of the Board of Directors, in co-operation with Junior Chamber International - Slovakia within the cycle "Idea turned to success".

11/12/2013 **Lloyd's Register Quality Assurance** – lecture by RNDr. Juraj Kliment – Senior Auditor for the automotive industry.

Regular meetings with experts from practice within the programme "Dialogues with practice" guaranteed by the Institute of Industrial Engineering and Management:

25/02/2013 PhDr. Branislav Hunčík, PhD., CHRO (Chief HR Officer – Penta Investments, s. r. o., Prague) - Lecture: **Key indicators of efficiency.**

27/05/2013 Ing. Milan Šesták (General Manager Emerson, a.s. President of the Slovak Society for Quality) - Lecture: **Supply chain built on the demands of customers.**

30/09/2013 Ing. Juraj Janáč (Volkswagen Slovakia, a.s.) – Lecture: **Modern elements of logistics applied in the automotive industry in Slovakia.**

28/10/2013 Silvia Drahošová (IPMA level A®), Jana Hurtová (IPMA level A®, PRINCE2® Foundation, P3O® Foundation) – Lecture: **Project Manager WANTED! (What is the job of a project manager about?)**

02/12/2013 Ing. Jozef Hnát, PhD. (University of Žilina) - Lecture: **Digital company and its practical utilisation in the automotive industry**

RESEARCH INFRASTRUCTURE PROJECTS IN 2013

Institute/workplace	Operation programme	ITMS	Title of project	Time Period of Project
Faculty of Materials Science and Technology	Research	26250120053	A comprehensive modernisation of material and non-material (information and communication) educational infrastructure of the Bottova Campus	10/2012-09/2014
Faculty of Materials Science and Technology	Research	26110230116	The development of human resources in the field of research and development for the material research Workplace of the Institute of University Scientific Park_CAMBO	10/2013-06/2015
Institute of Production Technologies + MIKON, s.r.o.	Research	26220220137	Industrial research into silent blocks for excessive load under extreme temperatures in the field of industrial application	11/2011-10/2015
Institute of Materials Science	Research	26220220137	Industrial research into silent blocks for excessive load under extreme temperatures in the field of industrial application	11/2011-10/2015
Institute of Materials + VUJE, a.s.	Research	26220220077	Increasing the power security of the Slovak Republic	07/2010-12/2013
Institute of Applied Informatics, Automation and Mathematics	Education	26110230042	Implementation of the internal system of quality as surance in education	01/2012-12/2013
Institute of Applied Informatics, Automation and Mathematics + Qintec, s.r.o. Trnava	Research	26220220159	Research into monitoring and assessing the non-standard states in the vicinity of a nuclear power plant	04/2012-09/2014
Institute of Industrial Engineering, Management and Quality	Education	26110230115	Centre for the development of competencies for the field of Industrial Engineering and Management	10/2013-09/2015
Institute of Industrial Engineering, Management and Quality	Education	26110230055	Rationalisation and improvement of the industrial management study programme to support career guidance	01/2012 -12/2013
Division of Knowledge Management	Education	26110230113	Knowledge-based Faculty for economic practice	10/2013-09/2015
Research Centre of Progressive Technologies	Research	26210120017	Centre for research and development in the field of the electron-beam and progressive arc technologies of welding, cladding and surface-finishing (WeldCenter)	10/2012-03/2014
Institute of Production Technologies	Research	26210120020	Technical infrastructure of research and development for the field of the contact and contact-free methods of measurement	10/2012-03/2014
Faculty of Materials Science and Technology	Research	26220220179	University Scientific Park „ CAMPUS MTF STU" - CAMBO	03/2013-06/2015
Research Centre of Progressive Technologies	Education	26110230116	Human Resources Development in the field of research and development for the UVP-CAMBO	10/2013-06/2015
Faculty of Materials Science and Technology and Faculty of Civil Engineering Bratislava	Research	26250120070	Complex modernisation of the educational, material, information and communication infrastructure of the CAMPUS Bottova II, and reconstruction of the Kočovce training centre	04/2014-10/2015

This part of the Annual Report 2013 was verified by prof. Dr. Ing. Jozef Peterka

ACCREDITATION 2013



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 2013, the Faculty provided 9 Bachelor study programmes, 11 Master study programmes, and 8 Doctoral study programmes in both full-time and part-time study forms.

ACCREDITED STUDY PROGRAMMES AT THE FACULTY

Accredited study programmes – Bc.

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

Accredited study programmes – Ing.

Process Automation and ICT Implementation in Industry
Production Quality Engineering
Integrated Safety
Materials Engineering
Machining and Assembly
Computer-Aided Design and Production
Industrial Management
Industrial and Art Foundry
Processing and Application of Non-metals
Production Devices and Systems
Welding

Accredited study programmes – PhD.

Process Automation and ICT Implementation
Integrated Safety
Production Quality Engineering
Materials Engineering
Industrial Management
Processing and Application of Non-metals
Machining Technologies and Materials
Production Devices and Systems

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.)

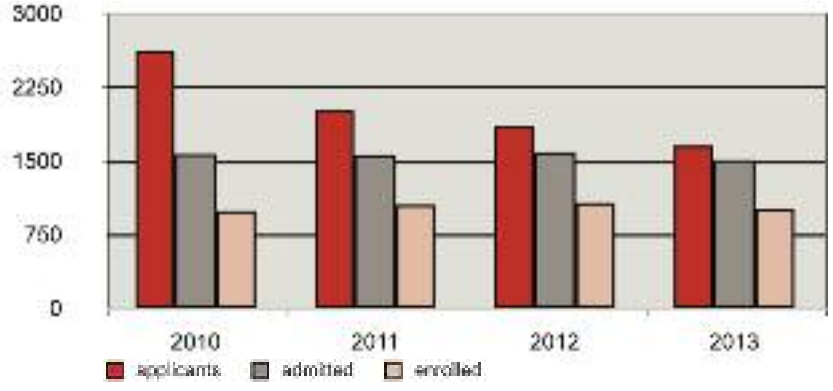
Degree 3: Doctoral study in both full-time and part-time forms. The defined standard length of study in full-time form is 3 years, in part-time form 5 years. The study is accomplished by gaining the academic title of "Philosophiae Doctor" – PhD.

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

APPLICATIONS, ADMITTANCE AND ENROLMENTS FOR STUDY AT THE FACULTY

The level of 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 the decreasing demographic curve and the increasing number of new universities and colleges in the Slovak Republic, on the other hand.

Number of the bachelor degree candidates (aplication,admitted, enrolled)

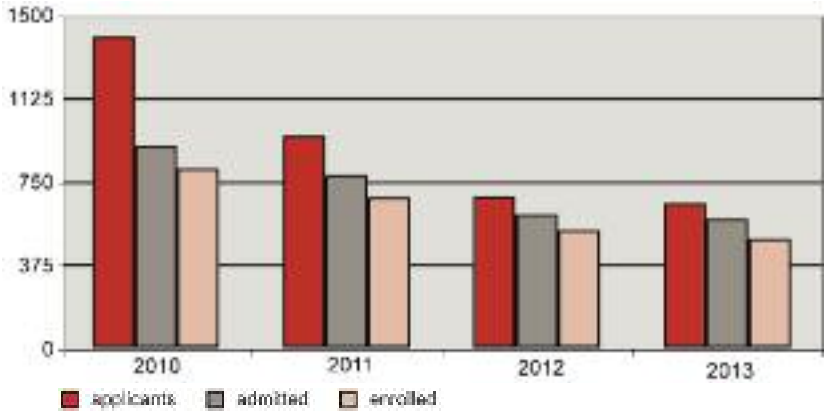


Graph No. 1 *Number of Bachelor's degree candidates (applicants, admitted, enrolled) within the last four years*

ADMISSION PROCEDURE VARIES ACCORDING TO THE DEGREE

The admission procedure for the Bachelor's degree is based on the applicant's secondary school results, i.e. there is no entrance examination. An interest in the area of 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 the overall study achievements of the Bachelor's graduate.

Number of the master degree candidates (aplication, admitted, enrolled)



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

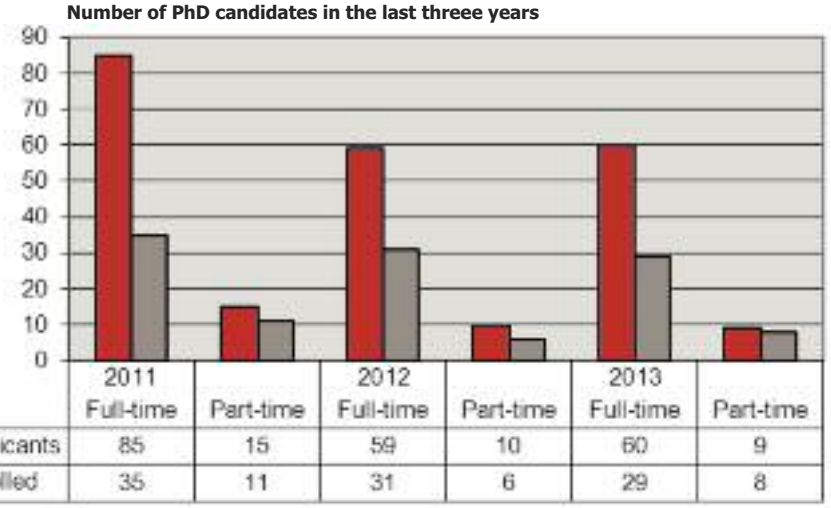
The Faculty management perceive with satisfaction that, besides the STU MTF Bc. graduates interested in Master's study, there is also a high number of candidates from other universities **(Table.1)**, which is a proof of the high quality of the Faculty Master's study programmes

Table. 1

Master's degree candidates: graduates of STU MTF and other universities in 2013/2014					
Applicants	MTF graduates	578	**Enrolled**	MTF graduates	455
	From other universities	81		From other universities	45
	Total	**659**		**Total**	**500**

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).

Number of PhD candidates in the last threee years



	2011 Full-time	Part-time	2012 Full-time	Part-time	2013 Full-time	Part-time
applicants	85	15	59	10	60	9
enrolled	35	11	31	6	29	8

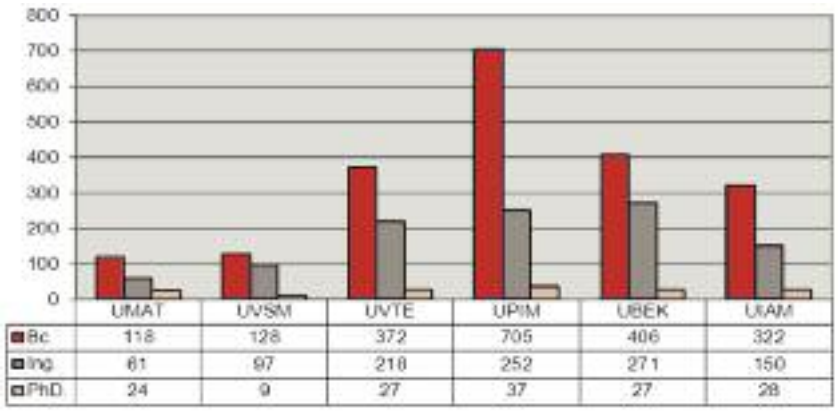
Graph No. 3 *Number of PhD candidates (applicants, enrolled) in the last three years*

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, Environment and Quality
UMAT - Institute of Materials Science
UPIM - Institute of Industrial Engineering and Management
UVTE - Institute of Production Technologies
UVSM - Institute of Production systems and Applied Mechanics

Number of students at particular institutes 31.10.2013



	UMAT	UVSM	UVTE	UPIM	UBEK	UAM
Bc	118	128	372	705	406	322
Ing	61	97	218	252	271	150
PhD	24	9	27	37	27	28

Graph No.4 *Number of students by degree level at particular institutes*

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 student's requirements, Saturday office hours in the Registrar's Office and the Academic Library were introduced. As for social policy, significant is the study at the detached workplaces in Komárno and Dubnica nad Váhom (the first year of bachelor studies).

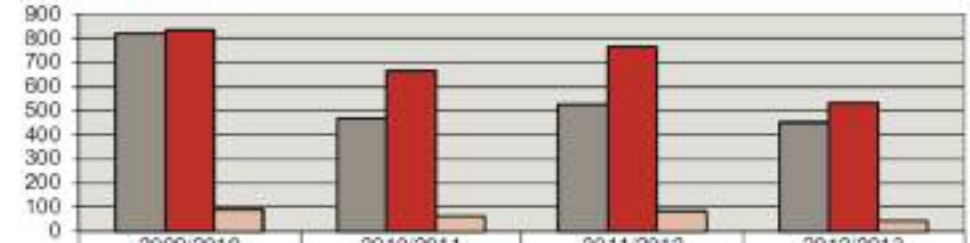
Besides study, the students can be involved in the institutional research activity either by participating in research projects and the Student Research Conference, or working as research student-helpers. The Student Research Conference provides the bachelor's and master's students with a chance to get 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 at the International Doctoral Seminar, an annual event organised 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 the 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.

Number of Faculty graduates in the academic years 2009/2010 - 2012/2013



	2009/2010	2010/2011	2011/2012	2012/2013
BC	817	466	526	449
ING	834	666	766	533
PHD	88	61	84	40

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 student's 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 student satisfaction with the aim to identify weaknesses in the education process, the teaching strategies, as well as the 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 is comprised of the following areas: process and organisation of the study, the quality and professional behaviour of teachers, the quality of the teaching process, accommodation and other areas.
The electronic questionnaire evaluating the level of education from the perspective of students, during the academic year 2012/13 was responded to by 463 students of all study degrees. The Faculty management deals seriously with the student 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 appreciate the relatively high standard of comfort including free internet connection, as well as the availability of sports facilities such as a 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, the length of a training unit, the arrangement 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.

STUDENT AWARDS IN 2013

16/01/2014
Student awards for 2013 granted at the STU MTF New Year's Meeting:

BEST DISSERTATION THESIS

Institute	Study field	Awardee	Title of dissertation thesis
Institute of Materials Science	Materials	Ing.Martin Sahul, PhD.	Study into the structure and properties of ultra-hard coatings by using modern diffraction techniques
Institute of Production Technologies	Machine Technologies and Materials	Ing. Vladimír Šimna, PhD.	The classification of machine parts regarding their manufacturing on CNC machines
Institute of Industrial Engineering and Management	Industrial Engineering	Ing.Vanessa Prajová, PhD.	Proposal of implementing integrated marketing communication as a tool of company competitiveness
Institute of Applied Informatics, Automation and Mathematics	Automation	Ing.Dominika Jurovatá, PhD.	Gaining knowledge of planning and controlling manufacturing processes

The Orange Slovakia Award for 2013:
Ing. Martin Juhás, PhD. – for outstanding achievement in the teaching process

21/03/2013
Evaluation of the Faculty Student Research Conference 2013

INSTITUTE OF MATERIALS
Section: Materials

Place	Title of contribution	Supervisor
1. Matej Biroš	Thermal properties of polymer materials	Ing. Natália Navrátilová
2. Balász Nagy	Study into the microstructure of AISI 316 austenitic corrosion-resistant steel after isothermal annealing on the temperature 750° C	Ing. Edina Kocsisová
3. Miriama Kořínková	Modelling phase equilibria in material systems by using Thermo-Calc program	Ing. Roman Čička, PhD.

Section: Engineering of Production Quality

Place	Title of contribution	Supervisor
1. Bc. Matej Němec	Application of statistic methods in the manufacturing process improvement	Ing. Marta Kučerová, PhD.
2. Bc. Marián Drábik	Improving processes in the phase of product development	Ing. Yulia Šurinová, PhD.
3. Bc. Monika Modrovská	Proposal of the claim management system implementation	Ing. Jana Urdzíková, PhD.

INSTITUTE OF PRODUCTION SYSTEMS AND APPLIED MECHANICS
Section: Production Devices and Systems

Place	Title of contribution	Supervisor
1. Bc. Juraj Filípek	Check for the presence of symbols indicating the electric and pressure test of DAF 10170 searchlights	Ing. Radovan Holubek, PhD.
2. Bc. Jozef Steinhauser	Object detection by a camera in the recorded space	Ing. Rastislav Ďuriš, PhD.
3. Bc. Ján Bartek	Proposal of an intelligent manipulation gripper	Ing. Angela Javorová, PhD.

INSTITUTE OF PRODUCTION SYSTEMS AND APPLIED MECHANICS
Section: Production Devices and Systems

Place	Title of contribution	Supervisor
1. Bc. Juraj Filípek	Check for the presence of symbols indicating the electric and pressure test of DAF 10170 searchlights	Ing. Radovan Holubek, PhD.
2. Bc. Jozef Steinhauser	Object detection by a camera in the recorded space	Ing. Rastislav Ďuriš, PhD.
3. Bc. Ján Bartek	Proposal of an intelligent manipulation gripper	Ing. Angela Javorová, PhD.

INSTITUTE OF PRODUCTION TECHNOLOGIES
Section: Production Technologies 1

Place	Title of contribution	Supervisor
1. Bc. Miroslav Knizner	Cutting forces in the conventional and high-speed milling	Ing. Martin Kováč, PhD.
2. Bc. Milan Ležovič	Utilisation of the CAD-CAM-CNC chain in making artistic objects	Ing. Marek Zvončan, PhD.
3. Matej Bračík Jozef Urcikán	Renovation of the tools' working properties	prof. Ing. Ivan Baránek, CSc.

Section: Production Technologies 2

Place	Title of contribution	Supervisor
1. Bc. Jozef Ertel	Welding magnesium alloys by laser	doc. Dr. Ing. Pavel Kovačócy
2. Bc. Peter Berčík Martina Klimentová	Modelling and numerical simulation of FSW process	doc. Ing. Bohumil Taraba, CSc. prof. Ing. Milan Turňa, PhD., IWE
3. Bc. Peter Marek	Utilising computer simulation in the design of weld construction	Ing. Jozef Bárta, PhD.

INSTITUTE OF INDUSTRIAL ENGINEERING, MANAGEMENT AND QUALITY
Section: Industrial Engineering, Management and Quality 1

Place	Title of contribution	Supervisor
1. Bc. Milan Kmec	Proposal for the application of modern methods of measuring efficiency in Metzeler Slovakia, s.r.o. Company	Ing. Jaromíra Vaňová, PhD.
2. Bc. Lukáš Jurík	Proposal for the AHP utilisation method in determining the competency profile of a personnel officer of Delta Electronics (Slovakia), s.r.o.	prof. Ing. Peter Sakál, CSc. Ing. Gabriela Hrdinová
3. Bc. Lenka Pechová	Proposal for the sustainable social responsibility concept in Continental Matador Rubber, s.r.o.	prof. Ing. Peter Sakál, CSc. Ing. Gabriela Hrdinová

Section: Industrial Engineering, Management and Quality 2

Place	Title of contribution	Supervisor
1. Bc. Matej Daňo	Utilising modern tools of ergonomic analysis and rationalisation in a selected operation in Delta Electronics (Slovakia), s.r.o.	Ing. Rastislav Beňo, PhD.
2. Bc. Jozef Bobot	Rationalisation of the production process management system in a company	prof. Ing. Jozef Sablik, CSc.
3. Ján Jánošík	Proposal of the concept for stakeholders' strategic decisions – a chance for more effective management of BETA-CAR, s.r.o. Company at the time of global crisis	prof. Ing. Peter Sakál, CSc. Ing. Gabriela Hrdinová

INSTITUTE OF SAFETY AND ENVIRONMENTAL ENGINEERING
Section: Chemical Hazards and Dangerous Substances

Place	Title of contribution	Supervisor
1. Mária Vargová	Study into the phenol sorption by alternative adsorbents	prof. Ing. Maroš Soldán, PhD.
2. Dominika Holosová	Risks in sampling ambient air	RNDr. Maroš Sirotiak, PhD.
3. Jozef Ištvanec	Work safety and hygiene in waste economy of A.S.A Trnava, spol. s r. o.	Ing. Anna Michalíková, CSc.

Section: Safety and Health Protection

Place	Title of contribution	Supervisor
1. Juraj Galba	Risk analysis of selected machine equipment and the development of safety standards	doc. Ing. Ivana Tureková, PhD.
2. Erika Brandysová	Evaluating the risk of operating a metal-working machine	Ing. Jozef Harangozó, PhD.
3. Klaudia Uváčiková	Complex assessment of the safety and ergonomic aspects in a selected technology	doc. Ing. Ivana Tureková, PhD.

Section: Fire Engineering

Place	Title of contribution	Supervisor
1. Dominika Môciková	Safety prerequisites for lightning rod in a business centre	prof. Ing. Karol Balog, PhD.
2. Zuzana Zemanová	Analysis of the influence of external factors on the process of the organic polymers degradation	Ing. Jozef Martinka, PhD.
3. Milan Dermek	Possibilities of using high-rise technology in the Fire and rescue Corps of the Slovak Republic	doc. Ing. Mikuláš Monoši, PhD.

INSTITUTE OF APPLIED INFORMATICS, AUTOMATION AND MATHEMATICS
Section: Applied Informatics and Automation in Industry

Place	Title of contribution	Supervisor
1. Patrik Šimon	Device for automatic control of shaft tolerances	Ing. Michal Kopček, PhD.
2. Bc. Miroslav Kordoš	Proposal and implementation of a robotic conveyor control	Ing. Michal Kebísek, PhD.
3. Bc. Michal Gallia	Proposal of information system for FM Logistic Company.	Ing. Miriam Iringová, PhD.

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES
Section: Humanities

Place	Title of contribution	Supervisor
1. Bc. Janka Šmidáková	Cheating during examinations	PhDr. Silvester Sawicki, PhD.
2. Tomáš Hurajt	Factors of reading literacy	PhDr. Silvester Sawicki, PhD.
3. Bc. Peter Pilch Bc. Peter Eliáš	Analysis of the MTF communication channels	Mgr. Karol Kováč, PhD.

Section: English Language

Place	Title of contribution	Supervisor
1. Bc. Dana Čapkovičová	Effect of water to nutrients leaching from burnt soil after extinguishing	Mgr. Gabriela Chmelíková, PhD.
2. Ľubomír Matejov	Employee´s attitudes to the selected team building activities in JCI	PhDr. Emília Mironovová
3. Róbert Karaba	RTU Pseudo Adiabatic Engine	Mgr. Gabriela Chmelíková, PhD.

08/04/2013
at the STU Rector's office, lecture theatre of Dionýz Ilkovič in Bratislava, the following researchers were granted financial support within the programme "Young Researcher 2013": **Ing. Lenka Blinová, Ing. Martin Kováč, Ing. Pavol Konopka, Ing. Eva Babalová, PhD., Ing. Tomáš Škulavík, PhD., Ing. Paulína Zacková, Ing. Jaroslav Jančár, Ing. Ivan Michalec, Ing. Michal Ondruška, Ing. Tomáš Kramár and Ing. Radovan Holubek.**

16/04/2012 – 17/04/2013
The STU MTF students and employees awarded in the "STU Rector Cup" sport competitions
- Team of 14 MTF students, 2nd place in the STU Football Championship,
- Team of 8 students, 3rd place in the STU women's Volleyball Championship,
- Team of 10 students, 1st place in the STU Floor ball Championship,
- Team of 4 students, 1st place in the STU Regatta,
- One student 1st place, eight students 2nd place, four individuals 3rd place and a men's-relay place in the STU Swimming Championship,
- One student 3rd place in the STU Tennis Championship.

14/05/2013
Students from the Institute of Industrial Engineering, Management and Quality were awarded in the 54th year of the Student Research Activity in Zvolen, in the section entitled "Economics and Management of the Company: **Bc. Matej Daňo**, 2nd place for "Utilising modern tools in ergonomic analysis and rationalisation in a selected operation in Delta Electronics (Slovakia), s.r.o.", supervisor: Ing. Rastislav Beňo, **PhD.; Ján Jánošík**, 3rd place for "Proposal of the concept for stakeholders' strategic decisions – a chance for more effective management of BETA-CAR, s.r.o. Company at the time of global crisis", supervisors: prof. Ing. Peter Sakál, CSc. and Ing. Gabriela Hrdinová.

13/06/2013
Ing. Marcel Kuracina, a graduate of the STU MTF Institute of Safety and Environmental Engineering was awarded 1st place and the TOP 2013 Award in the category "student project" within the 19th International Conference "Technology of Environmental Protection" for the project "Design and construction of a hydrogen generator".
Bc. Natália Prekopová, part-time student was awarded the "Mayor of Trnava Award" for outstanding study achievements and the participation in the following competitions in the biathlon event:
- 2008 – World Championships – Bronze medal
- 2009 – World Championships
- 2010 – Winter Olympic Games – women's relay
- 2010 – World Championships
- 2010 – World Championships – Bronze mix relay in summer biathlon
- 2013 – World Championships
- 2013 – Winter Universiade in Trento, Italy – Gold medal for endurance women's 15 km

The MTF Dean awarded an extraordinary scholarship for attending non-university mobility in compliance with the Dean's Regulation No. 3/2011 determining the criteria for awarding the incentive scholarship to the students of Doctoral and Master degrees:

- **Ing.Katarína Drieniková**
- **Ing Lucia Božíková**
- **Ing. Veronika Videnová**
- **Ing. Martin Beluský**
- **Bc. Dana Čapkovičová**
- **Bc. Ameer Mayyahi**
- **Bc. Andrej Antal**
- **Bc. Lenka Benedikovičová**
- **Ing. Vladimír Nagy**
- **Ing. Urban Jakub**

Students awarded within STU

- "Student of the year 2013" award was granted to the following students upon the proposal of the MTF Dean: **Bc. Ľubomír Matejov** for Bachelor Degree study, **Bc. Libor Ďuriška** for Master degree study, **Ing. Dominika Jurovatá** for Doctoral degree study and **Ondrej Kurinec** as an outstanding MTF sportsman;
- Two students of the Bachelor degree and four students of the Master degree were granted the Dean's Award for outstanding study achievements;
- 19 students of the Bachelor degree and 24 students of the Master degree were granted the Dean's Honorary Mention for excellence in the final thesis.

02/07/2013
List of the students (Bachelor study) awarded for excellence in the final thesis in the academic year 2012/2013:

DEAN'S HONORARY MENTION

Surname, First name	Topic of the thesis	Guaranteeing Institute
Bc. Martin Boledovič	Proposal of measures for improved utilisation of the marketing communication tools within the development of the positive company image of HENKEL SLOVAKIA, s r.o. and its products	Institute of Industrial Engineering and Management
Bc. Martin Frnčík	Reducing friction in forming processes	Institute of Production Technologies
Bc. Juraj Galba	Risk analysis of selected machinery equipment and the development of safety standards	Institute of Safety, Environment and Quality
Bc. Roman Hetteš	Step-motor control via assembler	Institute of Applied Informatics, Automation and Mathematics
Bc. Erika Chovancová	Proposal of measures for improving the profit control in ZTS KABEL, s.r.o. industrial company	Institute of Industrial Engineering and Management
Bc. Vladimír Jesenský	Designing and manufacturing parts by means of NX6 program in TFM - Slovakia s.r.o.	Institute of Production Technologies
Bc. Petra Juhászová	Measuring discreet points by using photogrammetry (video)	Institute of Production Technologies
Bc. Miroslava Karolová	Application of methods for selection and recruitment of employees in PCA Slovakia s.r.o. Trnava	Institute of Industrial Engineering and Management
Bc. Iveta Kondéová	Proposal of measures for improving the processes quality in BEZ TRANSFORMÁTORY, a.s.	Institute of Materials Science
Bc. Eva Korecová	Proposal of measures for improving the employee motivation system in Jadrová Energy Slovakia, a. s.	Institute of Industrial Engineering and Management
Bc. Michal Magdolen	Proposal of measures for improving communication in SPPP Slovakia, s.r.o.	Institute of Industrial Engineering and Management
Bc. Dominika Môciková.	Safety requirements for safety rods in a business centre	Institute of Safety, Environment and Quality
Bc. Tomáš Nádaský	Enhancing the possibilities of tribology testing by using M89 Tribotestor equipment	Institute of Production systems and Applied Mechanics
Bc. Peter Pažitný	Proposal and implementation of an Electronic Security System with Galaxy Dimension switchboard	Institute of Applied Informatics, Automation and Mathematics
Bc. Tomáš Poništ	Proposal of measures for improving the manufacturing process of induction element in VACUUMSCHMELZE, s.r.o.	Institute of Industrial Engineering and Management
Bc. Dominika Sudovská	Characterisation of phases in Al-Co system	Institute of Materials Science
Bc. Tomáš Szewczyk	Comparison of conventional cladding methods with modern technologies	Institute of Production Technologies
Bc. Jozef Urcikán	Renovation of cutting properties of tools	Institute of Production Technologies
Bc. Andrej Valo	Proposal of measures for improving warehouse economy in Faurecia Slovakia s.r.o., subsidiary in Hlohovec	Institute of Industrial Engineering and Management

List of students awarded for outstanding achievements in Bachelor study:
DEAN'S AWARD

Surname, First name	Weighted Average	Guaranteeing Institute
Haršányová Petra, Bc.	1.50	Institute of Industrial Engineering and Management
Lackovičová Daniela, Bc.	1.46	Institute of Industrial Engineering and Management

List of students awarded for Excellence in Master thesis in the academic year 2012/2013:
DEAN'S HONORARY MENTION

Surname, First name	Topic of the thesis	Guaranteeing Institute
Ing. Petra Bacigalová	Evaluating degradability of process liquids	Institute of Safety, Environment and Quality
Ing. Richard Balluch	Impact of turbid organic dust on its combustion properties	Institute of Safety, Environment and Quality
Ing. Ján Bartek	Design of GR_5465, an intelligent manipulation gripper for ESCAD Slovakia s.r.o	Institute of Production systems and Applied Mechanics
Ing. Marcel Brimus	Laser micro-machining of Cr-Ni austenitic steels	Institute of Production Technologies
Ing. Dana Čapkovičová	Effect of Selected Extinguishing Agents on Nutrients Leaching from Burned Soil	Institute of Safety, Environment and Quality
Ing. Matej Daňo	Proposal of ergonomic rationalisation of an R – inspection workplace in Delta Electronics (Slovakia), s.r.o., using modern ergonomic tools	Institute of Industrial Engineering and Management
Ing. Martina Deckárová	Proposal of improved utilisation of a competent approach in PCA Slovakia, s.r.o.	Institute of Industrial Engineering and Management
Ing. Libor Ďuriška	Investigation of complex metallic alloys of Al-Pd system	Institute of Materials Science
Ing. Matúš Fojtlín	Investigation of decreasing the surface roughness in the electrochemical polishing of castings	Institute of Production Technologies
Ing. Peter Foltín	Proposal of introducing new elements and improvement of the existing elements of standardisation in the assembly workplace of RONSON PLASTICS s. r. o.	Institute of Industrial Engineering and Management
Ing. Martin Jankto	Design of information system for cobblestone paving	Institute of Applied Informatics, Automation and Mathematics
Ing. Mária Katrová	Microhardness study of deformation strengthening homogeneity of high carbon steel after severe plastic deformation	Institute of Materials Science
Ing. Milan Kmec	Design of applying the modern measurement methods of effectiveness in Metzeler Slovakia s. r. o.	Institute of Industrial Engineering and Management
Ing. Štefan Kučera	Two-axis support controlled by PLC	Institute of Applied Informatics, Automation and Mathematics
Ing. Marcel Kuracina	Design and construction of a hydrogen generator	Institute of Safety, Environment and Quality
Ing. Andrej Lukačovič	Increasing the manufacturing reliability of the back floor in the welding shop of PCA Slovakia Trnava	Institute of Production systems and Applied Mechanics
Ing. Monika Majáková	Improving the level of claim management	Institute of Materials Science
Ing. Peter Marek	Utilising computer simulation in the design of the weld construction	Institute of Production Technologies
Ing. Matej Nemec	Application of Six sigma methodology in the process improvement	Institute of Materials Science
Ing. Marián Štica	Implementation of safety analysis by using the THERP and SQMD methods for a dynamic system of a washing machine	Institute of Applied Informatics, Automation and Mathematics
Ing. Ladislav Viola	Using the PowerMill program and Ultrasonic 20 5-axis machine tool in manufacturing cutting tools with shank	Institute of Production Technologies
Ing. Tatiana Zbojová	Proposal for the improvement of the stock control and warehouse economy in HYDAC Electronic, s.r.o, Krásna Hôrka	Institute of Industrial Engineering and Management
Ing. Marek Zemko	Simulation and the subsequent verification of the injection process of thermoplastics	Institute of Production Technologies
Ing. Filip Zlámala	Proposal and implementation of the breading station control by AVR microcomputer of AT mega type	Institute of Applied Informatics, Automation and Mathematics

DEAN'S AWARD for the best study achievements

Surname, First name	Weighted Point Average	Guaranteeing Institute
Ing. Richard Balluch	1.07	Institute of Safety, Environment and Quality
Ing. Libor Ďuriška	1.11	Institute of Materials Science
Ing. Monika Majáková	1.15	Institute of Materials Science
Ing. Barbora Sokolovská	1.15	Institute of Industrial Engineering and Management

03/10/2013
The committee of the section for the research and scientific literature and computer programmes of the Literature Fund granted the award for the best contributions at the Student Research Conference in the academic year 2012/2013 to the following STU MTF students:
• Materials – **Matej Biroš**
• Production Technologies 1 – **Bc. Miroslav Knizner**
• Safety and Health Protection – **Juraj Galba**
• Fire Engineering – **Dominika Môciková**
• Applied Informatics and Automation in Industry – **Patrik Šimon**

11/11/2013
Award of the Minister of Education - Student Entrepreneurial Award 2013 is granted to **Jaroslav Mráz**, STU MTF student.

11/11/2013
Award for the best publication in the field of production and life quality of ÚNMS SR in the category, best diploma thesis is granted to the STU MTF student, **Petra Kosnáčová** for her diploma thesis with the title "Application of statistical methods in process improvement" (supervisor: Ing. Marta Kučerová, PhD.).

18/11/2013
At the International Student Day, prof. Ing. Redhammer, PhD., the STU Rector presented awards to 40 students – successful young researchers, students and sportsmen, including the STU MTF student **Pavol Konopka**, a member of the team dealing with materials research and influencing the material properties.

Events organised for potential future and current STU MTF students in 2013:

30/01/2013
Open Day

05-08/11/2013
STU MTF presented at GAUDEAMUS 2014, the European Education Fair in Brno – the XXI year of the European Fair of post-secondary and life-long education. The Fair is an important source of information for all interested in the possibilities of further education after the completion of secondary study. More than 180 individual exhibitors and 245 faculties offered over 3500 tertiary education study programmes. Besides the Czech universities, represented there were 38 foreign universities from 12 countries: Germany, Finland, France, Malta, Great Britain, Poland, Switzerland, Canada, USA, Australia and Slovakia.

Presentation of companies for graduating students
STU MTF is one of the partner universities involved in the **"University students into practice"** national project aimed at placing as many students as possible into practice and internship directly in enterprises.

27/02/2013
Volkswagen Slovakia a.s. (Lecture given by Dip.- Ing. Frank Werz, MBA. – Head of the division of Body shop C-SUV Lean).

06/03/2013
Job Day –presentation by companies with the aim of attracting graduates into the labour market – SOVA Digital a.s., SYZ Informatika s.r.o., Smart Vikings s.r.o., Tartavagónka a.s., Johnson Controls International s.r.o., ESCAD Slovakia s r.o., Grafton Recruitment Slovakia s r.o., TRW Automotive Slovakia s r.o., ZKW s r.o., Wetheim s r.o.

11/04/2013
Presentation company INA Skalica, a.s.

03/10/2013
ZF Sachs Slovakia a.s., INA Skalica, Volkswagen Slovakia a.s., Matador Group a.s., PSA Peugeot Citroën Slovakia gave presentations within the project "University students into practice".

21/11/2013
Volkswagen Slovakia a.s. – gave a presentation about the job opportunities in the prosperous automotive company.

27/11/2013
Presentation company Matador Holding a.s.

11/12/2013
Presentation company BOSCH (České Budějovice, Czech Republic)

This part of the Annual Report 2013 was verified by doc. RNDr. Mária Mišútová, PhD. and doc. Ing. Peter Schreiber, PhD.

RESEARCH AND INTERNATIONAL RELATIONS


RESEARCH AWARDS IN 2013:

Best habilitation thesis
Ing. Roman Čička, PhD.
Experimental and computational thermodynamics of material systems.

Best publication
Palcut, Marián - Priputen, Pavol - Kusý, Martin - Janovec, Jozef: Corrosion behaviour of Al-29 at % Co alloy in aqueous NaCl. – registered in: Web of Science, Master Journal List, Scopus. In: Corrosion Science. - ISSN 0010-938X. - Vol. 75 (2013), pp. 461-466

Impact Factor of Corrosion Science Journal is 3.615.

Best project team
Research team of Mattaba , a common workplace of the Institute of Materials and Machine Mechanics of the Slovak Academy of Sciences and STU MTF Institute of Materials.
The STU MTF team includes:
Ing. Svetozár Demian
prof. Ing. Jozef Janovec, DrSc.
doc. Ing. Mária Dománková, PhD.
doc. Ing. Bohumil Taraba, PhD. (former employee of STU MTF)

Orange Slovakia Award
RNDr. Marcel Abas, PhD – for publication activity in the field of applied mathematics to solve problems within engineering sciences.

15/11/2013
The award for the Scientific Team of the Year was granted at the 10th Annual Week of Science and Technology in Slovakia to the joint team from the Institute of Materials and Machine Mechanics of the Slovak Academy of Sciences and the STU MTF Institute of Materials for their contribution to research and development in the area of advanced metal materials and composites.
The award for the "Personality of Science and Technology" was granted to Professor Ing. Ľudovít Kupča, CSc. for making a significant contribution to solving theoretical issues of monitoring the state of construction materials of safety-relevant components in nuclear power plants of the VVER type and their successful application in practice.

RESEARCH ACTIVITIES IN 2013:

15/03/2013
Signing of the agreement for the creation of the 1st University Scientific Park in Slovakia – the project is primarily focused on the area of Materials Engineering in the field of ion and plasma technologies and automation and ICT implementation in industrial processes.

26/03/2013
Seminar on intellectual property protection presented by Ing. Lucia Bocková from the Institute of Industrial Property SR.

08/04/2013
Granting of awards to the successful applicants for financial support within the "Young Researcher of 2013" programme. For STU MTF: Ing. Lenka Blinová, Ing. Martin Kováč, Ing. Pavol Konopka, Ing. Eva Babalová, PhD., Ing. Tomáš Škulavík, PhD., Ing. Paulína Zacková, Ing. Jaroslav Jančár, Ing. Ivan Michalec, Ing. Michal Ondruška, Ing. Tomáš Kramár, Ing. Radovan Holubek.

22/04/2013
Colloquium to celebrate the occasion of the 80th birthday of prof. Dr. Ing. Marcel Žitňanský, DrSc., the STU Professor Emeritus, devoted to the long-life work of the honouree and his contribution to the development of foundry technologies and progressive materials in Slovakia.

17/05/2013
Opening Ceremony of the University Scientific Park building site.

21 – 24/05/2013
TECHFÓRUM 2013 – STU MTF participated in the 20th Annual International Mechanical Engineering Fair in Nitra, with the aim to present the output of research and development workplaces of engineering universities and their collaboration with practice. The Fair represented the major display of mechanical engineering production in Slovakia. Presentation of welding schools, including the welding school of the STU MTF Institute of Production technologies took place in a special pavilion of the Fair.

01-12/09/2013
The international summer school event "Selected issues of safety engineering and utilisation of nuclear power plants within the context of the EU power policy" took place within the ERASMUS programme framework (Education and Culture DG, Life-long Learning Programme). The coordinator of the summer school was the University of Wroclaw and the hosting sub-coordinator the STU MTF Institute of Safety and Environmental Engineering in Trnava.

11/09/2013
Colloquium to celebrate the jubilee of prof. Ing. Dáša Hrivňáková, CSc.

11 – 14/09/2013
FORMING 2013, 20th International Research Conference.

27/09/2013
Participation of STU MTF in the "Night of researchers" event as part of the 9th Annual European Festival of Science.

20/11/2013
MTF Open Science: Lecture on the Nobel Prize for physics 2013 awarded to François Englert and Peter W. Higgs "for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which was recently confirmed through the discovery of the predicted fundamental particle by the ATLAS and CMS experiments at the CERN's Large Hadron Collider" - on Higgs'-Boson and CERN. Presenter: doc. RNDr. Vladimír Černý, CSc.

26/11, 03/12, 10/12 and 17/12/2013
Co-operation of STU MTF with practice presented in the media – discussion with the Faculty management representatives and selected employees about the topic of co-operation with practice and the Faculty scientific potential, is featured by the regional TV channel.

05/12/2013
The Implementation Protocol for the Agreement of co-operation with IFW Dresden for the period 2013 - 2015 is signed by the Faculty Dean and Professor Janovec, Director of the Institute of Materials, and Dr.h.c. prof. Dr. habil. Jurgen Eckert and Dr.h.c. Rolf Pfrengle, both directors and members of the Institute Presidium on 05/12/2013 at IFW i.V. Dresden. The signatories also discussed the possibilities of common participation in future projects within HORIZON 2020.

09/12/2013
Television programme on a Slovak TV channel: a programme about Science and Technology, devoted to the research of progressive materials and the team of prof. Ing. Jozef Janovec, DrSc.

10/12/2013
MTF Open Science: Lecture on the Nobel Prize for Chemistry for 2013 awarded to Martin Karplus, Michael Levitt and Arieh Warshel "for the development of multiscale models for complex chemical systems". Presenter: prof. RNDr. Ivan Černusák, DrSc.

Overview of conferences organised at STU MTF in 2013:
21/03/2013 – Student Research Conference
09/04/2013 – 17th ESAB seminar on Welding and Weldability
12-16/05/2013 – International Doctoral Seminar (IDS)
11-14/09/2013 – Co-organiser of a scientific conference "Forming 2013"
24-25/10/ 2013 – Slovak Conference of Doctoral Students organised by the Association of Doctoral Students of Slovakia in co-operation with the STU in Bratislava.

RESEARCH FOCUS

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 activity in the field of science and technology once a year.

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 and the 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 PROJECTS

In 2013, research projects under the VEGA, KEGA, APVV and other programmes were conducted at the Faculty. The number of projects in 2013 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)	8
APVV (Agency for support of research and development)	9
7th Framework Programme	1
Other foreign projects	4
Projects of contractual research	14

NEW DOCTOR HONORIS CAUSA, PROFESSORS AND ASSOCIATE PROFESSORS IN 2013

Doctor honoris causa (Dr.h.c.)

Dr. h. c. prof. Dr. Ing. Oliver Moravčík - Doctor honoris causa of the Kalashnikov Izhevsk State Technical University, Russia (22/02/2013)

Professors

prof. Ing. Marián Soldán, PhD. - Occupational Health and Safety (05/03/2013)

prof. Ing. Miloš Čambál, CSc. -- Industrial Engineering (26/11/2013)

Visiting professors

Ing. Augustín Gese, CSc. – Automation (20/03/2013)

Dr.h.c. prof.h.c. Ing. Peter Joehnk, PhD. – Industrial Engineering (20/03/2013)

Associate Professors

doc. Ing. Jaromíra Vaňová, PhD. - Industrial Engineering (26/06/2013)

doc. Ing. Roman Čička, PhD. – Materials (11/12/2013)

doc. RNDr. Miroslav Rusko, PhD. – Occupational Health and Safety (11/12/2013)

doc. Ing. Erika Hodúlová, PhD. - Mechanical Engineering and Materials (11/12/2013)

Professor Emeritus

prof. Ing. Milan Turňa, CSc., EWE., IWE. (11/12/2013)

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-Rossendorf	Germany	Dresden-Rossendorf
Technical University of Brandenburg	Germany	Cottbus
Leibniz-Institute for Solid State and Materials Research Dresden	Germany	Dresden
Faculty of Machining, University in Ljubljana	Slovenia	Ljubljana
The National Research University of Information Technologies, Mechanics and Optics, Saing-Petersburg	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
Faculty of Organisation and Informatics Varaždin, University of Zagreb	Croatia	Zagreb
Bekaert, Zwevegem	Belgium	Zwevegem
Faculty of Machine Building, Technical University of Cluj-Napoca	Romania	Cluj-Napoca
Institute of Technology	Poland	Radoma
Innovation Centre for Diagnostics and the Application of Materials, Czech Technical University Prague	Czech Republic	Prague
University of Miskolc	Hungary	Miskolc
Institute for Systematic Coaching and Organisation Advisory	Germany	Berlin
Faculty of Economics and Management of University of Zielona Góra	Poland	Zielona Góra
Faculty for Management	Serbia	Novi Sad
Faculty of Information Technologies and Telecommunication of North-Caucasian State Technical University	Russia	Stavropol
Faculty of Mining and Metallurgical Engineering of Amirkabir University of Technology	Islamic Republic of Iran	Teheran
Izhevsk State Technical University of Kalashnikov	Russia	Izhevsk
Hochschule Mannheim University of Applied Sciences	Germany	Mannheim
Vocational Higher Education School in Sulechów	Poland	Sulechów
Institution of Education, Gomel State University of Francysk Skarina	Belarus	Gomel

VISITS OF FOREIGN GUESTS AT STU MTF IN THE YEAR 2013:

05/03/2013
Visit of the guests from Széchenyi István University Győr, Hungary and University of Maribor, Slovenia.

11-12/03/2013
Visit of prof. Nigel J. Holden of the Leeds Business School, United Kingdom.

09/04/2013
Meeting between representatives of the Portuguese Embassy, enterprises in the Plastic-working industry from Portugal and Slovakia, as well as the Slovak Chamber of Commerce and Industry and the Automotive Cluster West Slovakia.

15/04/2013
Negotiations by the Faculty representatives with prof. E. BABULAK, D. Sc., Ph.D., FRSA, FBCS. - College of Information and Communication Engineering, Sung Kyun Kwan University (SKKU), Suwon, Korea.

29/04/2013
Visit of a delegation from Egypt - prof. Ahmed Khairy, President of the Egypt-Japanese University for Science and Technology, prof. Roushdy Zahran, Vice-president of the Alexandria University, prof. Ekram Fateen, Deputy-director of the National Research Centre in Cairo and prof. Abu – Youssef Morsy, attaché in Vienna.

12/06/2013
Visit of a delegation from the Université Lille (France): François-Olivier Seys, Vice-rector for International Relations, prof. Rudolphe Astori, Coordinator of International Relations for the Department of Machine Engineering and Maria Eksler, Manager for International Relations.

24/06/2013
Visit of a delegation from the Gomel State University of Francysk Skorina – Rector prof. Ing. Alexander Rogachev, DrSc., and doc. Ing. Sergej Chachomov, CSc., Vice-rector for Pedagogy.

13/11/2013
Lecture by Paweł Kużdowicz of the Faculty of Economics and Management, University Zielona Góra on "Logistics Controlling with ERP System. Modelling Value Stream Flows in the Supply Chain of Industrial Enterprise".

13/11/2013
Visit of Professor William Lucas of University of Cambridge, United Kingdom.

09/12/2013
Visit of his Excellency Alexander Ben-Zvi, Ambassador of the state of Israel. Discussion with the Faculty representatives on the co-operation possibilities in the field of research; visiting the laboratories of the Faculty Institutes.

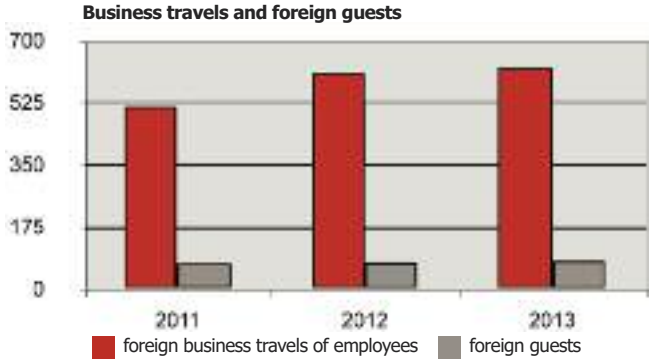
STUDENT EXCHANGES

STU MTF students participate in exchange programmes of short-term and also long-term scholarships. In 2013, the Faculty had 26 agreements in the Erasmus programme. The dominant Erasmus partners are the institutions in Poland (8 agreements), Germany (3 agreements), Czech Republic (4 agreements), and Hungary (3 agreements).

BUSINESS TRAVELS AND FOREIGN GUESTS

The 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.

Business travels and foreign guests



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 six professional international organisations. Employees of the faculty are active in different Slovak (130 individual memberships) and also international organisations (53 individual memberships) in different positions, from members to chairs, vice-chairs and members of boards.

Membership in 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 in 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 the 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 Machines
5.2.52	Industrial Engineering
8.3.5	Occupational Health and Safety

This part of Annual Report 2013 was verified by prof. Ing. Peter Grgač, PhD.

INTERNAL RELATIONS

AWARDS IN 2013

07/01/2013
prof. RNDr. Miroslav Urban, DrSc. awarded the class II Order of Ľudovít Štúr, the highest state award given by the President of the Slovak Republic, for outstanding achievements in theoretical chemistry and the development of higher education in the Slovak Republic.

17/01/2013
Awards in the STU MTF New Year's Meeting for 2013 in the following categories:
Best dissertation thesis (see Accreditation section),
Best research team, best publication, best habilitation thesis (see Research section)
Best achievements in co-operation with practice (see Development section)

Awarded employees who have worked at the Faculty for 25 years

01/01/1988	Švecová Libuša
01/04/1988	Sýkora Ján
01/08/1988	doc. RNDr. Mária Mišútová, PhD.
01/10/1988	doc. Ing. Stanislav Minárik, PhD.
01/11/1988	Dr. h. c. prof. Dr. Ing. Oliver Moravčík

25/03/2013
The Big Medal, Small medal and a Letter of Thanks of St. Gorazd Award is a moral award in the field of education, established in 1997 and granted by ministers of education at the occasion of Teacher Day to the pedagogues, school workers and the workers in other sectors of social life, who have conducted commendable work for schools and students. The following STU MTF employees were granted the Big Medal of St. Gorazd:
prof. Ing. Dáša Hrivňáková, DrSc. – for pedagogical and scientific activity in the field of Physical Metallurgy and Materials Engineering
prof. Dr. Ing. Oliver Moravčík – for scientific and pedagogical activity and contribution to the development of higher education in Slovakia

26/03/2013
The Institute of Industrial Engineering, Management and Quality won 1st place in the public poll within the "Poll of Social Responsibility" which was held under the auspices of the Institute of Corporate Social Responsibility in Ostrava.

06/12/2013
STU Professor of the year 2013 - prof. Ing. Ivan Baránek, CSc., of the Institute of Production Technology was awarded for outstanding achievements in research and pedagogical work for the benefit of STU MTF.

LIST OF THE MOST IMPORTANT FACULTY EVENTS IN 2013

MONTH	DATE	ACTION
January	01/01/2013	Class II Order of Ľudovít Štúr, the highest state award given by the President of the Slovak Republic to Miroslav Urban, an STU MTF UMAT employee for outstanding achievements in theoretical chemistry and the development of higher education in the Slovak Republic
	17/01/2013	STU MTF New Year's Meeting
	21-25/01/2013	Physics courses
	24/01/2013	Dies Iovis Occurssus XXVIII. – Thursday afternoons with personalities from the fields of cultural, social and scientific life
	30/01/2013	Open Day

MONTH	DATE	ACTION
February	04-06/02/2013	Doctoral Week
	22/02/2013	Professor Moravčík, granted the title doctor honoris causa of the Kalashnikov Izhevsk Technical University, Russia
	25/02/2013	Dialogues with practice V. –afternoons with personalities from the entrepreneurial and business spheres
	27/02/2013	Presentation of Volkswagen Slovakia for students


March	06/03/2013	Job Day
	11-12/03/2013	Visit of prof. Nigel J. Holden of Leeds Business School
	12/03/2013	Re-opening of the MTF Fitness Centre
	15/03/2013	Signed Agreement of the 1st University Scientific Park in Slovakia
	18-22/03/2013	STU MTF Book Week
	21/03/2013	Student Research Conference
	25/03/2013	St. Gorazd Award to prof. Hrivňáková and prof. Moravčík
	26/03/2013	Seminar on intellectual property protection at STU



April	04/04/2013	Dies Iovis Occurssus XXVIII. – Thursday afternoons with personalities from the fields of cultural, social and scientific life
	09/04/2013	Meeting with representatives of the Plastic-working industry from Portugal
	09/04/2013	ESAB 2013
	11/04/2013	Presentation of INA Skalica, s r.o. Co. for students
	12/04/2013	STU MTF Day
	18/04/2013	Student blood donation
	25/04/2013	Meeting with former employees of STU MTF
	25/04/2013	Meeting of the Dean with the Faculty ambassadors
	25/04/2013	Seminar on "The Concept of nuclear power plants decommissioning"



MONTH	DATE	ACTION
May	02/05/2013	Dies Iovis Occurssus XXVIII. – Thursday afternoons with personalities from the fields of cultural, social and scientific life
	12-16/05/2013	International Doctoral Seminar held in Dubrovnik, Croatia
	15-16/05/2013	Additional election for the STU MTF Academic Senate for the term 2011-2015
	17/05/2013	Kick off meeting and opening ceremony of the University Scientific Park building site
	20-21/05/2013	Election for the Board of Employees
	20-24/05/2013	STU MTF presentation at TECHFÓRUM fair, Nitra
	24/05/2013	Opening of the Botanical Garden
	27/05/2013	Dialogues with practice VI. – afternoons with personalities from the entrepreneurial and business spheres



June	13/06/2013	Admittance procedure for Bachelor's degree studies in the academic year 2013/2014
	19/06/2013	MTF involved in the national project "Universities as motors of the knowledge society development"
	21/06/2013	Teacher's Cup STU 2013 and tennis tournament
	24-25/06/2013	Enrolments into the 1st year of studies for the academic year 2013/2014
	27/06/2013	New website of the Academic Library launched



July	02/07/2013	Awards given to students for their exceptional study achievements in the academic year 2012/2013
	06/07/2013	The Faculty Dean, prof. Dr. Ing. Oliver Moravčík granted the title of prof. h. c. of the University of Kecskemét (Hungary)
	12/07/2013	Admittance procedure for Master's degree studies in the academic year 2013/2014



MONTH	DATE	ACTION
August	15/08/2013	New poster display at STU MTF
	23/08 -05/09/2013	Enrolment of new admitted students



September	01-12/09/2013	International Summer School 2013
	02-04/09/2013	Summer University for Secondary School Students
	11/09/2013	Colloquium of prof. Hrivňáková
	11-14/09/2013	Forming 2013 conference
	16/09/2013	Results of the Student Satisfaction survey
	19/09/2013	MTF Sport Day
	19/09/2013	The 5th Conference of STU MTF pedagogues
	26/09/2013	Dies Iovis Occurssus XXXII. – Thursday afternoons with personalities from the fields of cultural, social and scientific life
	27/09/2013	MTF participated in the Night of Researchers
	30/09/2013	Dialogues with practice VII. – afternoons with personalities from the entrepreneurial and business spheres



October	03/10/2013	"University students to Practice" campaign
	04/10/2013	Access to STN Standards online
	11/10/2013	Presentation of Festo Co. for students
	17/10/2013	20th Anniversary of the MTF Komárno Training Centre
	21/10/2013	Seminar of SECO Co. for students
	22/10/2013	Student blood donation
	24-25/10/2013	1st Doctoral Forum
	28/10/2013	Dialogues with practice VIII. –afternoons with personalities from the entrepreneurial and business spheres



MONTH	DATE	ACTION
November	01/11/2013	New Organisational Chart of STU MTF
	05 -08/11/2013	MTF at the Gradeaumus Fair
	13/11/2013	Immatriculation of the 1st year students
	19/11/2013	MTF Open Science: Lecture on the Nobel Prize for Physics 2013
	21/11/2013	Presentation of Volkswagen Slovakia for students
	26/11/2013	New Professors of MTF appointed by the President of the Slovak Republic
	26/11/2013	MTF featured on regional TV
	27/11/2013	Presentation of Matador Holding, a.s. for students



December	02/12/2013	Dialogues with practice IX. – afternoons with personalities from the entrepreneurial and business spheres
	04/12/2013	Meeting of the Academic Senate with academic staff
	05/12/2013	Dies Iovis Occurssus XXXV. – Thursday afternoons with personalities in the fields of cultural, social and scientific life
	05/12/2013	Implementation of the Protocol of the Agreement on co-operation for the years 2013 - 2015 signed between STU MTF and IFW i.V. Dresden
	06/12/2013	Christmas Bazaar
	06/12/2013	STU Professor of the year 2013 - prof. Ing. Ivan Baránek, CSc., of the Institute of Production Technologies awarded for outstanding achievements within the research and teaching activity for the benefit of STU MTF.
	07/12/2013	Santa Claus at MTF
	09/12/2013	MTF featured on Slovak TV
	10/12/2013	MTF Open Science: Lecture on the Nobel Prize for Chemistry 2013
	11/12/2013	Lecture by RNDr. Juraj Kliment – Senior Auditor for the automotive industry of Lloyd's Register Quality Assurance
	11/12/2013	Presentation of BOSCH Co., České Budějovice, Czech Republic



ACTIVITIES OF THE PUBLIC RELATIONS SECTION IN 2013

- Principal guarantor of the following events: New Year's Meeting, Santa Claus at MTF, St. Gorazd Award and MTF Day
- Publishing updates on the Faculty website
- Faculty news in the media
- Support for other Faculty events
- Graphical design of the materials for various events
- Photo-documentation, video recordings and promotion of events
- Borrowing of media equipment
- Monitoring the Faculty activities, events, press releases and TV discussions
- Updating of the poster display and Technology Museum

EDITORIAL ACTIVITIES IN 2013

- accepted methodology for writing scientific monographs agreed on the basis of qualification theses
- editorial activities in the field of electronic textbooks, scientific monographs, MTF journals and proceedings
- processing of Faculty journals in the Versita system (journals are indexed in the following databases:

- amending the statute of editorial activities, including the administration of anonymous reviewing
- update and administration of the publishing portal at MTF STU
- mapping the publication space of STU MTF on the Science Publishing Group website
- 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 the AlumniPress Publishing House

FACULTY JOURNALS

The Faculty publishes two journals - **Research papers of the STU MTF** and the Internet journal, **Materials Science and Technology**. Both journals are published in the English language. They are focused on the Faculty research fields - materials engineering, metallurgical and mining sciences, mechanical engineering (machine technologies), computer science, automation and telecommunications and environmental engineering. Both journals provide double-blind review, which guarantees:

- impartial reviews of the quality of published outputs,
- confirmation of established knowledge of the current state of the issues in domestic and foreign literature, the systematic analysis and synthesis,
- explication of the used evaluation criteria in the paper,
- originality of the authors contribution to fundamental issues of theory, methodology and innovations, incentives for new research orientation,
- clear characteristics of the procedures used, especially in the application of statistical and empirical data,
- contribution to the knowledge of the current state of the art, knowledge transfer and the development in the field,
- excluded possibility of reviewer bias against the author,
- an increased rate of fair judgment and evaluation of benefits of the contributions.

The priority of the Faculty is the registration of the journals in the monitored databases (WoS, Scopus, and so on). The main instrument to support the acquisition of the Impact Factor for the journals is electronic publishing through the MetaPress technology that provides increased awareness of the journal, an interest in publishing, citing strategy thanks to AIS (automatic indexing of published papers) and making active links to the cited works. By serving metadata in abstracting and indexing services, as well as full-text databases, issuing and registration of DOI codes (Digital Object Identifier) for each published paper is one of the steps to register the journals in databases required in the terms of accreditation.

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

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

In 2013, the AlumniPress Publishing House became a member of the Association of Publishers and Booksellers of the Slovak Republic

The monitoring and searching for appropriate publication spaces for doctoral candidates is one of the priority tasks of information management of supportive departments of the Faculty (Academic Library, Publishing House) to support the publication of results achieved by scientific research. Of course, by creating a domestic space, the opportunity for the transfer of these results (does not reach the top international quality) is provided, but the aim is particularly **to find a reputable foreign space for scientific publication outputs**. This activity is consistent with the conceptual plan for the development of the Faculty. The benefits of the economic value can be measured or estimated only by a relatively complex system. There can be expected a quantifiable increase in income subsidy from achieving the publication outputs in top international quality, the increase in grant success, the enlarged interest of students in postgraduate study based on the selection criteria in their decision of the curricular field. On the other hand, there are benefits characterised by:

- new foreign publications space for MTF STU in renowned foreign publishers,
- strengthening of the category "top international quality",
- possible co-authorship with foreign partners and the possibility of comparative scientific works,
- the possibility of an increased proportion of citations of authors from MTF STU.

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

STU MTF creates the following conditions of social policy for employees according to their rights defined in legislation. The management of STU MTF 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 measures are introduced on the basis of the satisfaction survey.

Events financed from the social fund:

- Concert for STU MTF employees and stakeholders at the New Year's Meeting
- Theatre performance at the Day of STU MTF event
- Pre-Christmas party for children of the STU MTF employees

EMPLOYEE BOARD OF STU MTF

The employee board of STU MTF 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 STU MTF 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 the use of the gymnasium and swimming pool with employees of STU MTF 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 STU MTF:
- discussed all materials dealing with holiday planning, collective holidays, a directive of the dean regarding the 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 of the year 2013,
- participated in the evaluation of adherence to the collective labour agreement terms as well as preparation of a new collective labour agreement for 2013 in the form of comments to a draft and completion of the draft,
- submitted the ideas of Faculty employees for solving problems on particular panels.

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 breastfeeding 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 of employees and the creation of rules:
- admission training – 39 employees,
- periodical training of employees - 165 employees,
- training of management - 21 employees,
- the induction information for students during the enrolment process – 1400,
- training of employees to provide first aid – 20 employees.

ALUMNI

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

Activities of Alumni in 2013:
- meeting of the general assembly of the association,
- English translation of the association website,
- electronic journal Alumni Magazine of the association established,
- newsletter sent to the registered members of the association.

Account number of the Alumni association: 2957128851/0200
IBAN: SK27 0200 0000 0029 5712 8851

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 STU MTF".

This part of Annual Report 2013 was verified by doc. Ing. Helena Vidová, PhD.

CONTACT

Director prof. Ing. Jozef Janovec, DrSc.
e-mail: jozef.janovec@stuba.sk
tel.: +421918646072

Address Jána Bottu 25, 917 24 Trnava, Slovak Republic
tel.: +421918646038
fax.: +421906068499

INSTITUTE OF MATERIALS SCIENCE

STAFF

- Professors: 8
- Assoc. Professors: 10
- Senior Lecturers: 15
- Research Fellows: 6
- PhD Students: 23

EDUCATION AT THE INSTITUTE

Number of the students (as on 31/10/2013) registered on study programmes offered by the Institute: 475
Number of students graduated (in the acad. year 2012/2013) from the study programmes offered by the Institute: 127

Study programmes

- Materials Engineering
- Processing and Application of Non-Metals
- Production Quality
- Engineering of Production Quality

ACTIVITIES OF THE INSTITUTE

Date	Title of event or activity at the Institute in 2013
30/01/2013	Lecture and presentation of the Institute at the 7th Annual "Open Day" for those interested in the study at STU MTF
04-06/02/2013	Co-organising of the 2nd Annual "Doctoral Week" at STU MTF
21-24/05/2013	Presentation of CE APRODIMET at the 1st Annual TECHFÓRUM 2013 exhibition in Nitra
03/09/2013	Promotion of the Institute at the 5th Annual University event "Summer University for secondary school students"
11/09/2013	Ceremonial colloquium event to celebrate the jubilee of prof. Ing. Dáša Hrivňáková, DrSc, STU Professor Emeritus
14/11/2013	Award given by the Minister of Education, Science, Research and Sport of the SR to the research team comprised of Institute employees
14/11/2013	Ing. Ľudovít Kupča, CSc., visiting STU professor is granted the "Personality of Science and Technology" award by the Minister of Education, Science, Research and Sport of the SR
20/11/2013	"MTF Open Science" organised the first lecture on the Nobel Prize for Physics 2013. Presenter: doc. RNDr. Vladimír Černý, CSc.
10/12/2013	"MTF Open Science" organised the second lecture on the Nobel Prize for Chemistry 2013. Presenter: prof. RNDr. Ivan Černušák, DrSc.

GRADUATE PROFILE

BACHELOR'S PROGRAMME (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.

Production Quality
The graduate understands the issues of quality management in industrial plants and quality management systems, application of basic tools and techniques of quality management, including statistical methods. The graduate will have gained detailed knowledge of quality management, basic knowledge of natural science disciplines (mathematics, physics), machine technologies and management of machine production. General knowledge of industrial plant management, together with basic computer literacy, will create a supposition of successful communication with research staff as well as management and organisation structures staff in economic organisations. The graduate will achieve ISO standards skills mainly in quality management and will be able to collaborate in operating quality management systems and process related documentation and other regulation documents. The graduate will find employment opportunities as a manager responsible for quality assurance in individual structures of an industrial plant, or an expert in quality management.

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 post-graduate degree level, to gain a scientific perspective across a whole range of materials engineering fields, or to enter the job market immediately. Graduates 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 his or her own company or as a manager in industrial production with this specialisation.

Engineering of Production Quality
The graduate understands basic technological and managerial issues of an industrial plant and servicing company, as well as designing, maintaining and implementing quality management systems. He will master the subject matter of international standards for quality management and intellectual property. The graduate will have a deep knowledge of natural sciences and specific areas of plant management, particularly in designing maintaining, implementing and improving quality management systems, total quality management /TQM/ approaches, as well as modern tools and methods of quality management. The graduate is able to develop and implement quality management systems. The graduate may be employed in several areas: industrial companies, services, state administration and at all positions where synergy of management, technical knowledge and skills is needed.

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 field 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.

Engineering of Production Quality
The graduate will achieve the complex PhD education in Production Quality focusing on quality management skills. They will understand the scientific methods of research and development to acquire knowledge. The graduate will be able to develop creative methods in quality management, integrated and complex quality management, to design and operate social-technical and management systems in different types of organisations, to establish innovative processes and to improve the quality management. The graduate is able to analyse the market, to analyse customers, to design and evaluate projects for an organisation. The graduate will be mainly employed as a top manager in different organisations, as a consultant for consulting companies and at universities in scientific research works and education work.

LIST OF SUBJECTS OFFERED BY THE INSTITUTE

- Advanced Materials and Technologies
- Bachelor's Project
- Bachelor's Thesis
- Degradation Processes and Prediction of Lifetime
- Graduation Project
- Diploma Thesis
- Dissertation Project I-VI
- Electrotechnics and Electronics
- Experimental Methods of Materials Investigation I-II
- Heat Treatment of Materials
- Heat Treatment Technology
- Chemical Heat Treatment
- Materials in Power Engineering
- Materials Science I-II
- 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 I-VI
- Physical Measurement Methods of Non-metallic Materials
- Physics I-II
- Physics of Materials
- Processing Technologies of Non-metallic Materials
- Professional Practice
- Research Paper I-VII
- 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 I-II
- Structure and Properties of Non-metallic Materials
- Technology of Materials Production
- 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

List of theses contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Master's Theses

Adamech, M.: The x-ray diffraction study of Cu-Zn couple on steel substrate

Bieliková, E.: The proposal of the application of selected tools and methods for improving quality of Compel AS, s.r.o.

Bínovská, L.: Application of Lean Six Sigma methodology for process improvement

Bíró, R.: Development of methodology for standardisation of heterogeneous samples by Energy- and Wavelength-dispersive analysis

Bírová, J.: Draft assessment report for the selected criteria EFQM Excellence Model

Bubáková, M.: Proposal to improve the quality of processes in the company INGSTEEL, spol. s r. o.

Bubáková, M.: The proposition implementation methodology G8D in the organization

Cisár, J.: Use the best unbiased estimate for measuring Young's modulus holographic interferometry

Drienovská, E.: The application of appropriate tools and techniques for continuous improvement in the selected processes

Duchoňová, J.: Application of statistical methods in the management of the production process of the stud 352

Dujka, I.: The application of appropriate tools and methods for continuous improvement in selected processes

Ďuriška, L.: Investigation of complex metallic alloys of Al-Pd system

Fančovičová, R.: Proposal of improvements for quality of processes in company TT – TRANS, s. r. o.

Farkaš, L.: Analysis of voltage ratios in thin superhard layers

Gajar, J.: Design and verification of wear resistant materials in terms of cement

Gáliková, I.: Application of marketing mix instruments in a production company

Geschwandtner, R.: The proposal for the implementation of modern methods of quality management in the process of handling complaints by using the methodology of the G8D in an organization

Haršáni, M.: The evolution of microstructure of high carbon steel wire during redrawing

Hrašna, P.: Acceptance sampling at an entry check at the selected company

Hutár, M.: Electron microscopy of superconductors in cross-section

Indrišková, P.: Conductivity of rubber materials in the vulcanization process

Ivanovičová, V.: Proposition of implementing the TQM model (EFQM) at industrial enterprise

Jančeková, P.: Different diameters test bars influence to the tensile test results

Jarabová, D.: Application of statistical process control cutting pins components

Kadlec, M.: Application of acceptance inspection in the process of input check of selected company

Kadlecová, M.: Application of tools and methods of quality management to reduce wastage in the production process of frame A58

Karas, R.: Impact of Dimensions of Test Specimen on the Results of Instrumented Impact Test

Katrová, M.: Microhardness study of deformation strengthening homogeneity of high carbon steel after severe plastic deformation

Koreňová, M.: The application of tools and methodologies to prevent wastage in production as a part of process improvement in quality management system

Kosnáčová, P.: Application of statistical methods in process improvement

Krajčovič, I.: The application of DOE techniques to improve product quality

Krajčovič, Ľ.: Proposal for improving affectivity and implementation of marketing strategy in Company

Krajčovičová, K.: Determination transition temperature and fractographic analysis of the fracture surface of the steel S355

Krilek, M.: Proposed measures to improve the level of claims management with a focus on customer satisfaction in the Air Liquide Welding Central Europe Ltd.

Kubajdová, L.: The application of methods to prevent wastage in production as part of a process improvement

Kubala, L.: Proposal for the implementation of TQM model (EFQM) in TFM Slovakia s.r.o.

Kubica, V.: Shear Strength of Soldered Joints after Aging

Kuruc, L.: Evaluation of the effect of used type of ionising radiation source on failures detectability in welded joints of steel structures and pressure tanks

Lehutová, M.: Improvement proposal for more efficient creation and implementation of marketing strategy in a company

Lovaš. M.: Mechanical properties of aluminium alloy extruded profiles prepared by rapid solidification of the melt

Lovíšek, Ľ.: Proposal of implementation of modern methods of quality management in the handling of complaints by Global 8D methodology in organization

Macháč, D.: Plastic product design by cars using injection moulding simulation

Majáková, M.: Improving the level management of complaints

Malá, T.: The analysis of boronizing tool steel of ledeburitic type

Maliariková, J.: Application of methods to avoid waste in production as a part of process improvement

Marčeková, L.: Draft Implementation of EFQM excellence model in an industrial enterprise

Martiniaková, E.: The application of suitable tools and techniques for continuous improvement of selected processes

Micov, Ľ.: Marketing support of a new industrial product on the market

Michalcová, E.: Structure and properties of selected types of tool steels after boronizing

Minaroviech, P.: Proposal application of implementation integrated management system

Mišík, J.: The effect of redrawing on microstructure of Zn-Al-Mg coating layer

Modrovská, M.: Proposal of complain management system implementation as a part of quality management system in Wertheim, Ltd., Dunajská Streda

Molnár, J.: The application of the statistic regulation of the patenting process (of Ts hardness) on the patenting and galvanizing line

Mrva, M.: Measurement of heat capacity of lead-free solders

Nádaská, M.: Improvement to the level of the complaint management in the company I. D. C. Holding a. s.

Nemec, M.: The application of method Six sigma to improve of production process

Pánik, M.: Interaction of lead- solder with copper substrate

Pikusová, S.: Optimization of the product traceability in the company ZF Sachs Slovakia a.s.

Pompurová, L.: A proposal of the implementation of TQM model (EFQM) in an industrial company

Ptačinová, J.: The investigation of thermal stability of boride layers

Radoská, L.: The application of statistical acceptance at the incoming control in the company

Sedláková, E.: Proposal for implementation of selected requirements ISO/TS 16949:2009 in organization

Skalošová, D.: Project implementation of existing methods for assessing the functionality and performance of the quality management system in Železiarne Podbrezová, a.s.

Slatkovský, I.: Study of precipitation in CrMn high nitrogen austenitic stainless steel

Ševčík, R.: Implementation tools and methods of quality management in the production process

Špoták, M.: Selected electrochemical properties of austenitic stainless steel

Štibrány, M.: Corrosion Resistance of Surfaces Protected Coating Systems Containing Anticorrosion Pigments of New Generation

Štúň, M.: Improving the production part approval process in organization

Tkáčová, M.: Photodegradation of Polysilane Thin Films for Nanotechnology

Vašík, J.: The application of appropriate tools and methods for continuous improvement of selected processes in PSA Peugeot Citroen

Zahradník, J.: Structural changes of ledeburitic steel on tempering

PhD Theses

Bohovičová, J.: Preparation and characterization of hard coatings on metal materials

Gogola, P.: The use of hot isostatic pressing for the realisation of rotable metallic sputter targets

Halgaš, R.: Mechanical properties of human enamel and restorative dental materials

Klimová, A.: Columnar to equiaxed transition in the intermetallic titanium alloys

Mesárošová, J.: Analysis of solidification microstructures in the rapidly solidified powder particles from a tool steel and numerical simulation of conditions of their development

Navrátilová, N.: Study of biodegradable plastics and their blends in relation to the product and optimization of process parameters

Sahul,. M.: Study of Structure and Properties of Hard Coatings using Advanced Diffraction Techniques

Habilitation Theses

Čička, Roman : Experimental and computational thermodynamics of material systems. - Trnava: STU in Bratislava MTF, 2013.

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 "Centre for development" and the application of advanced diagnostic methods in the processing of metallic and non-metallic materials. Equipment 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. The furnace for chemical heat treatment; CHTZ 15, and the PVD coating unit; PLATIT, were installed in the laboratories of the Institute. 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 Centre 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.

Areas of expertise

- Material Degradation and Accidents
- Laboratory Technology for Material Diagnostics
- Structure Analysis
- Thermal Analysis
- Microsocopy and Diffraction Analysis
- Spectroscopy Analysis
- Space Phenomena
- Advanced Materials
- Fusion and Fusion Reactors
- Lead-free Solders
- Materials for Energetics
- Corrosion Processes

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 doc. 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 **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 semi-empirical methods will be used. The accuracy 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 tumour 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 field 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 doc. 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 functional.

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 doc. 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. The latest analytical techniques (HRSEM, HRTEM, EBSD, RTG diffraction) 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 **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 metallic 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 critical current and ac losses. Information about defects in layers of YBCO, inferred from structural analysis, is 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 superconductive layers will be performed mainly with (highresolution) TEM.

Project Title **Study of relaxation mechanisms in composites with special carbon-based filling**
Coordinator doc. Ing. Marian Kubliha, PhD.
Start Date 01/01/2013
End Date 31/12/2015
Program VEGA
Annotation The project is aimed at the implementation of measurements of selected physical parameters in the study of composites with polymeric matrix with an emphasis on the investigation of relaxation mechanisms in the structure. In the case of the matrix formed from reactoplast, the project is oriented on the evaluation of the impact of nanoparticles and carbon fibres (content and the arrangement of the individual phases) on mechanisms of dielectric behaviour. In the case of the matrix based on elastomers, the critical processes are examined in the formation of rubber mixture vulcanisers, as well as in their thermomechanical degradation. Correlations between the composition of the investigated system and the values of the rheological, electrical, dielectric quantities at nonisothermal heating of rubber mixtures are described. Important characteristics such as the resistance to thermomechanical exposure and the reproducibility of the properties defined by the values of the physical properties are discussed, too.

Project Title **Study of the turbulent accretion process in accreting binary systems through flickering activity**
Coordinator Mgr. Andrej Dobrotka, PhD.
Start Date 01/01/2013
End Date 01/01/2015
Program VEGA
Annotation The main purpose of the project is to study turbulent flow in the high Reynolds number (Re) regime, not accessible in today's laboratories. Accretion systems are unique cosmic experiments to do so. The turbulence minimum dimension scales in the fluid are described by the Re. The largest scales of fluid motion are set by the overall geometry of the flow and are dissipating into smaller eddies up to the minimal dimension scale. From the basic fluid mechanics it is well known that higher Re numbers yield a smaller minimal dimension scale. From Re about 10^6 the dissipation toward smaller scales of turbulent elements is so strong that the fluid becomes quasilaminar. The bigger eddies should dissipate and hence disappear. Today Re estimates from Earth point towards a value of about 10^8. What is happening then? The typical Re in an accretion disc of cataclysmic variables is of about 10^12 and one of the possibilities to explain flickering is turbulence in the disc.

Project Title **The Influence of exposure conditions on the evolution of binary and ternary phases in aluminiumbased complex metallic alloys**
Coordinator prof. Ing. Jozef Janovec, DrSc.
Start Date 01/01/2012
End Date 31/12/2014
Program VEGA
Annotation The evolution of binary and ternary phases under thermal activation in Albased CMAs will be studied with the intention to make the concerned phase diagrams more precise. The AlTMTM (TM=transition metal) alloys will be annealed for longterms at various temperatures and then quenched to fix the microstructure at annealing temperature. To analyse the phases, XRD, TEM, SEM, DTA, EDX, WDX, and EBSD, thermodynamic simulations will be used. Attention will be paid to the systems investigated insufficiently until now. Based on the experimental results and the available theoretical knowledge, precise thermodynamic parameters will be determined for the identified phases and the related databases will be modified. The use of advanced experimental methods gives rise to methodological innovations. The project is expected to contribute to the basic knowledge and perhaps to the discovery of new phases exhibiting original properties.

Project Title **Chemical sputtering: Computational modelling of interactions in the carboncontaining films exposed to molecular ions and hydrogen EURATOM CU**
Coordinator prof. RNDr. Miroslav Urban, DrSc
Start Date 01/01/2010
End Date 01/09/2014
Program Euromat
Annotation The formation of small hydrocarbons, their chemistry and cracking pattern upon the electron (e) impact and/or the thermodynamics of the formation of saturated lower hydrocarbons. Interaction energies of the hydrogen, nitrogen and molecular ions with compounds representing and model for interactions with hydrogenated carbon films. Calculations of ionisation potentials of small hydrocarbons, CxHy (CxHyDz) and their ions, their properties and thermodynamic stability.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee
Belgium	Dr.-Ing. Marcela Pekarčíková
Czech Republic	RNDr. Andrej Antušek, PhD. Mgr. Ondrej Bošák, PhD. doc. Ing. Ľubomír Čaplovič, PhD. Ing. Ivona Černičková, PhD. Ing. Roman Čička, PhD. doc. Ing. Mária Dománková, PhD. Ing. Marián Drienovský, PhD. Bc. Libor Ďuriška prof. Ing. Peter Grgač, CSc. Mgr. Filip Holka, PhD. prof. Ing. Jozef Janovec, DrSc. prof. Ing. Peter Jurči, PhD. doc. Ing. Marian Kubliha, PhD.
	doc. Ing. Martin Kusý, PhD. doc. RNDr. Vladimír Labaš, PhD. prof. Ing. Ján Lokaj, PhD. doc. Ing. Stanislav Minárik, PhD. Ing. Jozef Mišík prof. RNDr. Milan Ožvold, CSc. Mgr. Marián Palcut, PhD. Ing. Martin Šahul, PhD. Ing. Ingrid Šutiaková prof. RNDr. Miroslav Urban, DrSc.
France	doc. Ing. Ľubomír Čaplovič, PhD. Ing. RNDr. Vladimír Kolesár, PhD. prof. RNDr. Miroslav Urban, DrSc.
The Netherlands	doc. Ing. Ľubomír Čaplovič, PhD.

Country	Employee
Croatia	prof. Ing. Peter Grgač, CSc. prof. Ing. Jozef Janovec, DrSc. Ing. Martin Sahul, PhD.
Japan	prof. RNDr. Miroslav Urban, DrSc.
Hungary	prof. RNDr. Miroslav Urban, DrSc.
Germany	doc. Ing. Ľubomír Čaplovič, PhD. Ing. Ivona Černičková, PhD. Ing. Roman Čička, PhD. doc.Ing. Mária Dománková, PhD. Bc. Libor Ďuriška, prof. Ing. Peter Grgač, CSc. Ing. Marián Haršáni, prof. Ing. Jozef Janovec, DrSc. Ing. RNDr. Vladimír Kolesár, PhD. doc. Ing. Martin Kusý, PhD. doc. Ing. Stanislav Minárik, PhD. doc. Ing. Róbert Riedlmajer, PhD. prof. RNDr. Miroslav Urban, DrSc. Bc. Marek Adamech

Country	Employee
Nepal	Mgr. Andrej Dobrotka, PhD.
Poland	RNDr. Andrej Antušek, PhD. prof. Ing. Ján Lokaj, PhD.
Austria	prof. Ing. Peter Grgač, CSc.
Romania	Mgr. Ondrej Bošák, PhD. doc. Ing. Marian Kubliha, PhD.
Slovenia	Bc. Marek Adamech Ing. Roman Čička, PhD. Bc. Libor Ďuriška Ing. Matej Pašák RNDr. Pavol Priputen, PhD.
USA	prof. Ing. Ján Lokaj, PhD.
Switzerland	RNDr. Andrej Antušek, PhD. prof. RNDr. Miroslav Urban, DrSc.
Italy	Dr.-Ing. Marcela Pekarčíková, Mgr. Michal Skarba, PhD.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

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

Slovak Physical Society
doc. Ing. Marián Kubliha, PhD.
Mgr. Ondrej Bošák, PhD.
Mgr.Andrej Dobrotka, PhD.
prof. RNDr. Milan Ožvold, PhD.
doc. Ing. Róbert Riedlmajer, PhD.
Ing. Roman Čička, PhD.
RNDr. Igor Jančuška, PhD.
Mgr. Jozef Krajčovič, PhD.
doc. RNDr. Vladimír Labaš, PhD.
doc. 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.
doc. Ing. Ľubomír Čaplovič, PhD.
Ing. Lýdia Trnková, PhD.
doc. Ing. Mária Hudáková, PhD.
Ing. Viktória Sedlická, PhD.
doc. Ing. Martin Kusý, PhD.
doc. Ing. Roman Moravčík, PhD.
Mgr. Ondrej Bošák, PhD.
doc. Ing. Marián Kubliha, PhD.
prof. Ing. Peter Grgač, PhD.
Ing. Roman Čička, PhD.

Information Society of Education
Mgr. Jozef Krajčovič, PhD.

Special Interest Group of Chemistry and Physics of Solid
doc. 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
doc. Ing. Ľubomír Čaplovič, PhD.
prof. Ing. Jozef Janovec, DrSc.

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

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

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

Regional Committee of the IUCr
doc. 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)
doc. Ing. Stanislav Minárik, PhD.
doc. Ing. Marián Kubliha, PhD.
doc. 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.

International Astronomical Union
Mgr. Andrej Dobrotka, PhD.

Swift Nova-CV Group
Mgr. Andrej Dobrotka, PhD.

PUBLICATIONS (most important publications in 2013)

List of publications contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Moravčík, Roman: Tool Steels of the Ledeburite Type. - 1st ed. - Dresden : IFW, 2013. - 111 p. - (Scientific monographs). - ISBN 978-3-9808314-4-4

Antušek, Andrej - Rodziewicz, Pawel - Kaczmarek-Kedziera, Anna - Jaszunski, Michal: Ab initio study of NMR shielding of alkali earth metal ions in water complexes and magnetic moments of alkali earth metal nuclei. In: Chemical Physics Letters. - ISSN 0009-2614. - Vol. 588 (2013), pp. 57-62

Balog, M. - Yu, P. - Qian, M. - Behúlová, Mária - Švec, P. - Čička, Roman: Nanoscaled Al-AlN composites consolidated by equal channel angular pressing (ECAP) of partially in situ nitrided Al powder. – **registered in: Web of Science, Master Journal List, Scopus.** In: Materials Science and Engineering A. Structural Materials. Properties, Microstructure and Processing. - ISSN 0921-5093. - Vol. 562 (2013), pp. 190-195

Bednarcik, Jozef - Michallik, Stefan - Kolesár, Vladimír - Rütt, Uta - Franz, Hermann: In situ XRD studies of nanocrystallization of Fe-based metallic glass: a comparative study by reciprocal and direct space methods. - **registered in: Web of Science, Master Journal List, Scopus.** In: Physical Chemistry Chemical Physics. - ISSN 1463-9076. - Vol. 15, Iss. 22 (2013), pp. 8470-8479

Bošák, Ondrej - Kostka, Peter - Minárik, Stanislav - Trnovcová, Viera - Podolinčiaková, J. - Zavadil, Jiří: Influence of composition and preparation conditions on some physical properties of TeO2-Sb2O3-PbCl2 glasses. - P106/12/2384, APVV SK-CZ-195-11. - **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Non-Crystalline Solids. - ISSN 0022-3093. - Vol. 377, Spec. iss (2013), pp. 74-78

Duszová, Annamária - Halgaš, Radoslav - Bľanda, Marek - Hvizdoš, Pavol - Lofaj, František - Dusza, Ján - Morgiel, Jerzy: Nanoindentation of WC-Co hardmetals. - 2/0122/12, ITMS: 262200120019, ITMS: 26220120035, ITMS: 26220120056, APVV 0520-10, APVV 004206, LPP 0174-07. In: Journal of the European Ceramic Society. - ISSN 0955-2219. - Vol. 33, Iss. 12 (2013), pp. 2227-2232

Gömöry, Fedor - Šouc, Ján, Ing - Pardo, Enric - Seiler, Eugen - Soloviov, Mykola - Frolek, Ľubomír - Skarba, Michal - Konopka, Pavol - Pekarčíková, Marcela - Janovec, Jozef: AC Loss in Pancake Coil Made From 12 mm Wide REBCO Tape. - **registered in: Web of Science, Master Journal List, Scopus,** IEEE. In: IEEE Transactions on Applied Superconductivity. - ISSN 1051-8223. - Vol. 23, Iss. 3 (2013), [6] p.

Halgaš, Radoslav - Dusza, Ján - Kaiferová, Jana - Kovácsová, Lucia - Markovská, Neda: Nanoindentation testing of human enamel and dentin. - **registered in: Web of Science, Master Journal List.** In: Ceramics - Silikáty. - ISSN 0862-5468. - Vol. 57, Iss. 2 (2013), pp. 92-99

Chaus, Alexander - Dománková, Mária: Precipitation of Secondary Carbides in M2 High-Speed Steel Modified with Titanium diboride. - Vega 1/0413/13. - **registered in: Web of Science.** In: Journal of Materials Engineering and Performance. - ISSN 1059-9495. - Vol. 22, Iss. 5 (2013), pp. 1412-1420

Chaus, Alexander - Sojka, Jaroslav - Čaplovič, Ľubomír: Special features of the internal structure of globular graphite in high-strength cast iron. - **registered in: Web of Science, Master Journal List, Scopus.** In: Metal Science and Heat Treatment. - ISSN 0026-0673. - Vol. 55, Iss. 3-4 (2013), pp. 175-180

Labaš, Vladimír - Poulain, Marcel - Kubliha, Marián - Trnovcová, Viera - Goumeidane, F.: Electrical, dielectric and optical properties of Sb2O3-PbCl2-MoO3 glasses. - ECONET 21360NA, APVV-SK-CZ-195-11. - **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Non-Crystalline Solids. - ISSN 0022-3093. - Vol. 377, Spec. iss (2013), pp. 66-69

Mikula, M. - Grančič, B. - Drienovský, Marián - Satrapinskyy, L - Roch, Tomáš - Hájovská, B. - Gregor, M. - Pleceník, Tomáš - Čička, Roman - Pleceník, A. - Kúš, Peter: Thermal stability and high-temperature oxidation behavior of Si-Cr-N coatings with high content of silicon. - APVV 0520-10, ITMS 26240220002, ITMS 26220220004. - **registered in: Master Journal List, Scopus.** In: Surface & Coatings Technology. - ISSN 0257-8972. - Vol. 232 (2013), pp. 349-356

Palcut, Marián - Priputen, Pavol - Kusý, Martin - Janovec, Jozef: Corrosion behaviour of Al-29at%Co alloy in aqueous NaCl. - ITMS: 26220120014, ITMS: 26220120048. - **registered in: Web of Science, Master Journal List, Scopus.** In: Corrosion Science. - ISSN 0010-938X. - Vol. 75 (2013), pp. 461-466

Pašteka, Lukáš F. - Rajský, Tomáš - Urban, Miroslav: Toward understanding the bonding character in complexes of coinage metals with lone-pair ligands. CCSD(T) and DFT computations. - **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Physical Chemistry A. - ISSN 1089-5639. - Vol. 117, Iss. 21 (2013), pp. 4472-4485

Priputen, Pavol - Liu, TianYing - Černičková, Ivona - Janičkovič, Dušan - Kolesár, Vladimír - Janovec, Jozef: Experimental Study of Al-Co-Cu Phase Diagram in Temperature Range of 800-1050°C. - ITMS 26220120014, ITMS 26220120048, Vega 2/0111/11. - **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Phase Equilibria and Diffusion. - ISSN 1547-7037. - Vol. 34, Iss. 5 (2013), pp. 425-429

Solovyov, M. - Pardo, Enric - Šouc, Ján, Ing - Gömöry, Fedor - Skarba, Michal - Konopka, Pavol - Pekarčíková, Marcela - Janovec, Jozef: Non-uniformity of coated conductor tapes. - **registered in: Web of Science, Master Journal List, Scopus.** In: Superconductor Science and Technology. - ISSN 0953-2048. - Vol. 26, Iss. 11 (2013), art.num. 115013

Šulka, M. - Pitoňák, M. - Černušák, I. - Urban, Miroslav - Neogrády, Pavel: Ab initio study of many-body decomposition of the interaction energy in small beryllium clusters Be3-6. - **registered in: Web of Science, Master Journal List, Scopus.** In: Chemical Physics Letters. - ISSN 0009-2614. - Vol. 573 (2013), pp. 8-14

Tyuterev, Vladimir G. - Kochanov, R.V. - Tashkun, S.A. - Holka, Filip - Szalay, P. G.: New analytical model for the ozone electronic ground state potential surface and accurate ab initio vibrational predictions at high energy range. - **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Chemical Physics. - ISSN 0021-9606. - Vol. 139, Iss. 13 (2013), Art.No. 134307

Vančo, Ľubomír - Kadlečíková, Magdaléna - Breza, Juraj - Čaplovič, Ľubomír - Gregor, M.: Examining the Ground Layer of St. Anthony from Padua 19th Century Oil Painting by Raman Spectroscopy, Scanning Electron Microscopy and X-ray Diffraction. - **registered in: Web of Science, Master Journal List, Scopus.** In: Applied Surface Science. - ISSN 0169-4332. - Vol. 264 (2013), pp. 692-698

Zavadil, Jiří - Kubliha, Marián - Kostka, Peter - Iovu, M. - Labaš, Vladimír - Ivanova, Z.G.: Investigation of electrical and optical properties of Ge-Ga-As-S glasses doped with rare-earth ions. - APVV SK-CZ-195-11. - **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Non-Crystalline Solids. - ISSN 0022-3093. - Vol. 377, Spec. iss (2013), pp. 85-89

Béger, Miroslav - Jurči, Peter - Grgač, Peter - Mečiar, Svätopluk - Kusý, Martin - Horník, Jakub: CrxNy coatings prepared by magnetron sputtering method. - **registered in: Web of Science, Master Journal List, Scopus.** In: Metallic materials. - ISSN 0023-432X. - Vol. 51, Iss. 1 (2013), pp. 1-10

Jurči, Peter - Sobotová, Jana - Salabová, Petra - Prikner, Otakar - Šuštaršič, Borivoj - Jenko, Darja: Subzero treatment of P/M Vanadis 6 ledeburitic tool steel. - **registered in: Scopus.** In: International Heat Treatment and Surface Engineering. - ISSN 1749-5148. - Vol. 7, Iss. 3 (2013), pp. 125-128

Klačanová, Katarína - Fodran, Peter - Šimon, Peter - Rapta, Peter - Boča, Roman - Jorík, Vladimír - Miglierini, Marcel - Kolek, Emil - Čaplovič, Ľubomír: Formation of Fe(0)-Nanoparticles via Reduction of Fe(II) Compounds by Amino Acids and Their Subsequent Oxidation to Iron Oxides. - **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Chemistry. - ISSN 2090-9063. - Vol. 2013 (2013), Art. ID 961629, [10] p.

Kocúrová, Karin - Dománková, Mária - Hazlinger, Marián: The influence of carbonitriding process on microstructure and mechanical properties of micro-alloyed steel. - ITMS 26220120048. - **registered in: Web of Science, Master Journal List, Scopus.** In: Metallurgy. - ISSN 0543-5846. - Vol. 52, No. 1 (2013),pp. 19-22

Sobotová, Jana - Jurči, Peter - Adámek, Jan - Salabová, Petra - Prikner, Otakar - Šuštaršič, Borivoj - Jenko, Darja: Diagnostics of the microstructural changes in sub-zero-processed vanadis 6 P/M ledeburitic tool steel. - **registered in: Web of Science, Master Journal List, Scopus.** In: Materiali in Tehnologije. - ISSN 1580-2949. - Vol. 47, Iss. 1 (2013), pp. 93-98

Kozík, Tomáš - Minárik, Stanislav: New possibilities for investigation of the technological texture based on measurement of electric parameters: Theoretical analysis and experimental verification. - **registered in: Scopus, Master Journal List.** In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 64, No. 6 (2013), pp. 376-380

Bošanský, Miroslav - Vanya, Attila - Čaplovič, Ľubomír - Hudáková, Mária - Sondor, Jozef: Evaluation of Properties of Selected Coatings on Aisi Grade 18Ni (250) Maraging Steel in Terms of Their use in Gears. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld : Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 746 : 2013 Asian Pacific Conference on Chemical, Material and Metallurgical Engineering (APCCMME 2013), 22 - 23 May 2013, Beijing, China. - , 2013, pp. 179-185

Jirková, Hana - Aisman, D - Sen, I. - Wagner, Martin F.-X - Behúlová, Mária - Kusý, Martin - Mašek, Bohuslav: Mini-thixoforming of a Steel Produced by Powder Metallurgy. - **registered in: Web of Science, Scopus.** In: Solid State Phenomena. - ISSN 1012-0394. - Vol. 192-193 : 12th International Conference on Semi-Solid Processing of Alloys and Composites (2013),pp. 500-505

Ness, Jan-Uwe - Osborne, Julian. P. - Henze, M. - Dobrotka, Andrej - Drake, J.J. - Ribeiro, V.A.R.M. - Starrfield, Sumner - Kuulkers, E. - Behar, E. - Hernanz, M. - Schwarz, Greg - Page, K. L. - Beardmore, A.P. - Bode, M.F.: Obscuration effects in super-soft-source X-ray spectra. - **registered in: Web of Science, Master Journal List.** In: Astronomy & Astrophysics. - ISSN 0004-6361. - Vol. 559 (2013), s. 1-16

This part of Annual Report 2013 was verified by prof. Ing. Jozef Janovec, DrSc.

CONTACT

Director prof. Ing. Koloman Ulrich, PhD.
e-mail: koloman.ulrich@stuba.sk
tel.: +421918646055

Address Jána Bottu 25, 917 24 Trnava, Slovak Republic
tel.: +421918646037
fax: +421906068499

INSTITUTE OF PRODUCTION TECHNOLOGIES

STAFF

- Professors: 7
- Assoc. Professors: 11
- Senior Lecturers: 13
- Research Fellows: 7
- PhD Students: 27

EDUCATION AT THE INSTITUTE

Number of the students (as at 30/10/2013) registered on study programmes offered by the Institute: 617
Number of students graduated (in the acad. year 2012/2013) from the study programmes offered by the Institute: 209

Study programmes

- Computer-Aided Production Technologies
- Production Technologies
- Machining and Assembly
- Computer-Aided Design and Production
- Welding
- Industrial and Art Casting
- Machine Technologies and Materials

ACTIVITIES OF THE INSTITUTE

Date	Title of event or activity at the Institute in 2013
19/02/2013	Current state and future trends in the aluminium materials application
05/04/2013	Cutting geometries – their selection and effective utilisation
09/04/2013	17th ESAB seminar on welding and weldability of materials
18/04/2013	Solutions to the problems of machining on CNC machine tools by using RENISHAW probes
25/04/2013	Concept of nuclear power plants decommissioning
23/05/2013	Precision milling with ball end mill tools
21–24/05/2013	Presentation at Techfórum 2013 Exhibition in Nitra
11-14/09/2013	Forming 2013 International Conference in Piešťany
25/09/2013	Study and research at the Kecskemét College in the field of machining of selected difficult-to-machine materials
21/10/2013	Strategies of milling II.
27/11/2013	The possibilities of new combined electro-physical effects on ferromagnetic materials.

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 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 to apply computer technology for product and process design, programs for CNC machine tools, design of complex 3D products and simulate preparation of their production. After completion of the programme, 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 of 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 programme, 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 in-depth 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 programme the graduate 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
- CA systems and Computer Simulation Processes
- CAPP I, II
- CAx technologies
- CNC-machines Programming
- Computer Aided Forming Technology
- Computer Aided Productions Technologies I, II, III
- Computer Aided Welding Technology
- Design and Manufacturing of Welding Constructions
- Dissertation Project I, II, III, IV, V, VI
- Equipment for Foundry and Metal Casting
- Experimental Methods in Machining
- Finishing Methods of Machining
- Forming Machines
- Forming Technology
- 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
- Production Preparation in Foundry and Welding
- Production Process Planning
- Production Systems II
- Professional Practice
- 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 - VII
- 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
- 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
- Theory of Casting
- Theory of Forming
- Theory of Machining
- Theory of Welding
- Tribology
- Welding Machines and Equipment
- Welding Technology

GRADUATE THESES

List of theses contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Master's Theses

Allina, M.: Simulation of robotized workplace for arc welding
Babis, P.: Cutting tool wear in thin part turning
Bachoník, J.: Proposal of procedure for assembling the research apparatus Victoria
Bališ, D.: The proposal of the assembly of the garden tiller
Bašnár, M.: Isolated tank wagon - proposal of tank wagon subgroups
Beňová, M.: Influence of wall thickness to roundness value of turning sample
Beták, T.: Proposal of appropriate technology and parameters for welding austenitic stainless steel
Bol, B.: Investigation of cutting forces in five-axis milling
Brimus, M.: Laser micromachining of Cr-Ni austenitic steel
Brychta, M.: Design of measuring plan for measuring back cover LCD TV on a coordinate measuring machine
Bučko, A.: Effect of shielding Gas on Titanium Laser Welds Quality
Cabanová, D.: Effect of a small amount of lanthanides on the properties of zinc solders
Calpaš, Ľ.: The application of the appropriate type of cutting plates for shape machining tool steel 1.2379
Csontos, D.: Creating the NURBS surfaces based on the Polygon model
Dičér, V.: Design and simulation of robotic welding cell Dobrovodský, P.: Possibilities of creating a 3D model from photo, 2D artwork
Ertel, J.: Laser welding of magnesium alloys
Fojtlín, M.: Investigation of the degrease of surface roughness during the electrochemical polishing castings
Fonodová, Z.: Welding of duplex steels solid state laser
Fúsek, P.: Creation of bust by computer-aided Technologies
Gajdošík, M.: Design study and simulation of robotic welding workplace
Gajdošík, M.: Influence cutting speed on cutting forces
Gemzický, I.: A workplace suggestion for welding of shopper for shaker
Giertlová, M.: Study of thermal stress silicone moulds for centrifugal casting low melting alloys
Guldan, J.: Proposal of the measuring plan for measuring of the top cover of hydrodynamic converter by the coordinates measuring machine
Gyárfás, M.: Effect corner radius of milling cutter on cutting forces
Hetešová, A.: Suggested methods of teaching and testing of CAD / CAM in online class
Hladík, L.: Design of the method of curing core sands with binder on protein base
Hožváková, Z.: Design adaptation CNC Lathe Machine for incremental forming operations
Chovanec, R.: Simulation of technological process of forming for production of bearing cages
Jurka, B.: Improvement proposals and proposal of prototypes technology in shifting system
Karvaš, M.: Effect of welding variables on the depth of penetration on orbital TIG welding creep resistant boiler tubes
Knizner, M.: Cutting forces in conventional and high speed milling
Kodhajová, A.: Design, engineering and assembly of cooling display case
Kopáčik, P.: Welding of austenitic stainless steel AISI 316L with fiber laser
Kostolný, I.: Diffusion welding of combined metals
Košík, M.: Metal to composite plastic conversion of mechanically loaded part by using technological and structural CAE analyses
Križan, B.: The structural design of the forming tool for forming area
Kudlej, M.: Welding selected Al alloys laser
Kuka, M.: Design and manufacture of injection mould
Kútny, M.: The application of ultrasonic vibrations on the tool with a defined geometry cutting wedge - end mill
Leškanič, M.: Proposed solder for soldering of Mg alloys
Ležovič, M.: The CAD-CAM-CNC string in art production
Likavčan, L.: Draft of CAPP system for electrical discharge machining
Mačák, T.: Analysis of the possibility of improving the manufacturing process of universal matched bearings
Majerník, T.: The suggestion of the production of a chosen product with CAx technologies in the company of Novoplast
Marek, P.: The utilization of computer simulation for designing of welded structure
Martinka, E.: Draft model air gun
Matovičová, L.: Rationalization of production of a body end component for the front lower skeleton part of a tanker
Mazánik, R.: Design and simulation of robotic welding cell
Mihálik, M.: Advanced modelling method of machining machines
Milde, J.: The use of computer aided technologies for designing and fabrication of dental restorations
Minárik, V.: The quality of the machined surfaces cut spoked Technologies
Mináriková, D.: Design and production forming tools machining
Mosnár, V.: Design of technological fixture for precise drilling
Nagy, V.: Experimental investigation of the joint strength of laser beam welded structured sheet metals
Ondruška, M.: Measurement of shank tool with the Zoller Genius 3
Pálenkár, M.: Measurement and maintenance of large-scale machine tools in NMS s.r.o.
Pánik, P.: Selected problems of laser machining
Píš, T.: Design and modelling of cutting tools
Pleva, T.: Proposal of methodology calibration of microscope
Pročka, T.: Design and implementation of a robotic workstation for the automotive industry
Rezbárik, P.: Design and installation of dissolution the crystalline sediments in storage tanks
Sénáši, R.: Design of technological preparation for machining a gear ring
Siman, M.: The use of unconventional core and in a centrifugal casting using Tekcast method
Sitár, T.: Cutting forces in turning slender components
Sítek, B.: Abrasive water jet cutting
Slamka, M.: A Design of cabinet of amalgam and separator
Sobotová, T.: Comparison of modern and conventional cladding methods in terms of material structure changes
Staňová, M.: Design methodology and work calibration of static torque
Sýkorová, T.: Milling of low rigidity components with a different number of milling cutter flutes
Šarmír, M.: Construction of molds for the production of moldings for horizontal injection molding machine
Šimo, Ľ.: Wear-out of boride cutting tools
Šmida, E.: Development engineering of selected operations in machining in INA Skalica
Špalek, R.: Modelling and design of die forgings and molds computer support
Šurinová, M.: Influence the location of scores into the mold cavity surface quality of castings cast method Tekcast
Šútovec, M.: Laser welding of Mg alloys to Al alloys
Tankovič, V.: Proposal of the clutch press disk industrial process
Tibenský, T.: Comparison of the quality surface in conventional and high speed turning
Tichý, L.: Production support for the introduction of the machine tool simulation in company Krivý s.r.o.
Urminský, J.: Friction Stir Welding of Magnesium Alloys
Vach, R.: Laser-structured surfaces
Velič, M.: Comparison of representative methods of roundness measurement
Viola, L.: Use of the program PowerMill and 5 axis machine tool Ultrasonic 20 linear in the manufacture of the chosen types of cutting tools
Virág, D.: Effect of process parameters on the final quality of component in car door panel
Zajac, J.: Wear in five-axis milling process
Závodný, M.: Optimization parameters of laser cutting
Zelník, R.: Software for simulation of machining
Zemko, M.: Simulation and subsequent verification of thermoplastic injection molding
Zifčák, M.: Experimental Verification of Dependency Rate of Al2O3 Broken off According to Cutting Edge Entering Angle
Zvonár, D.: Impact of Cutting Conditions on the Surface Roughness of AlMgSi Alloys
Žovinec, M.: Development engineering of chosen assembling workplace at company RF, s.r.o Malacky

PhD Theses

Balážová, M.: Research production technology of pipe from gradient half product
Benovič, M.: Proposition of the methodology for selection of assembly joints, technologies and systems
Blaško, M.: Design of injection mold cooling systems with aid of CAE tools
Grebe, M.: False brinelling - standstill marks at roller bearings
Chachula, M.: Interaction of active solders with silicon substrate using power ultrasound
Jančár, J.: Fatigue properties of weld joints of steel sheets treated by nitrooxidation
Michalec, I.: The laser weld bonding of thin sheets Šimma. V.: Machine parts classification in terms of their production on CNC machine tool
Vaňa, D.: The study and comparison of technological properties between plasma polishing in electrolyte and electropolishing of stainless steels
Závacká, A.: Lifetime of forming tools and possibilities of its increasing
Zelenay, M.: Durability and lifetime dies increasing at cold drawing of steel wires

Habilitation Theses

Hodúlová, Erika: Lead-free soldering in microelectronics. - Trnava: STU ib Bratislava MTF, 2013.

RESEARCH AT THE INSTITUTE

Areas of Research

- Production and measurement of complex-shaped surfaces,
- Laser and ultrasonic machining of difficult-to-machine materials,
- Numerical simulation and optimisation of sheet metal and bulk forming processes,
- Optimisation of CNC conventional metal spinning 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,
- Inoculation and modification of cast high-speed steels.

All important and original results are presented by 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, casting and welding.
The scientific directions are determined for the long-term and cover the production and technological aspects in the industry and education.
Key directions of scientific research activity at the Institute of Production Technologies are focused on supporting the development of individual science and educational branches. In the frame of the specific responsibility, the Institute ensures 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 layout of the projects is focused primarily on production technologies in co-operation with industry in relation to the actual global problems.

Areas of expertise

- 5-axis Machining
- Adhesive Joining of Materials
- Application of Cutting Fluids
- Application of Progressive Cutting Tools
- Art Casting
- CAD/CAM Systems
- Casting processes
- Computer Simulation
- Design for manufacturing and assembly
- Control of Quality in Welding
- Die Forging
- Engineering Metrology
- Formability of Materials
- Forming Machines and Tools
- Heat and Thermo-Chemical Treatments
- Laser Welding
- Machining
- Maintenance, Monitoring of Cutting Fluids
- Metrology
- Optical 3D Scanning
- Production of Steel Wires
- Programming of NC Machines
- Simulation processes in Forming
- Soldering
- Special Methods of Welding
- Stereology
- Surface Engineering
- Surfacing
- Technology of Forming
- Testing of Materials
- Tool Steels
- Tribology
- Welded Structures
- Welding

PROJECTS OF THE INSTITUTE

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 **Investigation of dynamic characteristics of the cutting process in 5 axis milling in context of 5 axis machining at the Centre of Excellence.**
Coordinator doc. Ing. Peter Pokorný, PhD.
Start Date 01/01/2011
End Date 31/12/2013
Programme VEGA
Annotation The project aims to explore the dynamic characteristics of the 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 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 ofstainless 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 doc. Ing. Štefan Václav, PhD.
Start Date 01/01/2012
End Date 31/12/2013
Programme VEGA
Annotation The project deals with the precision of cutting tools (drills and milling cutters) made by 5-axis CNC sharpening technology.
Researchers in this project 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 tool life by means of specific cutting entropy. The goal is 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 programs 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 doc. 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 phase's 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 doc. 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.

Project title **Research on the weld joints properties of duplex and superduplex steels**
Coordinator prof. Ing. Koloman Ulrich, PhD.
Start Date 01/10/2013
End Date 31/12/2016
Programme APVV
Annotation The project is focused on the basic research conditions and procedures for creating the weld joints by laser and electron beam in selected types of duplex stainless steels with a ferriticaustenitic structure. Concentrated energy sources, due to their flexibility allow for the immediate application of preheating before the welding process and postheating after the welding process using a defocused or rasterised beam, which provides great research potential. The weldability of duplex and superduplex steels, the structural analysis and the tests of mechanical properties, as well as corrosion properties will be investigated at particular stages of the project. All processes of the technological network participate in creating the final properties of the product. For this reason the experimental research programme will also cover the analysis of weld joints created from materials influenced by different types and levels of deformation, as well as the sheet forming of weld joints. A special focus will be devoted to finding the correlation between the crucial technological parameters of the process and the properties of the weld joint. The project has the aim to push the knowledge boundaries of the welding process of selected duplex stainless steels through the application of concentrated energy sources, such as laser and electron beam.

Project title **Research on new soldering alloys for fluxless soldering with the application of beam technologies and ultrasound**
Coordinator doc. Ing. Roman Koleňák, PhD.
Start Date 01/10/2013
End Date 31/05/2017
Programme APVV
Annotation The project is oriented towards the research of environmentally friendly solder alloys and conditions of soldering with progressive technologies. The designed and experimentally manufactured solders will be used for the soldering of metallic and ceramic materials at higher application temperatures. To ensure the wettability of ceramic and hardtosolder materials, the solders will be alloyed with active elements and metals from the group of lanthanides. The tests of technological solderability of ceramic and metallic materials will be performed through the use of new soldering alloys for fluxfree soldering, with the application of laser technologies, power ultrasound and electron beam. The structural characteristics of solders and soldered joints will be studied under different soldering conditions. Interactions in the boundary of joined material and the solder will be investigated. Qualitative criteria of solderability such as wettability, spreadability, diffusion and erosion will be determined at standard and extreme soldering conditions for research to investigate the application conditions of soldering. The shear strength of soldered joints fabricated in metallic and ceramic materials will be determined.

Project title **Study of environmentally-friendly binder as a biological base for moulding sands**
Coordinator Ing. Roland Šuba, PhD.
Start Date 01/01/2011
End Date 31/12/2013
Programme VEGA
Annotation Foundry personnel using conventional binders are exposed to numerous known carcinogens. The main aim of foundries is to achieve a decreased amount of toxic agents in the foundries air, by achieving the required mechanical properties of moulds and cores, the appropriate disintegrated properties after moulding and the regenerating of sand material. The nontoxic, biodegradable, water soluble binders with rapid thermal breakdown can help to meet and even exceed these requirements.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee
Belarus	prof. Ing. Alexander Čaus, DrSc.
Czech Republic	prof.Ing. Ivan Baránek, CSc.
	doc. Ing. Jozef Bílik, PhD.
	Ing. Ivan Buranský, PhD.
	doc. Ing. Augustín Görög, PhD.
	prof. Ing. Alexander Janáč, CSc.
	Ing. Martin Kováč, PhD.
	doc. Ing. Maroš Martinkovič, PhD.
	Ing. Ladislav Morovič, PhD.
	Ing. Martin Necpal, PhD.
	prof. Dr. Ing. Jozef Peterka
	doc. Ing. Peter Pokorný, PhD.
	Ing. Miroslav Sahul, PhD.
	Ing. Vladimír Šimna, PhD.
	prof. Ing. Peter Šugár, CSc.
	Ing. Jana Šugárová, PhD.
	doc. Ing. Viktor Tittel, CSc.
	prof.Ing. Milan Turňa, PhD.
	doc. Ing. Štefan Václav, PhD.
Croatia	doc. Ing. Maroš Martinkovič, PhD.
	prof. Dr. Ing. Jozef Peterka
Iran	prof. Dr. Ing. Jozef Peterka
Hungary	Ing. Ladislav Morovič, PhD.
	prof. Dr. Ing. Jozef Peterka
	doc. Ing. Peter Pokorný, PhD.
	Ing. Miroslav Sahul, PhD.
	Ing. Vladimír Šimna, PhD.
	prof. Ing. Peter Šugár, CSc.

Country	Employee
Germany	prof. Dr. Ing. Jozef Peterka
	prof. Ing. Ivan Baránek, CSc.
	Ing. Jozef Bárta, PhD.
	Ing. Matúš Beňo, PhD.
	Ing. Ivan Buranský, PhD.
	doc. Ing. Erika Hodúlová, PhD.
	prof. Ing. Alexander Janáč, CSc.
	Ing. Martin Kováč, PhD.
	prof. Ing. Milan Marônek, CSc.
	Ing. Martin Necpal, PhD.
	doc. Ing. Peter Pokorný, PhD.
	Ing. Miroslav Sahul, PhD.
	Ing. Vladimír Šimna, PhD.
	prof. Ing. Milan Turňa, PhD.
	prof. Ing. Koloman Ulrich, PhD.
	doc. Ing. Štefan Václav, PhD.
	Ing. Anna Závacká, PhD.
	Ing. Marek Zvončan, PhD.
Poland	Ing. Ladislav Morovič, PhD.
	prof. Ing. Peter Šugár, CSc.
	Ing. Jana Šugárová, PhD.
Austria	prof. Ing. Alexander Čaus, DrSc.
United Kingdom	prof. Ing. Alexander Čaus, DrSc.
	prof. Ing. Peter Šugár, CSc.
	Ing. Jana Šugárová, PhD.
Spain and Canaries	doc. Ing. Matej Beznák, CSc.
	prof. Ing. Alexander Čaus, DrSc.
	Ing. Roalnd Šuba, PhD.
Sweden	Ing. Ivan Buranský, PhD.
	doc. Ing. Štefan Václav, PhD.
Italy	Ing. Ingrid Kovaříková, PhD.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

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

Slovak Foundry Society
doc. 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.
prof. Ing. Peter Šugár, CSc.
prof. Ing. Milan Marônek, CSc.
doc. Ing. Jozef Bílik, PhD.
doc. Ing. Mária Kapustová, PhD.
doc. Ing. Roman Koleňák, PhD.
doc. Ing. Maroš Martinkovič, PhD.
doc. Ing. Viktor Tittel, CSc.
Ing. Róbert Sobota, PhD.
Ing. Jana Šugárová, PhD.

Slovak Maintenance Society
Ing. Svätopluk Mečiar, PhD.

Slovak Metrology Society
doc. 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
doc. Ing. Štefan Václav, PhD.
doc. Ing. Peter Pokorný, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

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

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

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

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

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

Trenie i Iznos (Friction and Wear)
prof. Ing. Alexander Čaus, DrSc.

PUBLICATIONS (most important publications in 2013)

List of publications contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Chaus, Alexander - Sojka, Jaroslav - Pokrovskij, A.I.: Effect of hot plastic deformation on microstructural changes in cast iron with globular graphite. – **registered in: Web of Science, Master Journal List, Scopus.** In: Physics of metals and metallography. - ISSN 0031-918X. - Vol. 114, Iss. 1 (2013), pp. 85-94

Chaus, Alexander - Dománková, Mária: Precipitation of Secondary Carbides in M2 High-Speed Steel Modified with Titanium diboride. - Vega 1/0413/13. - **registered in: Web of Science.** In: Journal of Materials Engineering and Performance. - ISSN 1059-9495. - Vol. 22, Iss. 5 (2013), pp. 1412-1420

Chaus, Alexander - Sojka, Jaroslav - Čaplovič, Ľubomír: Special features of the internal structure of globular graphite in high-strength cast iron. - **registered in: Web of Science, Master Journal List, Scopus.** In: Metal Science and Heat Treatment. - ISSN 0026-0673. - Vol. 55, Iss. 3-4 (2013), pp. 175-180

Koleňák, Roman - Augustin, Robert - Martinkovič, Maroš - Chachula, Michal: Comparison study of SAC405 and SAC405+0.1% Al lead free solders. - **registered in: Web of Science, Master Journal List.** In: Soldering and Surface Mount Technology. - ISSN 0954-0911. - Vol. 25, Iss. 3 (2013), pp. 175-183

Koleňák, Roman - Chachula, Michal: Characteristics and properties of Bi-11 Ag solder. - **registered in: Web of Science, Master Journal List, Scopus.** In: Soldering and Surface Mount Technology. - ISSN 0954-0911. - Vol. 25, Iss. 2 (2013), pp. 68-75

Koleňák, Roman - Martinkovič, Maroš - Koleňáková, Monika: Shear strength and DSC analysis of high-temperature solders. - **registered in: Web of Science, Master Journal List, Scopus.** In: Archives of Metallurgy and Materials. - ISSN 1733-3490. - ISSN 0860-7052. - Vol. 58, Iss. 2 (2013), pp. 529-533

Béger, Miroslav - Jurči, Peter - Grgač, Peter - Mečiar, Svätopluk - Kusý, Martin - Horník, Jakub: CrxNy coatings prepared by magnetron sputtering method. - **registered in: Web of Science, Master Journal List, Scopus.** In: Metallic materials. - ISSN 0023-432X. - Vol. 51, Iss. 1 (2013), pp. 1-10

Beňo, Matúš - Zvončan, Marek - Kováč, Martin - Peterka, Jozef: Circular interpolation and positioning accuracy deviation measurement on five axis machine tools with different structures. - ITMS 26220120045. - **registered in: Web of Science, Master Journal List, Scopus.** In: Tehnicki Vjesnik - Technical Gazette. - ISSN 1330-3651. - Vol. 20, No. 3 (2013), pp. 479-484

Chaus, Alexander - Beznák, Matej - Porubský, Ján - Sojka, Jaroslav: Effect of Austenitising Temperature on Microstructural Changes in High-Speed Steel of M2 Type Inoculated with Addition of WC Powder. - **registered in: Web of Science, Scopus.** In: Defect and Diffusion Forum. - ISSN 1012-0386 (E). - ISSN 1662-9507 (P). - Vol. 333 (2013), pp. 27-32

Koleňák, Roman - Provazník, Martin - Koleňáková, Monika: A comprehensive investigation of copper tube joints made by resistance soldering. - **registered in: Web of Science, Master Journal List, Scopus.** In: Tehnicki Vjesnik - Technical Gazette. - ISSN 1330-3651. - Vol. 20, No. 3 (2013), pp. 391-395

Koleňák, Roman: Research of brazeability of Al2O3 ceramics with glass brazing filler. - **registered in: Scopus.** In: Metalurgia International. - ISSN 1582-2214. - Vol. 18, No. 8 (2013), pp. 83-85

Koleňák, Roman - Chachula, Michal: Research of joining SiO2 ceramic material by use of active solder. - **registered in: Scopus.** In: Advanced Science Letterpp. - ISSN 1936-6612. - Vol. 19, No. 2 (2013), [5] p.

Koleňák, Roman - Prach, Michal: Research of soldering silicon substrate with solders type Sn-Ag-Ti. I- **registered in: Scopus.** In: Metalurgia International. - ISSN 1582-2214. - Vol. 18, Special Issue No. 8 (2013), pp. 260-264

Michalec, Ivan - Marônek, Milan: Adhesive bonding of aluminium alloy A5754 by epoxy resins. - **registered in: Scopus.** In: Acta Polytechnica. - ISSN 1210-2709. - Vol. 53, Iss. 4 (2013), pp. 371-374

Vrabec, Ján - Bajčičák, Martin - Beznák, Matej - Šuba, Roland: The influence of spin casting parameters on dimensional accuracy of castings cast into silicon moulds. - **registered in: Web of Science, Master Journal List, Scopus.** In: Tehnicki Vjesnik - Technical Gazette. - ISSN 1330-3651. - Vol. 20, No. 3 (2013), pp. 519-524

Bárta, Jozef - Bártová, Katarína - Schwarz, Ladislav - Krampoťák, Peter: Electron Beam Welding of Duplex Stainless Steel with Regulated Heat Input. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 811: The 2013 2nd International Conference on Mechanical Properties of Materials and Information Technology (ICMPMIT 2013), 17 - 19 August 2013, Hong Kong. - , 2013, pp. 163-168

Bárta, Jozef - Vrtochová, Tatiana - Krampoťák, Peter: The Shielding Gas Influence on the Laser Beam Welding of 2205 Duplex Stainles Steel. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 772: 2013 International Conference on Future Energy & Materials Research (FEMR 2013), 1 - 2 June 2013, Singapore. - , 2013, pp. 89-93

Bartoš, Rastislav - Görög, Augustín: Methodology of the Experiment for Determination of Parameter Ra for the Methods of Finishing Machining. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 423-426. - , 2013, pp. 871-875

Buranský, Ivan - Morovič, Ladislav - Peterka, Jozef: Application of Reverse Engineering for Redesigning and Manufacturing of a Printer Spare Part. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 690-693: The 4rd International Conference on Manufacturing Science and Engineering (ICMSE 2013), 30 - 31 March 2013, Dalian, China (2013), pp. 2708-2712

Gerulová, Kristína - Fiala, Jozef - Szabová, Zuzana - Buranská, Eva - Pauločíková, Petra - Bacigalová, Petra: Potential Utilization of OECD 302 B Test in Biodegradability Assessment of Metalworking Fluids. - ITMS: 26220120045. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 726-731: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 April 2013, Guilin, China (2013), pp. 2256-2259

Gerulová, Kristína - Buranská, Eva - Turňová, Zuzana - Fiala, Jozef: Preliminary Study of Utilizing Ozone in Treatment of Operationally Exhausted Metalworking Fluids. - ITMS 26220120045. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 690-693: The 4rd International Conference on Manufacturing Science and Engineering (ICMSE 2013), 30 - 31 March 2013, Dalian, China (2013), pp. 1117-1121

Kapustová, Mária: The New Methodology of Working Load Classification in Engineering Operations. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 664: 2012 International Conference on Environmental and Materials Engineering (EME 2012), Seoul Korea, 9 - 10 December 2012 (2013), pp. 1186-1190

Kapustová, Mária - Zvončan, Marek: The Research of Forgeability for Warm Temperatures Using Simulation. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 749: 2013 International Conference on Bio-Medical Materials and Engineering (ICBME 2013), 26 - 27 March 2013, Hong Kong, China. - , 2013, p.18-22

Kapustová, Mária: The Verification of Material Plastic Flow at Optimal Warm Forging Temperature Using Computer Simulation. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 421: 4th International Conference on Information Technology for Manufacturing Systems (ITMS 2013), 28 - 29 August 2013, Auckland, New Zealand. - , 2013, pp. 229-234

Koleňák, Roman - Prach, Michal: Joining Active Metals with Al2O3 by Use of Solders. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 664: 2012 International Conference on Environmental and Materials Engineering (EME 2012), Seoul Korea, 9 - 10 December 2012 (2013), pp. 667-671

Kovaříková rod. Sukubová, Ingrid - Hodúlová, Erika - Šimeková, Beáta - Šalgó, Kristián - Kmec, Martin: Study of Laser Cladded Layers Structure Applied in Practice. - **registered** in: Scopus. In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 404: The 2013 2nd International Symposium on Manufacturing Systems Engineering (ISMSE 2013), 27 - 29 July 2013, Singapore, Singapore. - , 2013, pp. 137-140

Pacurar, Razvan - Pacurar, Ancuta - Balc, Nicolae - Petrilak, Anna - Morovič, Ladislav: Estimating the Life-Cycle of the Medical Implants Made by SLM Titanium-Alloyed Materials Using the Finite Element Method. - **registered in: Scopus**. In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 371: International Conference on Innovative Manufacturing Engineering (IManE), May 23-24, 2013, Iasi, Romania. - , 2013. - ISBN 978-3-03785-786-1, pp. 478-482

Peterka, Jozef - Morovič, Ladislav - Pokorný, Peter - Kováč, Martin - Horňák, František: Optical 3D Scanning of Cutting Tools. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 421: 4th International Conference on Information Technology for Manufacturing Systems (ITMS 2013), 28 - 29 August 2013, Auckland, New Zealand. - , 2013, pp. 663-667

Ridzoň, Martin - Závacká, Anna: Effect of Drawing Tubes Without Interoperation Recrystallization Annealing on the Orientation of Boundaries Grain - longitudinal Direction. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 421: 4th International Conference on Information Technology for Manufacturing Systems (ITMS 2013), 28 - 29 August 2013, Auckland, New Zealand. - , 2013, pp. 329-333

Ridzoň, Martin - Bílik, Jozef - Závacká, Anna: Effect of Drawing Tubes Without Interoperation Recrystallization Annealing on the Orientation of Boundaries Grain - Orthogonal Direction. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 811: The 2013 2nd International Conference on Mechanical Properties of Materials and Information Technology (ICMPMIT 2013), 17 - 19 August 2013, Hong Kong. - , 2013, pp. 104-107

Samardžiová, Michaela - Pokorný, Peter - Zvončan, Marek: Influence of cutting parameters on achieved geometric tolerances in rotary ultrasonic drilling of Al2O3. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 303-306: 2012 International Conference on Sensors, Measurement and Intelligent Materials (ICSMIM 2012), 26 - 27 December 2012, Guilin, China (2013), pp. 2699-2703

Šimeková, Beáta - Kovaříková rod. Sukubová, Ingrid - Ulrich, Koloman: Microstructure and Properties of Plasma Arc Welding with Depth Penetration Keyhole SAF 2205 Duplex Stainless Steel. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 664: 2012 International Conference on Environmental and Materials Engineering (EME 2012), Seoul Korea, 9 - 10 December 2012 (2013), pp. 578-583

Šugár, Peter - Šugárová, Jana - Petrovič, Ján: Surface roughness analysis of metal spun parts. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 652-654: 3rd International Conference on Advances in Materials and Manufacturing Processes (ICAMMP´2012), 22 - 23 December 2012, Beihai, China (2013), pp. 2006-2009

Baránek, Ivan - Buranský, Ivan: Tool Logistics In The Centre Of Excellence Of 5-Axis Machining. - článok vyšiel v zborníku: CECOL 2012 [elektronický zdroj]: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 170-176

Kapustová, Mária - Šimeková, Beáta: The Importance of Forging Line Modernization for Material Flow in Drop Forge. - článok vyšiel v zborníku: CECOL 2012 [elektronický zdroj]: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [6]. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 141-146

Kovaříková rod. Sukubová, Ingrid - Kolenič, František - Hodúlová, Erika: Research of Laser Clad Properties with Globular WC in Abrasive Wear Resistance. - článok vyšiel v zborníku: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [5]. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 121-125

Ulrich, Koloman - Kovaříková rod. Sukubová, Ingrid - Šimeková, Beáta: Influence of Parameters of Plasma Welding on the Properties of Welded Joints of Duplex Stainless Steels in Mode with Deep Remelting. - článok vyšiel v zborníku: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [8]. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 69-74

This part of Annual Report 2013 was verified by prof. Ing. Milan Marônek, PhD.

CONTACT

Director prof.h.c. prof. Ing. Karol Velíšek, CSc.
e-mail: karol.velisek@stuba.sk
tel.: +421918646053

Address Rázusova 2, 917 24 Trnava, Slovak Republic
tel.: +421918646035,
fax: +421/33/5511601

INSTITUTE OF PRODUCTION SYSTEMS AND APPLIED MECHANICS

STAFF

- Professors: 1
- Assoc. Professors: 4
- Senior Lecturers: 14
- Research Fellows: 4
- PhD Students: 9

EDUCATION AT THE INSTITUTE

Number of students (at 30/10/2013) registered on study programmes offered by the Institute: 234
Number of students graduated in the acad. year 2012/2013 from the study programmes offered by the Institute: 65

Study programmes

- Production Devices and Systems

ACTIVITIES OF THE INSTITUTE

Date	Title of event or activity at the Institute in 2013
20–21/11/2013	Collective attendance at the ICME 2013 Conference organised by the World Academy of Science, Engineering and Technology in Cape Town (preparation and co-chairing a section – doc.Ing. Tibor Nánási)

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 acquired 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 opportunities 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

- 3D-modelling and verification of computer models
- Applied Mechanics
- Assembly Machines
- Bachelor's Project
- Bachelor's Thesis
- Computer Aided Design I, II, III
- Cutting Tools
- Design of Production Systems
- Diploma Thesis
- Dissertation project I-VI
- 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
- Mechatronic systems
- Modelling of Thermal Processes
- Noise and Vibration
- Pedagogic activities I-VI
- Performance of Production Systems
- Production Devices
- Production Systems I
- Professional Practice
- Programming of Production and Manipulating Devices
- Reliability and Safety of Technical Systems
- Research paper I-VII
- Technological Process Modelling and Simulation
- Theory of Automatic Machines
- Theory of Systems and Automatic Machines

GRADUATE THESES

List of theses contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Master's Theses
Bambei, M.: Effective solution of material flows, collection, transport and storage of products after the packaging lines
Bartek, J.: The proposal of intelligent handling gripper head GR_5465 to company ESCAD Slovakia s.r.o.
Bordánová, M.: Making the machines of assembly line for production of complete clutch discs more efficient in ZF Sachs Slovakia a.s.
Daniš, K.: Methodological proposal of sensoric equipment procedure guidelines for a rack storage system
Dobrovodský, M.: Design of automated equipment for the expansion of the painting line in the company Hardwood
Filípek, J.: Check for the presence of symbols marking electrical and pressure tests at the outlet of the DAF 10170 headlamp assembly line
Füleová, M.: Innovation of production line in the food industry in the firm Kadlec
Hanečka, M.: Specification component base for lathe EMCO Concept TURN 105
Hyroš, M.: Project of the electrodrives control
Jančí, R.: Determination of sliding couple friction factor depending of dimension and course of loading force
Kaštýl, M.: Proposal methodology of creating NC programs in CATIA
Kmeť, M.: Design process control assembly - disassembly realized on "Pick and Place" manipulator
Kocian, M.: Design of the logic tasks by using PLC Mitsubishi Alpha XL
Kopšo, R.: The introduction of pallet stacker for improving the storage and material flow in the welding shop company MATADOR Industries, Inc
Kšinantová, T.: Simplification of the Device for Assembling the Rear Axles in Order to Increase Its Reliability
Kubík, I.: Optimalization of the compressors assembly in the company EKOM, et.al. Ltd.
Kucharovičová, J.: Innovation of the layout solution of the storage and material flow
Lešnof, I.: The design of the handling equipment to components supply to the conveyor
Lukačovič, A.: Increasing the back rear production reliability at the welding hall in the PSA Slovakia Trnava
Marko, J.: The production system of the parts of luminaires for the prototype, low volume and small series production
Miklošovič, L.: Proposal of methodical procedure for creating of NC programs for rotating components in Catia environment
Nemčic, M.: Design of an automatic shelf stacking machine of wheel-set
Papiernik, M.: Draft a systematic process of drafting sensory equipment for palletization workplace
Pupák, M.: The draft of the automatic filter equipment for cooler of an embedded generator circuit of the steam turbine 220 MW in EMO Mochovce
Steinhauser, J.: Detection of objects and movement control the robot BIOLOID
Suchánek, J.: Design and technical support for implementation of specific assembly equipment on rear backrest assembly line
Šivová, M.: Proposal of Automation acid for winding the Coils
Španielka, M.: Impact of milling process on the modal properties of thin-walled planar board
Štefunko, T.: Design of component´s transport system within balling station by industrial robot IRB -120
Tóth, D.: Numerical analysis of stress - strain state at ultrasonic drilling
Trokan, T.: Design of expedition handler from depalletising workplace
Valovičová, J.: Simulation reliability and availability of production lines
Veselovský, V.: Proposal hydraulic system for managing change angle adjustment air propeler
Vlha, L.: Modernization and functionality improvement of coating line in PCA Slovakia, s.r.o Trnava
Volner, M.: Projection of design pneumatic and electropneumatic actuators
Vozár, E.: Creating parametric model using catia V5
Záhora, S.: Design of the station for testing of the assembled product
Župíková, Z.: Design of methodical procedure of mounting robot sensory equipment

PhD Theses
Šebeňová, S.: The methodology of design and selection of sensory equipment in intelligent assembly cell
Zuzicová, K.: Designing and planning of material flow in the production system

RESEARCH AT THE INSTITUTE

Areas of Research

- intelligent workpiece clamping,
- intelligent assembly,
- intelligent assembly systems,
- thematic network on manufacturing technologies,
- new concepts of integrated multifunction manufacturing system,
- modelling, 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 modelling 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,
- Modelling, 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 media,
- Mechanical, thermal, fluid and other analyses for mechanical parts of machine and structures,
- Modelling, numerical simulations, analyses and optimisation for processes of forming, welding, casting and heat treatment.

At the Institute, the following laboratories are currently in operation: Laboratory of flexible manufacturing systems with robotised manipulation supported by drawing - free production, 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 joint Laboratory of Thermophysical Measurement and Computation.

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 expertise

- Acoustics and Vibration of Mechanical Systems
- Automation of Production and Assembly
- Numerical Analysis and Simulation of Technological Processes
- Industrial Heating
- Structural Analyses in the Area of Nuclear Energy
- Thermal Analyses, Measurement of Thermophysical Properties
- Production Technology
- Production Systems

PROJECTS OF THE INSTITUTE

Project title	**Analysis of nonequilibrium thermal, metallurgical and stressstrain processes in production technologies involving rapid cooling and solidification of metallic materials.**
Coordinator	doc. RNDr. Mária Behúlová, CSc.
Start Date	01/01/2011
End Date	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 aluminium.

Project title **Application of innovative layers and coatings for reconstruction of tribologicaly loaded surfaces.**
Coordinator Ing. Eva Labašová, PhD.
Start Date 01/01/2011
End Date 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 **Numerical, symbolic and experimental analysis of nonconservative mechanical systems**
Coordinator Ing. Tibor Nánási, CSc.
Start Date 01/01/2011
End Date 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 doc. Ing. Peter Košťál, PhD.
Start Date 01/01/2012
End Date 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. Realisation and utilisation of this design paradigm as an "intelligent assembly system" enables the flexible system to react to the production requirements as soon as the environment changes. Results of these flexible reactions are a smaller layout space through decreasing the production and investment costs and by increasing productivity.

Project title **Analysis of the combined formation of laser weld joints of titanium and aluminium alloys using numerical simulation.**
Coordinator Ing. Eva Babalová, PhD.
Start Date 15/02/2013
End Date 31/12/2013
Programme Programme to support young researchers
Annotation The project is focused on numerical simulation and analysis of the welding processes of titanium and aluminium alloys under different technological conditions. The main aim of the project is the development of a simulation model for laser welding of combined materials including the design of alternative geometries of welded joints, definition of the nonlinear temperature-dependent material models established by measuring the thermophysical and mechanical properties of welded materials, as well as the determination of boundary conditions and loads focused on the optimisation of the model for the laser heat source and the whole process of laser welding. The project includes also the realisation of welding experiments, the production of experimental combinations of welded joints of titanium-aluminium alloy and the metallographic analysis and assessment of the welds quality.

Project title **Research into the possibilities for increasing the efficiency of assembly in the intelligent assembly cell**
Coordinator Ing. Radovan Holubek, PhD.
Start Date 15/02/2013
End Date 31/12/2013
Programme Programme to support young researchers
Annotation The project is focused on the visualisation of the assembly process in real time in the Intelligent Assembly Cell. The Intelligent assembly cell concept includes proposed new solutions to create structures of assembly systems. It is the developed design of an assembly system under the project of an intelligent assembly cell at the Institute of Production Systems and Applied Mechanics. After running the process and debugging, the process analysis was evaluated and it is necessary to then increase the efficiency of the cell. Deployment of monitoring, visualisation and simulation are predicted defects that reduce the overall system effectiveness. The project aims to develop an efficient intelligent manufacturing system integrating real time data collection, simulation, optimisation and synthesis. The analysis carried out at the beginning of project solution, was chosen as a suitable tool to increase the efficiency of the visualisation for assembly processes in the IAC. During the assembly process, on the visualisation panel, we can verify and compare the current position of each arm of the Cartesian robot, and the used tool or gripper.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee
Bosnia and Herzegovina	Ing. Radovan Holubek, PhD. prof.h.c. prof. Ing. Karol Velíšek, CSc.
Czech Republic	Ing. Eva Babalová, PhD. doc. RNDr. Mária Behúlová, CSc. Ing. Delgado Sobrino Daynier Rolando Ing. Martina Kusá Ing. Miriam Matúšová, PhD. prof.h.c. prof. Ing. Karol Velíšek, CSc.
Denmark	Ing. Delgado Sobrino Daynier Rolando
France	Ing. Roman Ružarovský, PhD.
Croatia	Ing. Roman Ružarovský, PhD.
South Africa	Ing. Rastislav Ďuriš, PhD. doc. Ing. Milan Nad', CSc. Ing. Tibor Nánási, CSc. prof.h.c. prof. Ing. Karol Velíšek, CSc
Hungary	doc. Ing. Peter Košťál, PhD. Ing. Eva Labašová, PhD.
Germany	Ing. Roman Ružarovský, PhD. prof.h.c. prof. Ing. Karol Velíšek, CSc.
Romania	doc. Ing. Peter Košťál, PhD. doc. Ing. František Pecháček, PhD. prof.h.c. prof. Ing. Karol Velíšek, CSc.
Serbia	doc. Ing. František Pecháček, PhD.
Špain and The Canary Islands	Ing. Miriam Matúšová, PhD. Ing. Jarmila Oravcová, PhD.
Świtzerland	Ing. Radovan Holubek, PhD.
Italy	doc. RNDr. Mária Behúlová, CSc.
Thailand	doc. Ing. Milan Nad', CSc. Ing. Tibor Nánási, CSc.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

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

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

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

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

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

Technical Commission 81 SÚTN Bratislava
doc. Ing. Bohumil Taraba, PhD.

Technical Commission 57 SÚTN Bratislava
doc. Ing. Bohumil Taraba, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

Society of Machining and Machine Tools
prof. h. c. prof. Ing. Karol Velíšek, CSc.
doc. Ing. Peter Košťál, PhD.
doc. Ing. František Pecháček, PhD.
Ing. Marcela Bučányová, PhD.

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

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

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

European Acoustical Association
Ing. Tibor Nánasi, PhD.
doc. Ing. Milan Nad', PhD.

Central Europe Association for Computational Mechanics
Ing. Tibor Nánasi, PhD.
doc. Ing. Milan Nad', PhD.
Ing. Rastislav Ďuriš, PhD.

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

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

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

PUBLICATIONS (most important publications in 2013)

List of publications contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Balog, M. - Yu, P. - Qian, M. - Behúlová, Mária - Švec, P. - Čička, Roman: Nanoscaled Al-AlN composites consolidated by equal channel angular pressing (ECAP) of partially in situ nitrided Al powder. – **registered in: Web of Science, Master Journal List, Scopus.** In: Materials Science and Engineering A. Structural Materials. Properties, Microstructure and Processing. - ISSN 0921-5093. - Vol. 562 (2013), pp. 190-195

Delgado Sobrino, Daynier Rolando - Velíšek, Karol: On the initial design and analysis of the material flow at an intelligent manufacturing cell: Benefits of the use of simulation. - **registered in: Scopus.** In: Advanced Science Letters. - ISSN 1936-6612. - Vol. 19, No. 3 (2013), pp. 903-907

Holubek, Radovan - Košťál, Peter: The intelligent manufacturing systems. - **registered in: Scopus.** In: Advanced Science Letters. - ISSN 1936-6612. - Vol. 19, No. 3 (2013), pp. 972-975

Čambál, Miloš - Cagáňová, Dagmar - Delgado Sobrino, Daynier Rolando - Košťál, Peter: Developing of Organisational Culture as a Presumption of Industrial Enterprise Performance Optimization. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 734-737: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 April 2013, Guilin, China. - , 2013, pp. 3348-3351

Danišová, Nina - Ružarovský, Roman - Velíšek, Karol: Designing of Intelligent Manufacturing Assembly Cell By Moduls of System Catia and E-learning Module Creation. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 628: 2012 International Conference on Manufacturing Engineering and Technology for Manufacturing Growth, METMG 2012, San Diego 1 - 2 November 2012 (2013). - ISBN 978-303785570-6, pp. 283-286

Holubek, Radovan - Velíšek, Karol: Incorporation, programming and use of an ABB robot for the operations of palletizing and depalletizing at an academic-research oriented to Intelligent manufacturing cell. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 282: 11th International Conference Industrial, Service and Humanoid Robotics, ROBTEP 2012; Strbske Pleso, High Tatras;14-16 November 2012 (2013), pp. 127-132

Holubek, Radovan - Ružarovský, Roman - Velíšek, Karol: New Approach in Design of Automated Assembly Station for Disassembly Process. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 421: 4th International Conference on Information Technology for Manufacturing Systems (ITMS 2013), 28 - 29 August 2013, Auckland, New Zealand. - , 2013, pp. 595-600

Holubek, Radovan - Ružarovský, Roman - Velíšek, Karol: The Possibilities of the Communication Methods of iCIM 3000 System and Their Main Functions. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 421: 4th International Conference on Information Technology for Manufacturing Systems (ITMS 2013), 28 - 29 August 2013, Auckland, New Zealand. - , 2013, pp. 585-590

Jirková, Hana - Aisman, D - Sen, I. - Wagner, Martin F.-X - Behúlová, Mária - Kusý, Martin - Mašek, Bohuslav: Mini-thixoforming of a Steel Produced by Powder Metallurgy. - **registered in: Web of Science, Scopus.** In: Solid State Phenomena. - ISSN 1012-0394. - Vol. 192-193: 12th International Conference on Semi-Solid Processing of Alloys and Composites (2013), pp. 500-505

Ružarovský, Roman - Danišová, Nina - Velíšek, Karol: Sensory System Design as an Implement for the Development of the Intelligent Assembly Cell. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 628: 2012 International Conference on Manufacturing Engineering and Technology for Manufacturing Growth, METMG 2012, San Diego 1 - 2 November 2012 (2013). - ISBN 978-303785570-6, pp. 287-291

Šebeňová, Silvia - Šimúnová, Michala - Velíšek, Karol: Selection of the appropriate type of sensory equipment. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 365-366: The 2nd International Conference on Machine Design and Manufacturing Engineering (ICMDME 2013). - , 2013, pp. 672-675

Šebeňová, Silvia - Šimúnová, Michala - Velíšek, Karol: The hardware devices in the workspace of Intelligent Assembly Cell. - **registered in: Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 365-366: The 2nd International Conference on Machine Design and Manufacturing Engineering (ICMDME 2013). - , 2013, pp. 684-687

Danišová, Nina - Ružarovský, Roman - Velíšek, Karol: Design of Camera System Location at the Station for Loading and Orientation. - článok vyšiel v zborníku: CECOL 2012 [elektronický zdroj]: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [8]. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 27-34

Delgado Sobrino, Daynier Rolando - Košťál, Peter - Cagáňová, Dagmar - Čambál, Miloš: On the Possibilities of Intelligence Implementation in Manufacturing: the Role of Simulation. -: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [9]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 96-104

Ďuriš, Rastislav - Labašová, Eva: Experimental determination of the coefficient of friction in rotational sliding joint. - CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [5]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 50-54

Holubek, Radovan - Delgado Sobrino, Daynier Rolando - Košťál, Peter - Oravcová, Jarmila: Incorporation, Programming and Use of an ABB Robot for the Operations of Palletizing and Despalletizing at an Academic-research Oriented Intelligent Manufacturing Cell. - CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [7]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 62-68

Javorová, Angela - Kusá, Martina - Matúšová, Miriam: Flexible Assembly Cell Optimization by Operational Analysis. - CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [7]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 55-61

Naď, Milan - Čičmancová, Lenka: Effect of Shape Parameters on the Modal Properties of Stepped Ultrasonic Concentrator. - CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [7]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 43-49

Nánási, Tibor: Availability and Productivity of Simple Production Chains. - článok vyšiel v zborníku: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [8]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 12-19

Oravcová, Jarmila - Košťál, Peter - Delgado Sobrino, Daynier Rolando - Holubek, Radovan: Clamping Fixture Design Methodology for the Proper Workpiece Insertion. - článok vyšiel v zborníku: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [7]. - **registered in (2013: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 20-26

Riečičiarová, Eva - Nánási, Tibor: Representation of Asynchronous Motor Dynamics by Generalized Kloss Characteristics. - článok vyšiel v zborníku: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [8]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 113-120

Ružarovský, Roman - Danišová, Nina - Velíšek, Karol: Application of assembly system partial units for the development of intelligent assembly cell. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 3-11

Šebeňová, Silvia - Danišová, Nina - Velíšek, Karol: The Writing Principle of Activity of Individual Devices in Intelligent Production Systems. - CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [7]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 147-153

Naď, Milan: Vibration Analysis of Beams with Reinforcing and Damping Cores. Proceedings of the 20th International Congress on Sound and Vibration - ICSV20, Bangkok, Thailand, 2013, International Institute of Acoustics and Vibration, ISBN 978-616-551-682-2.

Nánási, Tibor: Effect of Boundary Conditions on Vibration Localization of Two-Span Beams. Proceedings of the 20th International Congress on Sound and Vibration - ICSV20, Bangkok, Thailand, 2013, International Institute of Acoustics and Vibration, ISBN 978-616-551-682-2.

Nánási, Tibor, Naď, Milan, Ďuriš, Rastislav: Modification of Dynamical Properties of Structural Elements Using Restraining Layers. World Academy of Science, Engineering and Technology, Cape Town, RSA, Vol. 83, 2013, pp. 1017-1023, ISSN 2010-376X.

Nánási, Tibor - Naď, Milan: Selfadjoint and Non-Selfadjoint Boundary Conditions of a Bar in Compression and Torsion. World Academy of Science, Engineering and Technology, Cape Town, RSA, Vol. 83, 2013, pp. 1005-1009, ISSN 2010-376X.

Danišová, Nina - Šimúnová, Michala - Velíšek, Karol: Intelligent assembly process description via algorithms and evolution diagrams. In: World Academy of Science, Engineering and Technology Cape Town, RSA, ISSN 2010-376X. - Iss. 83 (2013), pp. 958-962

This part of Annual Report 2013 was verified by prof. h. c. prof. Ing. Karol Velíšek, CSc.

CONTACT

Director doc. Ing. Pavol Tanuška, PhD.
e-mail: pavol.tanuska@stuba.sk
tel.: +421918646061

Address Hajdóczyho 1, 917 24 Trnava, Slovak Republic
tel.: +421918646021

INSTITUTE OF APPLIED INFORMATICS, AUTOMATION AND MATHEMATICS

STAFF

- Professors: 6
- assoc. Professors: 8
- Senior Lecturers: 18
- Research Fellows: 4
- PhD Students: 28

EDUCATION AT THE INSTITUTE

Number of students (at 30/10/2013) registered on study programmes offered by the Institute: 500
Number of students graduated in the acad. year 2012/2013 from the study programmes offered by the Institute: 187

Study programmes

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

ACTIVITIES OF THE INSTITUTE

Date	Title of event or activity at the Institute in 2013
May 2013	Lecture on "Testing software". Presenter: Ing. Roman Nagy, PhD., expert on software architecture and software development in the Research and Development division of BMW automotive (Munich, Germany).
July 2013	Sports day of UIAM employees
October 2013	Lecture on "Process control in production systems". Presenter: Ing. Vladimír Šurka of Tempest s.r.o.
November 2013	Lecture on "Storing materials in production systems". Presenter: Ing. Rudolf Dugovič, packaging specialist in IKEA Components s.r.o.
November 2013	Lecture on "IS design by using PHP". Presenter: Ing. Dušan Daniška of WAI s.r.o.
November 2013	Lecture on "Business intelligence technology and its application in the area of corporate information systems". Presenter: Ľubomír Goryl of Solution Professional Microsoft Slovakia
November 2013	Lecture on "Safety systems". Presenter: Ing. Marián Filka of Siemens s.r.o.

GRADUATE PROFILE

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

GRADUATE THESES

List of theses contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Master's Theses

Ambra, M.: 3D visualization of the kinematics robotic arm controlled by PLC systems
Bago, M.: Design and implementation of information system for production companies
Bajan, P.: Program editor for Elesta controllers
Ballová, K.: Possibilities of using contactless smart cards and system design with their uses
Baxa, D.: Design and implementation of data network for small business
Belaň, M.: Web module for on-line support
Berner, D.: Design of an information system to support a testing process
Boháčik, M.: Design of a solar system for water heating
Boros, Á. Safety analysis of the dynamical system using the SQMD method
Boťánek, T.: The impact of parents on the convergence of genetic algorithm
Broniš, M.: Using dialogue systems Technologies
Brunovský, F.: Evaluation of strategies of managing production
Bugár, L.: Web CMS system using the jQuery API to support the work of the quality department
Bunček, R.: Simulation of Plastic Window Production
Celláryová, M.: Generating online examination system questions
Cepko, I.: Automation of the packing machine by PLC system
Cibrín, M.: Intelligent system security and administration building
Čiffary, T.: Design and creation of airsoft weapon models with the help of 3D modeling softwares
Čunderlík, P.: Draft Module Information System for Data Visualization
Debrecký, A.: Design of information system for the company Form Engineering
Dubská, K.: Proposal and realisation Helpdesk
Dúha, I.: Proposal of security system for smart home
Duchoňová, Z.: Design and implementation of an information system of pharmacy
Duchovičová, S.: Creating a mobile application for tracking personal expenses
Gaboň, J.: Design and realisation of system for control and evidence of software testing
Gallia, M.: Design of the information system for company FM Logistic
Gallo, J.: Microprocessor-controlled device for non-contact measurement of revolutions
Glatz, M.: Creating an information system
Hájek, T.: Comparison of numerical methods for systems of ordinary differential equations with initial condition
Hajka, L.: Utilizing motion capture technology for faceplay reconstruction
Hajka, T.: Creation of a 3D robotic arm model controllable in real-time
Hanko, T.: The building evacuation control regarding of switching devices
Hanzel, M.: Safety analyse of dynamical system by situation based qualitative monitoring and diagnosis method
Hodál, M.: The preparation of the graphic model and its simulation run
Holík, J.: Design control system for gas-biomass boiler room
Hopka, P.: Interactive 3D scene simulation using GPU and CUDA
Horňák, M.: Creating an electronic textbook
Horváth, R.: The proposal information system of Radiation Protection
Horváth, T.: Integration security service and its application in practice
Hrčka, L.: Internet portal exploitable for the municipal government
Chamula, Š. Improve the production of interior fireplaces using simulation
Chytil, M.: Controlling programme for a manipulator with a connection to an external application
Ištván, J.: The professional of management the intelligent house
Ivaniš, Ľ.: Control and visualization of a welding cell
Jamrich, M.: Interactive design and evaluation of tests
Jamrichová, Ľ.: The system design for optimization of inventory levels
Jankto, M.: Information system design for interlocking pavers manufacturing
Kačinec, P.: Mobile application FUTBALNET for iOS
Kapralik, R.: Automation of the draft of a model assembly via VBA interface
Kicsindi, T.: Complex solution of a robot for samples colouring
Kimlička, O.: Design of information system for complementary teacher training
Kmeť, M.: Comparing numerical methods for system ordinary differential equations with initial condition
Kocian, P.: Making of reporting system for SAP
Koprda, D.: Simulation study of optimal achievement of production targets
Kordoš, M.: Design and implementation of controlling robotic conveyor
Kováč, R.: PLC based G code interpreter for the two axis slide
Kozáček, M.: Improving the parameters of the production system using simulation
Krajná, Z.: Optimizing the number of traffic lanes and trucks between production halls
Krempa, M.: System control process for hardening lines at INA Skalica s r.o
Krchňavý, E.: PWM control of lift model by the PLC
Krivošík, M.: Pulse multiplier of rotary incremental encoder IRC
Krivošík, T.: Access monitoring and interpreting system of protected premises
Kropáček, A.: The security of the corporate network
Krúpa, M.: Modelling object grasping using neural networks in robotic simulator iCub
Krutý, Ľ.: Proposal of regulation of heating and heating of TUV with several heating sources
Kubovič, M.: Proposal of information system for the company STSZ, a.s.
Kučera, Š. PLC controlled two axis slide
Kudlík, M.: Simulation study of shoe manufacturing
Lancz, R.: Optimization of selected production targets
Loboda, O.: Creating a model and implementation of an operative program for S7 -300
Lukovičová, L.: Design of an information system for the company SLONline, Ltd.
Lupták, P.: Design of an information system for industrial use
Macošiar, J.: Design a method to determine the optimal size of manufacturing batch
Madžo, L.: Realisation of information system for elementary school
Mahaj, M.: Authentication module for presence online exam system
Majerník, T.: Dialogue system ELIZA
Malovcová, L.: Proposal of the information system in the process of purchasing logistics
Marko, Š. Implementing Windows Phone application with data synchronization in Windows Azure
Marková, N.: Design of information system for the company Armont, p. r. a.
Mašek, V.: Design control of the house with the help of wiring "PLC Tecomat Foxtrot"
Medveď, M.: Vectorization of digitized technical drawings
Melišek, P.: Design of information system for the distribution oranization
Mihálik, R.: A Design and operation of an automatic robot unit for gluing of reinforcement
Mikuláš, P.: Comparison of methods for calculating the size of the batch
Morvajov, M.: Design and implementation of information system for the manufacturing corporation
Motola, J.: Control system for smart house
Németh, M.: Design and implementation of application for controlling house via smart device
Nyigri, N.: Creation and Implementation of Control Program for Workstation with S7-1200
Očkovský, M.: Adapting of transformation framework for use in WENUS I information system
Ondroušek, M.: Proposal applications in a web environment (Module requirements for schedule)
Orihelová, K.: Simulation of the production line Hyundai, Kia in ZF BOGE Elastmetall Slovakia a.s.
Ottahel, P.: Design of information system for a logistics company
Pápay, P.: Design and implementation of control system for postharvest line using PLC
Peško, D.: Suggestion and implementation of control unit intended for buildings control
Peterková, A.: Design and implementation of software for learning house
Pohančaník, R.: A proposal of variants in the pipes production in the metallurgical industry
Rechorík, R.: Proposal of application in WEB world (module of degree examinations)
Rumanovský, J.: Proposal of enterprise data network
Sabo, M.: Web CMS using jQuery API
Sasák, M.: The use of simulation optimization to determine the optimal production batch
Sekerka, R.: Project and execution control program for PLC S7-200
Sláma, M.: Effect of selected parameters to achieve optimal production targets
Sláviková, A.: Implementation of automation lines for assembly components
Slovák, F.: Realization of security analysis using SQMD method for dynamical system of washing machine
Sluka, R.: The design of test scenarios for testing of toll system
Sobotovič, L.: Active components increasing the safety of vehicles and transport
Spusta, M.: Graphic superstructure system for security control panel
Srapko, M.: Design and realization of the additional learning tools for university course INRS (Engineering and design of control systems)
Stanová, K.: Comparison of numerical methods for systems of ordinary differential equations with initial condition
Suchý, Ľ.: Create an electronic tutorial
Šándor, M.: Design and implementation of web interface for remote control of intelligent house
Šárik, M.: Development of application for configuration the teledosimetrical system (TDS)
Škodová, J.: Solving the problem of supply manufacturing by simulation
Škvarka, A.: Special techniques of data transmission in computer networks

Šteruský, Ľ.: The Construction of the WiFi Network and the Influence of Parameters on their Quality
Štíca, M.: The realization of safety analysis by using the THERP and SQMD methods for the dynamic system of washing machine
Švec, J.: Knowledge discovery in databases and their use in industrial area
Tibenský, M.: Simulation of Pretreatment Line in ZF BOGE Elastmetall Slovakia a.s.
Turoň, Š. Comparative study of methods for defining optimal size of production amount
Urban, J.: Design and realisation of an NFC-based Mobile Payment System
Váňa, J.: Design of system for project management
Večera, P.: Implementation of control system for gas assembly center
Végh, O.: Design of an Automated System for the Danube Level Forecast
Wagner, A.: Design of information system for InPro-electric
Wágner, M.: The implementation of the control program for the PLC VIPA 300V and related visualization for operator panel
Zajonc, V.: Design of information system for engineering company
Zastko, K.: Calibration of digital camera in Matlab and Photomodeller
Zlámala, F.: Design and realization of the management of a fish breeding station using microcomputer AVR ATmega Board

PhD Theses

Gabriška, D.: Analysis and design the restrictions algorithms of information control of dynamic systems
Hagara, I.: Transforming of heterogeneous data into data warehouses and their use in the process control
Jurovatá, D.: Knowledge discovery for planning and control of production processes
Kňažík, M.: Increasing the efficiency of balancing automated assembly processes for the automotive industry
Maňková, I.: Analysis and numerical modelling of dynamical systems with high-speed feedback
Skripčák, T.: Utilisation of interactive virtual reality in technological process control visualisation

RESEARCH AT THE INSTITUTE

Areas of Research

- Technology and manufacturing processes control
  Guarantor: prof. Moravčík, doc. Schreiber
- Safety critical control systems
  Guarantor: prof. Gese
- Controlling dynamic systems with rapid feedback
  Guarantor: doc. Vrábeľ, doc. Michaľčonok
- Acquiring knowledge of production databases in hierarchical process control
  Guarantor: doc. Tanuška
- Design of methodology for testing RS software
  Guarantor: prof. Mudrončík
- Simulation and optimisation of processes and systems
  Guarantor: doc. Važan

Research characteristics

Research at the Institute is focused on the informatisation and automation of control processes on all levels of industrial production, meaning control, 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 modelling 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 expertise:

- Automation and Control of Processes
- Modelling and Simulation of Systems
- Software Engineering and Information Systems

PROJECTS OF THE INSTITUTE

Name of the project **Project IPID**
Duration of project 01/2011 - 12/2014
Programme DAAAD - The German Academic Exchange Service
Annotation Within the IPID programme, doctoral students of both universities (TU Ilmenau, Germany and STU MTF) have the chance to participate in mobility at the partner university. The programme aim is to enable both domestic and foreign doctoral students to acquire a multi-national dissertation, thus educating high-quality young researchers for both Slovakia and Germany, and establishing scientific co-operation between the two countries.
The programme involves two activities:
Fulfilling the partial objective of the "Autonomy microsystems for biosensorics" project.
The project aim is to examine and design modern technologies for microtechnologically constructed biosensors which are independent in terms of power and able to communicate with each other in local networks, transferrable and implantable into a human organism. The intention is strongly interdisciplinary, and therefore structured to various branches and faculties.
Multi-national network of PhD students.
The programme simultaneously supports the establishment of a multi-national network for PhD students' education which would enable the exchange and mobility of PhD students and support the perspective of multi-national study programmes and double doctoral degrees.

Name of the project **Workplace: Automation and ICT Implementation of Production Processes and Systems – University Scientific Park**
ITMS of project 26220220179
Duration of project 03/2013 - 06/2015
Operational programme Research and development
Annotation The aim of the project is to build a modern and unique university integrated scientific park and to prepare highly-qualified operative staff for it, to train management for the needs of the regional and the whole country as well as central-European large industrial enterprises in the transfer of the application science results directly into practice.
After the project implementation, CAMPUS MTF STU University Scientific Park will possess a research workplace of Automation and ICT Implementation of Production Processes and Systems with several specialised research laboratories forming the core of the related part of the University Scientific Park, oriented on the development of the control and information technologies. The specified part of the University Scientific Park, i.e. Automation and ICT Implementation of Production Processes and Systems, is in compliance with the intention of the governmental research and technology policy and the Strategy for Europe 2020.
The Park and its laboratories will form a fundamental pillar of the research and development infrastructure in accordance with the University system priority to support the transfer of research and development results into practice, currently preferably in the region and the following geographical expansion.
URP will deal with the research and development projects within the defined research areas, while using progressive technologies of implementation.

Name of the project **Implementation of the internal system of quality assurance in education**
ITMS of project 26110230042
Duration of project 01/2012 - 12/2013
Operational programme OPV – 01- 02/02/2010 -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.

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
End Date 01/01/2015
Programme KEGA
Annotation Laser confocal microscopy (LCM) is gradually taking place in many workplaces in Slovakia despite the undisputed financial costliness. Particularly biological science divisions appear to be the core area, where the representation of the LCM grows faster. In contrast the episcopic illumination system typical for metallurgical applications systems is limited and currently there are two devices in Slovakia and they may be still considered as unique. The advantage of laser confocal microscopy compared to conventional light microscopy is in the markedly increased depth of sharpness, which at a magnification of 100x is up to the value of 10 mm. However, this benefit is achieved with a substantial timeconsumption of scanning and subsequent need for robust image processing software tools. Complexity, robustness and effort on the universality of commercial instruments have resulted in difficulty satisfying the specific application requirements.

Project Title **Study of flexible mechatronics system variable parameters influence on its control**
Coordinator Dr.h.c. prof. Dr. Ing. Oliver Moravčík
Start date 01.01.2013
End Date 31.12.2015
Programme VEGA
Annotation Within the context of using new flexible materials and derated mechanism constructions in the mechatronics systems, presently a large focus is dedicated to the elimination of spurious frequencies in drives and motional mechanisms in research. Because of the extensity of this issue this project deals with the elected type of mechatronics system only. The basic aim of adaptive control in this type of system is to eliminate ineligible influences. The proposed project is focused on:
Physical and mathematical analysis of parameters influencing control;
Design and verification of chosen advanced control methods;
Investigation of sensitivity and robustness of the solution.
The basic objective of the project is to design in an appropriate manner the flexible mechatronics system adaptive control.

Project Title **Elaboration of interactive multimedia textbook "Mechatronics" for secondary vocational schools**
Coordinator doc. Ing. Pavol Božek, CSc.
Start date 01/01/2012
End Date
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 fundamentals of the subject studied. Multimedia and hypertext are the right tools for supporting the work with information in the related study material, as 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 the quality of teaching within the subject of "Mechatronics".

Project Title **Research in the area of utilising the inertial navigation system in roboto-technology**
Coordinator doc. Ing. Pavol Božek, CSc.
Start date 01/01/2012
End Date
Programme VEGA
Annotation The research project deals with the design of an inertial navigation system (further on INS) which will be used for calibration of a robotised workplace. Calibration is necessary to adjust the simulation of the production equipment model to real geometric conditions. Design of the production equipment model as well as development of the related robotic programs by means of a simulation system represents a real picture of reality. Absolute compliance with reality cannot be supposed however. Deviation of reality from simulation may occur due to various reasons (position of workpiece, geometric precision of tool, mutual position of robotic axes etc.) The designed INS will be used for their calibration without using calibration means, which will significantly simplify calibration in practice. The aim of the research project is the design, simulation and experimental verification of the original processor system for processing the data from electronic gyroscopes enabling calibration and simplification of inspections and measurements in production.

Project Title **The data mining usage in manufacturing systems control**
Coordinator doc. 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.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee
Czech Republic	doc. Ing. Pavol Božek, CSc. doc. Ing. Pavol Božek, CSc. Ing. Martin Juhás, PhD. Ing. Bohuslava Juhásová, PhD. RNDr. Iveta Markechová, CSc. Dr.h.c. prof. Dr. Ing. Oliver Moravčík
Croatia	Ing. Dominika Jurovatá, PhD. Dr.h.c. prof. Dr. Ing. Oliver Moravčík doc. Ing. Peter Schreiber, CSc. doc. Ing. Maximilián Strémy Maximilián, PhD.
Iran	Dr.h.c. prof. Dr. Ing. Oliver Moravčík
South Africa	doc. Ing. Pavol Tanuška, PhD. doc. Mgr. Róbert Vrábeľ Róbert, PhD.
Canada	Dr.h.c. prof. Dr. Ing. Oliver Moravčík
Hungary	doc. Ing. Pavol Božek, CSc. Ing. Michal Kopček, PhD. Dr.h.c. prof. Dr. Ing. Oliver Moravčík Ing. Tomáš Škulavík, PhD.

Country	Employee
Germany	Ing. Michal Kopček, PhD. RNDr. Iveta Markecová, CSc. Dr.h.c. prof. Dr. Ing. Oliver Moravčík doc. Ing. Peter Schreiber, CSc Ing. Tomáš Škulavík, PhD.
Austria	Dr.h.c. prof. Dr. Ing. Oliver Moravčík
Russia	RNDr. Marcel Abas, PhD. Dr.h.c. prof. Dr. Ing. Oliver Moravčík doc. Ing. Peter Schreiber, CSc
United Kingdom	doc. Ing. Maximilián Strémy, PhD.
USA	Dr.h.c. prof. Dr. Ing. Oliver Moravčík
Serbia	Ing. Lukáš Špendla, PhD.
Spain and Canary Islands	Dr.h.c. prof. Dr. Ing. Oliver Moravčík

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

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

Mensa Slovakia
Mgr.Marcel Abas, PhD.

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

SSKI – Slovak Society for Cybernetics and Informatics of Slovak Academy of Sciences (member of IFAC)
doc. Ing. Peter Schreiber, CSc.
doc. Ing. Pavol Tanuška, PhD.
doc. Ing. Pavel Važan, PhD.
prof. h. c. 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
doc. Ing. Maximilián Strémy, PhD.
Ing.Tomáš Bezák, PhD.
Ing.Michal Kebísek, PhD.
Ing. Miriam Iringová, PhD.
doc. Ing. German Michaľčonok, PhD.
prof. Ing. Dušan Mudrončík, PhD.
doc. Ing. Jozef Vaský, PhD.
Ing. Andrej Eliáš, PhD.
Ing.Gabriela Križanová, PhD.
Ing. Bohuslava Juhásová, PhD.
doc. Mgr. Róbert Vrábeľ, PhD.
doc. Ing. Pavol Božek, PhD.
Ing.Igor Halenár, PhD.
Ing. Pavol Bezák, PhD.

SASI – Slovak Association of Machining Engineers
doc. Ing. Pavol Tanuška, PhD.
doc. Ing. Pavel Važan, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

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

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

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

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

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

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

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

PUBLICATIONS (most important publications in 2013)

List of publications contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Kopček, Michal: Optimal Pilot Bus Selection for the Secondary Voltage Control Using Parallelism. - 1. ed. - Ilmenau: Universitätsverlag Ilmenau, 2013. - 147 s. - (Scientific Monographs in Automation and Computer Science). - ISBN 978-3-86360-077-8

Škulavík, Tomáš: PLC-Based Fuzzy Control System for a Robotic Manipulator. - 1. ed. - Ilmenau: Universitätsverlag Ilmenau, 2013. - 115 s. - (Scientific Monographs in Automation and Computer Science). - ISBN 978-3-86360-078-5

Važan, Pavel: The Application of Simulation Methods in Manufacturing System Control. - 2nd rev. ed. - Köthen: Hochschule Anhalt, 2013. - 144 s. - (Scientific monographs in Automation and Computer Science). - ISBN 978-3-86011-061-4

Skripčák, Tomáš - Tanuška, Pavol - Konrad, Uwe - Schmeisser, Nils: Toward Nonconventional Human - Machine Interfaces for Supervisory Plant Process Monitoring. – **registered in: Web of Science, Master Journal List.** In: IEEE Transactions on Human-Machine Systems. - ISSN 2168-2291. - Vol. 43, Iss. 5 (2013), s. 437-450

Vrábeľ, Róbert - Abas, Marcel - Kopček, Michal - Kebísek, Michal: Active Control of Oscillation Patterns in the Presence of Multiarmed Pitchfork Structure of the Critical Manifold of Singularly Perturbed System. - **registered in: Web of Science, Master Journal List.** In: Mathematical Problems in Engineering. - ISSN 1024-123X. - Vol. 2013 (2013), online, s.[8]

Vrábeľ, Róbert - Tanuška, Pavol - Važan, Pavel - Schreiber, Peter - Liška, Vladimír: Duffing-Type Oscillator with a Bounded from above Potential in the Presence of Saddle-Center Bifurcation and Singular Perturbation: Frequency Control. - **registered in: Web of Science, Master Journal List, Scopus.** In: Abstract and Applied Analysis. - ISSN 1085-3375. - Vol. 2013 (2013), [7] p.

Božek, Pavol: Robot path optimization for spot welding applications in automotive industry. - **registerd in: Master Journal List, Web of Science.** In: Tehnicki Vjesnik - Technical Gazette. - ISSN 1330-3651. - Vol. 20, No. 5 (2013), s. 913-917

Božek, Pavol - Pintér, Tomáš: Gyroscopes and Accelerometers in the Robot Control. - **registrovaný: Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 248: 2012 International Conference on Mechanical Materials and Manufacturing Engineering, ICMMME 2012, Dalian, 5 - 6 October 2012 (2013). - ISBN 978-303785556-0, s. 584-588

Božek, Pavol - Trnka, Kamil: Path Planning with Motion Optimization for Car Body-In-White Industrial Robot Applications. - **registerd in: Web of Science, Scopus**. In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 605-607: 2nd International Conference on Materials and Products Manufacturing Technology, ICMPMT 2012, Guangzhou, 22-23 September 2012 (2013). - ISBN 978-303785544-7, s. 1595-1599

Hamerník, Peter - Tanuška, Pavol: The proposal of ensuring the protection of handicapped inhabitants of smart house. - **registerd in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 256-259, Issue Part 1: 2nd International Conference on Civil Engineering and Transportation, ICCET 2012, Guilin, 27 - 28 October 2012 (2013). - ISBN 978-303785565-2, s. 2962-2966

Hamerník, Peter - Tanuška, Pavol - Mudrončík, Dušan: The proposal of function in smart home for handicapped users. - **registerd in: Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 248: 2012 International Conference on Mechanical Materials and Manufacturing Engineering, ICMMME 2012, Dalian, 5 - 6 October 2012 (2013). - ISBN 978-303785556-0, s. 486-490

Horalová Kalinová, Michaela - Michaľčonok, German - Gabriška, Darja: Applying data mining methods to structural identification. - **registerd in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 605-607: 2nd International Conference on Materials and Products Manufacturing Technology, ICMPMT 2012, Guangzhou, 22-23 September 2012 (2013). - ISBN 978-303785544-7, s. 2279-2283

Kováč, Milan - Schreiber, Peter: Identikit Creation with the Use of Genetic Algorithms. - **registerd in: Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 248: 2012 International Conference on Mechanical Materials and Manufacturing Engineering, ICMMME 2012, Dalian, 5 - 6 October 2012 (2013). - ISBN 978-303785556-0, s. 491-494

Mišút, Martin - Mišútová, Mária: Evaluation of ICT Implementation into Engineering Education. – **registered in: Scopus.**In: ICAIT 2013: 1st International Conference on Advancement in Information Technology. March 22 - 23, 2013, Jaipur India. - , 2013. - [6]

Moravčík, Oliver - Sekera, Branislav - Beňo, Rastislav - Sakál, Peter - Šmida, Ľubomír: Perspectives for Utilization of Multicriteria Decision Methods AHP/ANP to Create a National Energy Strategy in Terms of Sustainable Development. – In: 2012 International Conference on Energy, Environment and Sustainable Development (EESD 2012), October 12-14, 2012, Jilin, China. - **registered in (2013): Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 616-618: The 2nd International Conference on Energy, Environment and Sustainable Development (EESD 2012), October 12-14, 2012, China (2013), s. 1585-1590

Pauliček, Róbert - Haluška, Tomáš - Važan, Pavel: The simulation of the assembling production process. - **registered in: Web of Science, Scopus.** In: Advances in Intelligent Systems and Computing. - ISSN 2194-5357. - Vol. 177. Advances in Computing and Information Technology: Proceedings of the Second International Conference on Advances in Computing and Information Technology (ACITY 2012) July 13-15, 2012, Chennai, India - Volume 2. -: Springer-Verlag Berlin Heidelberg, 2013. - ISBN 978-3-642-31551-0, s. 273-278

Pintér, Tomáš - Božek, Pavol: Industrial Robot Control using Inertial Navigation System. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 605-607: 2nd International Conference on Materials and Products Manufacturing Technology, ICMPMT 2012, Guangzhou, 22-23 September 2012 (2013). - ISBN 978-303785544-7, s. 1600-1604

Smolárik, Lukáš - Mudrončík, Dušan - Štrbo, Milan: Compressor and Throttle Characteristics for Models. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 404: The 2013 2nd International Symposium on Manufacturing Systems Engineering (ISMSE 2013), 27 - 29 July 2013, Singapore, Singapore. - , 2013, s. 200-206

Smolárik, Lukáš - Mudrončík, Dušan - Ondriga, Ľuboš: ECG Signal Processing. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 749: 2013 International Conference on Bio-Medical Materials and Engineering (ICBME 2013), 26 - 27 March 2013, Hong Kong, China. - , 2013, p. 394-400

Svetský, Štefan - Moravčík, Oliver - Štefánková, Jana - Schreiber, Peter: Computer Support for Knowledge Management within R&D and the Teaching of Bachelor Students. - **registered in: Scopus.** In: International Journal of Emerging Technologies in Learning. - ISSN 1863-0383. - Vol. 8, Special Issue 1: "ICL 2012" (2013). -: IET, s. 22-28

Štrbo, Milan - Tanuška, Pavol - Smolárik, Lukáš - Hagara, Igor - Gese, Augustín: Safety Analysis for Complex Dynamic Systems. - ITMS 26220220077. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 404: The 2013 2nd International Symposium on Manufacturing Systems Engineering (ISMSE 2013), 27 - 29 July 2013, Singapore, Singapore. - , 2013, s. 719-725

Trnka, Kamil - Božek, Pavol: Optimal Motion Planning of Spot Welding Robot Applications. - **registered in: Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 248: 2012 International Conference on Mechanical Materials and Manufacturing Engineering, ICMMME 2012, Dalian, 5 - 6 October 2012 (2013). - ISBN 978-303785556-0, s. 589-593

Važan, Pavel - Tanuška, Pavol - Jurovatá, Dominika - Kebísek, Michal: Analysis of Production Process Parameters by Using Data Mining Methods. – In:CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [8]. - **registerd in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, s. 342-349

This part of Annual Report 2013 was verified by doc. Ing. Pavol Tanuška, PhD.

CONTACT

Director prof. Ing. Miloš Čambál, CSc.
e-mail: milos.cambal@stuba.sk
tel.: +421918646050

Address Paulínska 16, 917 24 Trnava, Slovak Republic
tel.: +421918646032
fax: +421906068299

INSTITUTE OF INDUSTRIAL ENGINEERING AND MANAGEMENT

(Original name until 01/11/2013: INSTITUTE OF INDUSTRIAL ENGINEERING, MANAGEMENT AND QUALITY

STAFF

- Professors: 6
- Assoc. Professors: 9
- Senior Lecturers: 15
- Research Fellows: 5
- PhD Students: 37

EDUCATION AT THE INSTITUTE

Number of students (at 30/10/2013) registered on study programmes offered by the institute: 994
Number of students graduated in the acad. year 2012/2013 from the study programmes offered by the institute: 307

Study programmes

- Industrial Management
- Personnel Policy in Industrial Plant

ACTIVITIES OF THE INSTITUTE

Date	Title of event or activity at the Institute in 2013
18/02-17/05/2013	Ing. Marcin Relich, PhD., Faculty of Economics, University of Zielona Góra (Poland), research stay at the Institute
25/02/2013	"Dialogues with practice": Key indicators of effectiveness
05/03/2013	Visit of István Széchenyi, University of Győr (Hingary) and Univerzity of Maribore (Slovenia)
11-12/03/2013	Visit of prof. Nigel J. Holden of Leeds Business School (United Kingdom)
21/03/2013	Student Research Conference 2013 – section: Industrial Engineering, Management and Quality
21-26/03/2013	Field trips to ZF Boge Elastmetall Slovakia, a.s., Trnava
26/03/2013	Institute won the 1st place in the "Public Poll of Social Corporate Responsibility" held under the auspices of the Institute of Social Corporate Responsibility in Ostrava (Czech Republic)
15-19/04/2013	Visit of doc. Ing. Krzysztof Witkowski, PhD., vice-dean for education quality, doc. Ing. Sebastian Saniuk, PhD., vice-dean for science and research and Ing. Anna Saniuk, PhD., University of Zielona Góra (Poland)
18/04/2013	Field trips to Emerson a.s., Nové Mesto nad Váhom
14/05/2013	Students of the Institute participated in the Student Research Conference in Zvolen - Bc. Matej Daňo (supervisor: Ing. Rastislav Beňo, PhD.) and Ján Jánošík (supervisor: prof. Ing. Peter Sakál, CSc.)
27/05/2013	"Dialogues with practice": Supplier chain built on the basis of customer requirements
03/09/2013	Successful representation at the Summer University for secondary school students 2013
27/09/2013	Successful participation in the "Night of researchers 2013": "Think simply and creatively – be No. 1": concept of a "Standardisation of workplace – learning by playing"
30/09/2013	"Dialogues with practice": Modern elements of logistics applied in automotive industry in Slovakia
28/10/2013	"Dialogues with practice": Project Manager WANTED! (What is the job of a manager about?)
13/11/2013	Lecture: "Logistics Controlling with ERP System. Modelling Value Stream Flows in the Supply Chain of Industrial Enterprise" - Paweł Kuždowicz, Faculty of Economics and Management, University of Zielona Góra (Poland)
20/11/2013	Field trip in Kia Motors Slovakia
21/11/2013	President of the Slovak Republic appointed new professors, including prof. Ing. Miloš Čambál, CSc. in the field of Industrial Engineering
02/12/2013	"Dialogues with practice":Digital company and its application in the practice of the automotive industry
04/12/2013	Field trip to Volkswagen Slovakia
09-11/12/2013	Successful presentation of the Institute at the Carpathian Logistics Congress 2013 - doc. Ing. Helena Vidová, PhD., Ing. Natália Horňáková, Ing. Martin Beluský and Ing. Matej Daňo

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'S 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 in-depth 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 equipped 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
- Diploma 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
- General Economic Theory
- Gradual Project
- 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
- Market Research and Monitoring of Customer Satisfaction
- Marketing
- Marketing Management
- 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
- Production Management I, II
- Professional Practice
- Project and Process Management in Quality Management
- Project Management
- Project of Conformity Assessment
- Quality Audits
- Quality Management Case Studies
- Research Thesis I, II, III, IV, V, VI, VII
- Standardisation, Certification, Conformity Assessment
- Statistical Methods
- Statistical Methods in Process Improvement
- Statistical Methods of Quality Control
- Strategic Management
- Tax Management
- Tools and Techniques of Quality Management
- Total Quality Management

GRADUATE THESES

List of theses contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Master's Theses

Alkšová, D.: Proposal of forming corporate culture with respect to marketing activities in Heineken Slovensko, a.s.
Aulitisová, G.: Concept of use of new trends in marketing communication of company AGADOS Slovakia, s.r.o.
Bachratá, K.: Project solution of initiation ergonomic program in ZF SACHS Slovakia, a. s., Trnava, operation of hardening
Bachratá, M.: Proposal for effective intercultural management in the enterprise ZF Boge Elastmetall Slovakia, a.s. Trnava
Bednáriková, L.: Optimizing of the FMEA method in the process of assembly of the central console and the application of FMEA into the remaining processes of the project in the company Schnellecke Slovakia, s.r.o. Lozorno
Benčura, J.: Proposal application of creation internal warehouse for articles with low stock turn ratio and improvement of product packages in Emerson a.s. company Energy Systems section
Blašková, Z.: Proposal to improve the processes of selection, adaptation and stabilization of employees in the company T - Industry Ltd.
Bobot, J.: The rationalization of the management production system in the company
Brinzová, E.: Proposal of continuous solution of ergonomic programme in chosen workshops of company Západoslovenská energetika, a. s.
Cibulka, R.: The project design optimization of logistics costs in the manufacturing company Faurecia Slovakia, s.r.o. Hlohovec
Csongrádyová, G.: The suggestion for implementation of controlling working capital in COOP SERVIS, Ltd., Nové Zámky
Černák, T.: Optimization proposals of the tax burden from the perspective of direct taxes of the GLOBO EASTERN EUROPE enterprise
Černáková, Z.: The proposal to reduction costs in the company TRW Automotive (Slovakia) s.r.o.
Čóriová, M.: Proposal for improving the corporate culture in the company Faurecia Slovakia, s.r.o. Hlohovec
Ďad'ová, I.: Proposal of monitoring and management system of customer and supplier relationships in KOBIT-SK, Ltd.
Daňo, M.: Proposal solution of ergonomic rationalization on workplace R - control in company Delta Electronics (Slovakia) s.r.o using modern ergonomic tools
Deckárová, M.: Proposal for improving the use of competency approach to PCA Slovakia, s.r.o.
Dianová, I.: Proposal for improvement of quality management system in the enterprise ZVS – ENCO, a.s., Dubnica nad Váhom
Dohnanská, A.: Proposal a system of knowledge management in the company Saint-Gobain Construction Products, s.r.o.
Drgoň, M.: Proposal of improving efficiency EMS in company Bekaert Hlohovec, a.s.
Dubcová, J.: Montage workplace for processing of semiproduct optimization in production from ergonomics point of view in SEMIKRON, s. r. o. company
Ďurď áková, L.: Draft software implementation of RM tes, Ltd. on innovation management at Brusno
Ďuriš, R.: Proposal to improve system of education and development of managers in company Petit Press, a.s.
Ďurišová, L.: Proposal of modern methods for inventory management in the company PSL, a. s., Považská Bystrica
Dúšalová, M.: Suggestion how to improve social development of employees in company Sauer-Danfoss a.s.
Feketová, M.: The proposal of the solution for the ergonomic rationalisation of the assembly worksite in ETI ELB s.r.o.Company
Foltín, P.: The proposal of the implementation of the new standardization elements and improvement existing ones on assembly workplace in RONSON PLASTICS Ltd.
Forner, J.: Proposal for solutions to increase the efficiency of goods receipt and streamline the process of feeding in company Faurecia Slovakia branch Seating Trnava
Furdeková, M.: Proposal for the creation and use of competency models for selected positions in the company MTS, Ltd., Krivá
Gála, M.: The proposal for improvements of the internal company directives in conditions of PCA Slovakia, s.r.o.
Gašparíková, L.: Proposal for improvement creation and use of marketing mix tools in the company ORGECO Ltd.
Gašparíková, P.: The suggestion to improvement of intradepartmental processes in the Osram, Inc., Nové Zámky
Göndörová, K.: Solution Proposal for improvement the use of Project Management in the Company EMM, Ltd., Bratislava
Habala, D.: Proposal of project management implementation in company Steel Form, s.r.o.
Haladová, M.: Proposal of employee performance management system in conditions of selected industrial organization
Hanuliaková, S.: Proposal use of marketing communications tools in creating a positive image of the company Agrospol Kysuce Ltd. and its products
Hečková, A.: The proposal for decrease of inventories at input warehouses in the company ZF Boge Elastmetall Slovakia a.s. Trnava
Heimlich, R.: The suggestion for improvement of calculation system in company AGRO-MOVINO, Ltd.
Herdová, E.: The proposal of system solutions of employee´s conditions in the collective agreement of SLOVEO plc. from an employee´s point of view
Horehájová, M.: The proposal for the re-engineering the tank wagon maintenance system of sub-organization Railway pursuit in Slovnaft, a.s.
Hromada, O.: Design of a trainee program system using the principles of talent management in ŽOS Trnava, a.s.
Hudáková, M.: Proposal for the use of Mind Maps as a prerequisite for more efficient management at PCA Slovakia, s.r.o., Trnava
Chrvalová, V.: The proposal of career management system of employees in the company ŽOS Trnava, a,s.
Jančulová, J.: Proposal aimed at improving customer service help line in order to create a positive image of the company, Kofola, as and its products
Jurik, L.: The proposal of using the AHP method for determining recruiter's competency profile of company Delta Electronics (Slovakia), s.r.o.
Kašníková, K.: The proposal refinement of the use of the competence approach in enterprise ŽOS Trnava, a.s.
Keher, I.: Suggestion of marketing communication tools in SLOVRIA SLOVAKIA, a.s.
Klekner, B.: Design of evaluation system of technical administrative employees in PRAKON, ltd.
Klementis, V.: Proposal of improvements in performance management system at Jasplastik s.r.o.
Kmec, M.: Proposal for the implementation of modern methods of company performance in Metzeler Slovakia s.r.o.
Koníčková, V.: Proposal to improve the application of the knowledge economy in industrial enterprises in Slovakia
Kopták, M.: Proposition to introduce rules of a lean manufacturing into the production process of the company OMNIA KLF, Corp.
Kostrejová, K.: Proposal of improvement of the system education and development of managers in a company RPC Bramlage Veľký Meder s.r.o
Košťálová, M.: Proposal of solution ergonomic program initiation in selected operations of company SEMIKRON, Ltd.
Kresová, K.: Proposal for the use of marketing communication tools in creating a positive image of SLOVARM, a. s. and its products
Krištofíková, L.: Proposal of the performance appraisal for production employees in HKS Forge Ltd.
Kubicová, Z.: Proposal to improve the system of evaluating employee' performance in company MONTEX - PRO Ltd.
Kucmerová, V.: The proposal of the measures to improve the effectiveness of the recruitment and selection of employees in the company ZF Levice, Ltd., Levice
Kundlová, K.: System design using competency approach in the management of human resources in terms of enterprise Panasonic Industrial Devices Slovakia sro
Kureková, E.: The proposal of the concept of sustainability marketing mix in Slovak industrial companies in the context in with the context SCSR
Kureková, M.: Suggestion methodology for economic evaluation effect factor of production machinery and equipment in the transformation process of Železiarne Podbrezová, a. s.
Límová, E.: Improvement proposal of education system and employee development in TRENS SK PLC
Lyšová, K.: Proposal of the usage of competency models in the management and development of human resources in company PSL, a. s.
Macková, E. : Proposal to improve formation and control of production plans fulfilment in the Company I.D.C. Holding, a.s., branch plant Figaro Trnava
Majera, M.: Stock management optimization project in a trading company Würth International Trading s.r.o.
Melicherová, V.: Suggestion of optimization of the evaluation performance and financial stability of the PFS, a.s. company
Mihalčínová, S.: Strategic decision-making in the context of Corporate Social Responsibility in company ŽOS Trnava, a.s. using Expert Choice software
Mihalovičová Žáková, K.: Proposal to improve the management of an industrial undertaking in relation to the variation of costs
Miklovičová, G.: Suggestion for improvement of system of employee management and efficiency in terms of company PAUMA, Ltd.
Mináriková, A.: The proposal of the inventory management system improvement in the company Hörnlein, k.s.
Morafko, I.: Draft measures of ergonomic rationalization in DHL Logistics Slovakia spol. s.r.o., Operation DC2- DC1 Tesco Hardline Gan
Mračna, T.: The proposal of effective measurement and management of employees performance in the department of automatic packaging in the IKEA Components s.r.o.
Nedorost, L.: The proposal of model for using FMEA method in Steel Form, s.r.o. Piešťany
Nižňan, A.: The proposal of ways measuring the performance of employees in the company INGSTEEL, spol. s r.o.
Pechová, L.: The proposal of the concept of sustainable development company socially responsible business in the company Continental Matador Rubber, Ltd.
Pekara, M.: The Project proposal optimization of logistics cost in the production company Duropack Turpak Obaly, a.s., Martin
Petráková, V.: Application know-how of the interculturally/multiculturally management at industrial concern in the Slovak republic
Petrovičová, M.: Proposal for Improvements in the Monitoring and Management of Claims in a Company KNOTT spol. s r.o.
Plevzová, M.: The proposal of the solution for the ergonomic rationalisation of the warehouse operations in Fremach Trnava Company, s.r.o.
Pluhár, M.: Proposal to improve motivation of employees in the company REBIOP s.r.o.
Priesol, R.: Proposal of ergonomical rationalization for chosen workstations on assembly line in the company Faurecia Slovakia s.r.o., OZ Seating Trnava
Pristáč, Š.: Application method FMEA on the selected product in SOFER s. r. o.
Procházka, M.: Proposal for a comprehensive employee education training program in the company Foxconn Slovakia spol. s.r.o.
Reháková, Z.: Proposal to Increase he Performance Measurement of Personal Processes in Company SEMIKRON s.r.o., Vrbové
Remenárová, K.: The proposal to improve recruitment and selection of employees in the company Swedwood Slovakia, s.r.o., o.z. Majcichov
Remenárová, L.: Proposal for improvement of corporate culture in the company VUJE, a. s.

Roštecká, Z.: The proposal to eliminate communication barriers in the project teams in industrial enterprises in Slovakia
Rozenberg, M.: Proposal for improving the implementation of the TPM at a pilot workplace of the Silgan Metal Packaging -Nove Mesto company, in Nove Mesto nad Váhom
Schejbal, B.: Proposal of solution for ergonomic rationalization in the company MONTEX – PRO, Ltd., Nove Zamky
Simonicsová, S.: Proposed measures for the improvement of controlling in Duslo, a.s. Šaľa
Sokolovská, B.: Proposal of improvements for system of employee motivation in company ZF SACHS Slovakia, a.s.
Szórád, P.: Proposal for application of controlling in the process of supplying in company PRECISION TUBES EUROPE s.r.o.
Špirková, M.: Proposal for improving the implementation of green economy in industrial enterprises in Slovakia
Švantnerová, M.: The FMEA method application on a chosen product in the company Kabelschlepp Systemtechnik spol. s r. o.
Švecová, M.: Proposal of using of marketing communication tools for company DIPEX Ltd.
Tamási, P.: Proposal of solution for ergonomic rationalization in the company RPC Bramlage Veľký Meder s.r.o.
Tančár, J.: Proposal to reduce costs in the business Pongratz, Ltd
Topoľská, V.: The proposal of solution for improvement of application information systems in company .A.S.A. Trnava, spol. s r. o.
Tóthová, E.: Proposal selection streamlining of logistics processes of company Amylum Slovakia, s.r.o.
Tulisová, Z.: The proposal of management system of release employees
Urbán, P.: Proposal to Improve Marketing Communication of Company AITEN, a.s. Trnava
Vöröš, M.: Proposal of the solution to initiation of the ergonomic program in company FREMACH TRNAVA, s.r.o., Trnava
Vrlová, L.: The proposal to streamline the allocation of finance for selected activities of human resource management of the company Hammerbacher SK, a.s.
Záturecký, J.: Implementation of Information Security Management System proposal (ISO 27003) in ŽOS Zvolen Inc. and its integration into the IMS in the context of sustainable strategy CSR
Zbojová, T.: Draft of the project streamline the process of inventory management and warehouse management in manufacturing company HYDAC Electronic, s.r.o, Krásna Hôrka
Zemková, M.: Motion storage solutions to improve the service welding shop, a PCAS Slovakia s.r.o.
Zielosková, M.: The proposal to streamline the management of stocks of finished products within the internal storage in company Amylum Slovakia, spol. s r. o.
Zvonár, T.: Solution proposal for improving information management in the enterprise VUJE, Inc.
Žgančíková, M.: Proposal for the operation standard optimizing of grinding in the company ZF Sachs Slovakia a.s.
Živčic, P.: Proposals of the educational system of employees in the Company Kováč, Ltd.

PhD Theses

Bednár, R.: The sequence of steps of individualization Lean concept in industrial enterprises
Drieniková, K.: The Suggestion for the Usage of Analytic Hierarchy Process in the Corporate Social Responsibility Strategy of Industrial Companies
Hasayová, M.: Proposal of the methodology for a comprehensive audit of project management
Hrablik, M.: Acquisition of employees for key positions in conditions of merging labour markets of EU
Hrdinová, G.: Concept HCS model 3E vs. concept Corporate Social Responsibility (CSR)
Malá, J.: Methodology for evaluating the quality of information in the project management
Naňo, T.: Suggestion for using the Analytic Hierarchy Process in the strategic risk management of the industrial companies
Ondrušková, O.: Choice of motivator systems to ensure effective management of human resources
Pavledna, P.: Proposal of methodology for knowledge management application in innovation processes
Prajová, V.: The proposal for the implementation of integrated marketing communication as a tool for organization´s competitiveness
Vančová, V.: Proposal for Support of Innovation in Industrial Plants by International Cooperation

Habilitation Theses

Vaňová, Jaromíra: Indicators of a company sustainable effectiveness within the context of corporate culture. - Trnava: STU MTF, 2012. - 108 p. (defended in 2013)

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.

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 doc. 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 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 overloading, 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 **Information Quality Management in project management of industrial companies in SR**
Coordinator doc. 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 **Transformation of the ergonomics programme into the company management structure through integration and utilisation QMS, EMS, HSMS**
Coordinator prof. Ing. Jozef Sablik, CSc.
Start Date 01/01/2013
End Date 31/12/2015
Programme VEGA
Annotation The project is aimed to confirm the need, definition of the possibilities and proposal of the process using an integrated QMS/EMS/HSMS for transformation of the content of the ergonomic programme into structured activities of management for the company. Application of the project outputs envisages the creation of conditions that improve the work process, which guarantee a long term high level of work performance with minimal risk to safety and health of employees in accordance with the philosophy of sustainable development.

Project Title **The concept of the HCS 3E model vs. the concept of Corporate Social Responsibility (CSR)**
Coordinator prof. Ing. Peter Sakál, CSc.
Start Date 03/09/2009
End Date 07/06/2013
Programme APVV
Annotation The project aims at disseminating the results of research projects No. 019/2001: "Transforming Industry in Slovakia Through Participatory Ergonomics" and KEGA No. 3-3111-05. The research is currently being conducted in co-operation with CHIRANA PROGRESS, s.r.o. Company in Piešťany in the field of sustainable development (SD) and Corporate Social Responsibility (CSR). The aim of the research is to contribute to meeting the vision of Agenda 21 and the Lisbon strategy in individual pillars of SD strategy under the conditions of research activity and pedagogical process in the STU MTF workplaces in Trnava

Project Title **The concept of the HCS 3E model vs. the concept of Corporate Social Responsibility (CSR)**
Coordinator prof. Ing. Peter Sakál, CSc.
Start Date 03/09/2009
End Date 07/06/2013
Programme APVV
Annotation The project aims at disseminating the results of research projects No. 019/2001: "Transforming Industry in Slovakia Through Participatory Ergonomics" and KEGA No. 3-3111-05. The research is currently being conducted in co-operation with CHIRANA PROGRESS, s.r.o. Company in Piešťany in the field of sustainable development (SD) and Corporate Social Responsibility (CSR). The aim of the research is to contribute to meeting the vision of Agenda 21 and the Lisbon strategy in individual pillars of SD strategy under the conditions of research activity and pedagogical process in the STU MTF workplaces in Trnava

INTERNATIONAL PROJECTS

Project Title **Festival of Science as a Platform for Intensifying Cooperation between V4 Region Universities**
Coordinator doc. Mgr. Dagmar Cagáňová,PhD.
Start Date 01/09/2013
End Date 31/08/2014
Programme International Visegrad Fund
Annotation The main project feature is to establish a basis for active V4 scientific cooperation using best practice exchange and knowledge transfer. It is an opportunity for linking academic and business institutions from V4 countries that will ensure collaboration in research, education and increased international mobility of university teachers and students. It will also contribute to the popularisation of science for professionals and public and ensure continuation of activities to the future.

Project Title **Knowledge exchange in the framework of alternative economic systems for the promotion of sustainable regional development Acronym : ALTECS**
Coordinator doc. Mgr. Dagmar Cagáňová,PhD.
Start Date 01/09/2013
End Date 31/12/2014
Programme European Territorial Co-operation (ETC) Slovak Republic – Austria
Annotation The project ALTECS is implemented by the Vienna University of Economics and Business, the Slovak University of Technology in Bratislava, the Ministry of Life, the Vienna Chamber of Commerce and Industry, and the Slovak Chamber of Commerce and Industry Trnava in the framework of the funding programme European Territorial Co-operation (ETC) Slovak Republic – Austria. The objective of the ALTECS project is to set the first steps for a sustainable regional development based on knowledge exchange between companies and students and using knowledge to pursue and implement a responsible and resource conserving economic way.
In order to advance ecological, economic, and social sustainability, regional know-how founded on the important pillars science and economy and generated among the involved target groups in the context of a summer university is made available. The realisation of the summer university will be designed together with the "OeAD-WohnraumverwaltungsGmbH" as the initiator and implementing body of this educational method. In this regard, those companies shall be supported that wish to follow a socially, ecologically, and economically exemplary pattern or already represent best practice and can thus give valuable advice. Economy students from Austria and the Slovak Republic will be involved from the sector of science. They will enlarge and also share their knowledge in the field of sustainability in order to elaborate new perspectives for sustainable regional development in the framework of peer group projects together with small and medium-sized enterprises (SMEs). Long-term orientation as an essential indicator of sustainability is achieved in the establishment of a regular platform and network events that will simultaneously accelerate knowledge exchange. The shared set-up and the realisation of the educational programme also fosters relations with the neighbouring country (cultural, economic, ecological, and social) as well as solidarity in the border region and promotes a common responsibility for the cross-border economic area.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee
Belgium	doc. Mgr. Dagmar Cagáňová, PhD.
Czech Republic	doc. Mgr. Dagmar Cagáňová, PhD. prof. Ing. Miloš Čambál, CSc. Ing. Natália Horňáková prof. Ing. Jozef Sablik, CSc. prof. Ing. Peter Sakál, CSc. doc. Ing. Jana Šujanová, CSc. Ing. Jana Urdziková, PhD. doc. Ing. Helena Vidová, PhD.
Denmark	Ing. Matej Daňo
Croatia	Ing. Barbora Sokolovská Ing. Juraj Drahňovský, PhD. Bc. Marta Špirková Paul Woolliscroft
Japan	doc. Mgr. Dagmar Cagáňová, PhD.
Germany	doc. Mgr. Dagmar Cagáňová, PhD. doc. Ing. Jana Šujanová, CSc.
Poland	doc. Mgr. Dagmar Cagáňová, PhD. prof. Ing. Miloš Čambál, CSc. Ing. Lucia Božiková Ing. Matej Daňo Ing. Natália Horňáková Ing. Kristína Koltnerová, PhD. Ing. Katarína Ladvenicová Ing. Katarína Lestyánszka Škůrková, PhD. Ing. Jana Samáková, PhD. doc. Ing. Jana Šujanová, CSc. Ing. Veronika Videnová doc. Ing. Helena Vidová, PhD.

Country	Employee
Portugal and the Azores	doc. Mgr. Dagmar Cagáňová, PhD. Paul Woolliscroft
Austria	doc. Mgr. Dagmar Cagáňová, PhD. Ing. Helena Fidlerová, PhD. Ing. Martina Jakábová, PhD. Ing. Ružena Šrubařová, PhD. doc. Ing. Jana Šujanová, CSc. doc. Ing. Jaromíra Vaňová, PhD.
Russia	Ing. Helena Fidlerová, PhD. prof. Ing. Peter Sakál, CSc.
USA	doc. Mgr. Dagmar Cagáňová, PhD. doc. Ing. Jana Šujanová, CSc. Paul Woolliscroft
Spain	doc. Mgr. Dagmar Cagáňová, PhD.
Italy	doc. Mgr. Dagmar Cagáňová, PhD. prof. Ing. Miloš Čambál, CSc. doc. Ing. Jana Šujanová, CSc.
Thailand	Ing. Ľubomír Šmída

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Academy of Management
prof. Ing. Miloš Čambál, PhD.
Ing. Marta Kučerová, PhD.
Ing. Miroslava Mĺkva, PhD.
doc. Ing. Jaromíra Vaňová, PhD.

Project Management Society
prof. Ing. Miloš Čambál, PhD.
Ing. Henrieta Hrablik Chovanová, PhD.
Ing. Martina Jakábová, PhD.
Ing. Ružena Šrubařová, PhD.

Slovak Ergonomics Society
Ing. Rastislav Beňo, PhD.
doc. Ing. Karol Hatiar, PhD.
doc. Ing. Andrea Holková, PhD.
prof. Ing. Jozef Sablik, PhD.

Association of Management Training and Development
prof . Ing. Miloš Čambál, PhD.
doc. Ing. Andrea Holková, PhD.

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

Committee for Scientific Management ZSVTS
prof. Ing. Miloš Čambál, PhD.
Ing.Marta Kučerová, PhD.
Ing. Miroslava Mĺkva, PhD.
doc. Ing. Jaromíra Vaňová, PhD.

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

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

Slovak Anthropological Society
doc. Ing. Karol Hatiar, PhD.

Slovak Association of Finance and Treasury
doc. 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.

Project Management Organization of Slovakia
Ing. Ružena Šrubařová, PhD.

The Slovak Association of Business Process Management
Ing. Miroslava Mĺkva, PhD.
prof. Ing. Peter Sakál, PhD.

Membership in Evaluation Committees (VEGA, KEGA, APVV, SAIA, EU Structural Funds)
Ing. Zdenka Gyurák Bábeľová, PhD.
doc. Mgr. Dagmar Cagáňová, PhD.
prof. Ing. Miloš Čambál, PhD.
Ing. Martina Jakábová, PhD.
doc. Ing. Jana Šujanová, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

International Coaching Federation
prof. Ing. Miloš Čambál, CSc.

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

CASAJC-Czech and Slovak Association of Teachers of Foreign Language at Universities
doc. Mgr. Dagmar Cagáňová, PhD.

Asian School of Management and Technology
doc. Ing. Helena Vidová, PhD.

European Alliance for Innovation
prof. Ing. Miloš Čambál, CSc.
doc. Mgr. Dagmar Cagáňová, PhD.
doc. Ing. Jana Šujanová, PhD.

European Society for Enginnering Education
doc. Mgr. Dagmar Cagáňová, PhD.
prof. Ing. Miloš Čambál, CSc.

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

European Platform of Women Scientists
doc. 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"
prof. Ing. Miloš Čambál, CSc.
doc. Mgr. Dagmar Cagáňová, PhD.
doc. Ing. Jana Šujanová, PhD.

PUBLICATIONS (most important publications in 2013)

List of publications contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Beňo, Rastislav - Homokyová, Mária - Horváthová, Martina: The creation of ergonomics database using Ergo&Log analytical application. – **registered in: Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 411-414: The 2013 2nd International Conference on Information Technology and Management Innovation (ICITMI 2013), 23 - 24 July 2013, Zhuhai. - , 2013, pp. 219-222

Beňo, Rastislav - Hrdinová, Gabriela - Sakál, Peter - Šmida, Ľubomír: The Time Analysis of Material Flow with Methods Time Measurement - Contribution to CSR Implementation at the Level of Industrial - Production I. - In: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [7]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 302-308

Čambál, Miloš - Cagáňová, Dagmar - Delgado Sobrino, Daynier Rolando - Košťál, Peter: Developing of Organisational Culture as a Presumption of Industrial Enterprise Performance Optimization. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 734-737: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 April 2013, Guilin, China. - , 2013, pp. 3348-3351

Delgado Sobrino, Daynier Rolando - Košťál, Peter - Cagáňová, Dagmar - Čambál, Miloš: On the Possibilities of Intelligence Implementation in Manufacturing: the Role of Simulation. - In: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [9]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 96-104

Horňáková, Natália - Vidová, Helena - Beluský, Martin: Improving of Manufacturing Systems in Slovak Industrial Enterprises. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 774-776: The 2013 International Forum on Mechanical and Material Engineering (IFMME 2013), 13 - 14 June, Guangzhou, China. - , 2013, pp. 1361-1368

Krajčovičová, Katarína - Cagáňová, Dagmar - Čambál, Miloš: Competency models utilization in industrial enterprises. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 655-657: The 3rd International Conference on Advances in Materials and Manufacturing (ICAMMP 2012), 22 - 23 December 2012, Beihai, China (2013), pp. 2226-2229

Makraiová, Jana - Woolliscroft, Paul - Cagáňová, Dagmar - Čambál, Miloš: Person-Organisation fit as an Organisational Learning Tool in Employee Selection. In: ICICKM-2013: the proceedings of the 10th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning. Washington, DC, USA 24-25 October 2013. - Reading: Academic Conferences and Publishing International Limited, 2013. - ISBN 978-1-909507-77-7. - ISSN 2048-9803. - PP. 568-575

Moravčík, Oliver - Sekera, Branislav - Beňo, Rastislav - Sakál, Peter - Šmida, Ľubomír: Perspectives for Utilization of Multicriteria Decision Methods AHP/ANP to Create a National Energy Strategy in Terms of Sustainable Development. - In: 2012 International Conference on Energy, Environment and Sustainable Development (EESD 2012), October 12-14, 2012, Jilin, China. - **registered in (2013): Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 616-618: The 2nd International Conference on Energy, Environment and Sustainable Development (EESD 2012), October 12-14, 2012, China (2013), pp. 1585-1590

Peterka, Jozef - Morovič, Ladislav - Pokorný, Peter - Kováč, Martin - Horňák, František: Optical 3D Scanning of Cutting Tools. - **registered in: Scopus.** In: Applied Mechanics and Materials. - . - ISSN 1660-9336. - Vol. 421: 4th International Conference on Information Technology for Manufacturing Systems (ITMS 2013), 28 - 29 August 2013, Auckland, New Zealand. - , 2013, pp. 663-667

Relich, Marcin - Jakábová, Martina: A decision support tool for project portfolio management with imprecise data. - **registered in: Web of Science.** In: Strategic management and its support by information systems: 10th International Conference on Strategic Management and its Support by Information Systems. 29 - 30. August 2013, Czech Republic. - Ostrava: VŠB - Technická univerzita Ostrava, 2013. - ISBN 978-80-248-3096-4. - PP. 164-172

Mrvová, Ľubica - Púčiková, Lenka: Using methods of CBA in the context of CSR, focusing on the social projects. - In:CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [5]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 177-184

Saniuk, Anna - Cagáňová, Dagmar - Čambál, Miloš: Performance management in metalworking processes as a source of sustainable development. In: METAL 2013: 22nd International Conference on Metallurgy and Materials. May 15th - 17th 2013, Brno, Czech Republic. - Ostrava: TANGER s r.o, 2013. - ISBN 978-80-87294-39-0. - CD-ROM, [6] p.

Šujanová, Jana - Cagáňová, Dagmar - Čambál, Miloš: Issue of education in industrial engineering in relationship to automotive industry in the Slovak Republic and its consequences on rural areas. In: Economics and management: current issues and perspectives. - ISSN 1648-9098. - Vol. 1, No. 29 (2013), pp. 136-141

Videnová, Veronika - Cagáňová, Dagmar - Woolliscroft, Paul - Makraiová, Jana - Čambál, Miloš: Resolving Conflicts within Multicultural Teams in Industrial Enterprises. In: Chinese Business Review. - ISSN 1537-1506. - Vol. 12, No. 2 (2013), pp. 113-123

Vidová, Helena - Beluský, Martin: The Application of Selected Lean Methods for Waste Removal in Logistics of Slovak Industrial Plants. - In: CECOL 2012: III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava: AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [8]. - **registered in (2013): Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309: 3rd Central European Conference on Logistics (CECOL 2012), November 28 - 30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 286-293

Woolliscroft, Paul - Jakábová, Martina - Krajčovičová, Katarína - Púčiková, Lenka - Cagáňová, Dagmar - Čambál, Miloš: Global key Performance Best Practice. In: Proceedings of The 9th European Conference on Management Leadership and Governance. ECMLG 2013: Klagenfurt, Austria 14-15 November 2013. - Reading: Academic Conferences and Publishing International Limited, 2013. - ISBN 978-1-909507-86-9. - PP. 346-356

Woolliscroft, Paul - Relich, Marcin - Cagáňová, Dagmar - Čambál, Miloš - Šujanová, Jana - Makraiová, Jana: The Implications of Tacit Knowledge Utilisation within Project Management Risk Assessment. - ITMS 26110230055. In: ICICKM-2013: the proceedings of the 10th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning. Washington, DC, USA 24-25 October 2013. - Reading: Academic Conferences and Publishing International Limited, 2013. - ISBN 978-1-909507-77-7. - ISSN 2048-9803. - PP. 645-652

Woolliscroft, Paul - Cagáňová, Dagmar - Čambál, Miloš - Holeček, Jaroslav - Púčiková, Lenka: Implications for optimisation of the automotive supply chain through knowledge management. - abstract in: Economic Development and Wealth through Globally Competitive Manufacturing Systems: abstracts of the 46th CIRP Conference on Manufacturing Systems. Setúbal, Portugal, 29th - 31st May 2013. - Setúbal: Centro de Integracao e Inovacao de Processos, 2013. - ISBN 978-989-98403-0-0. - p.69. - **registered in: Web of Science, Scopus.** In: Procedia CIRP. - ISSN 2212-8271. - Vol. 7: 46th CIRP Conference on Manufacturing Systems 2013, CIRP CMS 2013, Setubal, Portugal 29 - 30 May 2013 (2013), pp. 211-216

This part of Annual Report 2013 was verified by prof. Ing. Miloš Čambál, CSc.

CONTACT

Director prof. Ing. Karol Balog, PhD.
e-mail: karol.balog@stuba.sk
tel.: +421918646041

Address Botanická 49, 917 24 Trnava, Slovak Republic
tel.: +421918646023
fax: +421906068499

INSTITUTE OF SAFETY, ENVIRONMENT AND QUALITY

(Original name until 01/11/2013: INSTITUTE OF SAFETY AND ENVIRONMENTAL ENGINEERING)

STAFF

- Professors: 2
- Assoc. Professors: 2
- Senior Lecturers: 13
- Research Fellows: 4
- PhD Students: 27

EDUCATION AT THE INSTITUTE

Number of the students (at 30/10/ 2013) registered on the study programmes offered by the institute: 704
Number of students graduated in the acad. year 2012/2013 from the study programmes offered by the Institute: 158

Study programmes

- Occupational Health and Safety
- Integrated Safety

ACTIVITIES OF THE INSTITUTE

Date	Title of event or activity at the Institute in 2013
11-12/12/2013	Sustainability - Environment - Safety Conference 2013 - The 3rd International Conference, Bratislava
18-19/04/2013	Management of the Environment - 2013, The 14th International Conference, Bratislava
19/12/2013	Global existential risks 2013 – The 4th International Conference, Bratislava
15/12/2013	Integrated Safety 2013 - international conference, Trnava

GRADUATE PROFILE

BACHELOR'S PROGRAMMES (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

- Bachelor's Project
- Bachelor's Thesis
- Basics of Environmental Studies
- Basics of Safety Engineering
- Connoisseurship of Commodity
- Dissertation Project I - VI
- Emergency Preparedness for Accidents and Hazardous Situations
- Environmental and Safety Information Science
- Environmental and Safety Management
- Environmental Chemistry
- Environmental Engineering
- Evaluation of Indoor Environment Aspects of OSH
- Fire and Accident Investigation
- Fire and Accident Modelling
- Fire Dynamics
- Fire Engineering
- Fire Protection of Buildings
- General Chemistry
- Hazardous Materials
- Human Reliability in Technical Systems
- Industrial Toxicology
- Inorganic and Organic Chemistry
- Law and Technical Directions of WSHP
- Management of Dangerous Activities
- Management Systems of the OSH
- Measurement and Monitoring of Harmful Substances on Workplace
- Occupation Environment Engineering
- Pedagogical Activity I - VI
- Personal Protective and Rescue Systems
- Processes of Environmental Technologies
- Professional Practice
- Progressive Methods of Integrated Protection of the Environment
- Research Work
- Reserved Technical Devices
- Risk Analysis Methods
- Risk Control Methods
- Risk Evaluation in the Environment
- Risk Theory and Casual Processes
- Safety and Reliability of Systems
- Safety Engineering
- Safety Management
- Sanitation of Work
- Technological and Natural Emergencies
- Technologies of Waste Management
- Theory of Fires and Explosions
- Diploma Thesis
- Thesis Project / Diploma Project
- Work Safety and Health Protection

GRADUATE THESES

List of theses contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Master's Theses
Bacigálová, K.: Analysis of the impact of flame retardant chemical composition on the extracts of the major combustion products of some organic polymers
Bacigalová, P.: Evaluation of degradability of process fluids
Baksa, M.: Safety and hygiene work in waste management
Balluch, R.: Impact properties of organic dust clouds on the ignition characteristics
Bartošovič, M.: Safety analysis of the food product processing in the meat factory in Púchov
Bobák, J.: The assessment of the occupational safety and health with dry-ice blasting cleaning vulcanization molds in selected company
Bozalková, R.: Hygienic ensure of drinking water
Bučko, J.: Occupational Health and Safety Education System in Railway Company Cargo Slovakia, a.s.
Cesneková, Z.: Influence of the properties of wood dust settled on their ignition characteristics
Csóka, B.: Risk analysis of selected furniture company in terms of health and safety
Čapkovičová, D.: Effect of Selected Extinguishing Agents on Nutrients Leaching from Burned Soil
Černák, M.: Comparison of extinguishing substances used for fighting against forest fires
Čičková, J.: Effect of heat flow on thermal degradation of cables
Dobšovič, M.: Assessment of the technical safety of selected technical equipment
Doktor, V.: Assessment of the condition of OSH in a selected road transport company
Dovala, J.: Calculating the probability of fire in railway tunnels in Slovakia
Draxlerová, M.: Effect of flame retardants on the initiation of solid materials
Ďubeková, A.: Resolution of OSH in SMEs
Dubovský, D.: Simulation of fire development in enclosures
Duda, J.: Analysis of the current health and safety in the company
Fekete, Ľ.: Requirements for the safe operation of swimming pools in Slovakia and USA
Fúčela, M.: The safety assessment for the selected job in engineering company
Gáborová, L.: Safety at work at tool in company SVEC a SPOL., Ltd., Vráble
Gašparovič, R.: Fire dangers of cigarettes
Gromerová, M.: Engine biofuels used in the present
Grosmanova, E.: Risk analysis for selected work activities in the company Delta Electronics (Slovakia) s.r.o.
Habala, Š.: The Analysis of Human Health Risk in Woodworking Business
Habánek, P.: Impact of an optimization of intermittent nitrification on wastewater treatment plant operation
Hesko, M.: Analysis of the impact of hazardous substances leaking from a railway wagon
Hlubík, M.: Radiation safety by transporting of radioactive waste in the area of nuclear power plant
Holec, M.: Effect of preparation and training for security staff in the training centre at Bohunice
Holíčková, M.: Analysis on safety conditions of work in the glassworks RONA, a.s.
Hovančíková, M.: Assess an efficiency of selected wastewater treatment plant
Chrenková, B.: The impact of alcohol on driver safety work
Ivašková, Z.: Analysis of the current state of health and safety at work welder at work
Kamzíková, T.: Risks caused by hyperbaric welding and their eliminations
Kiš-Petyová, A.: Analysis of self-heating process selected vegetable oils with safety calorimeter SEDEX
Klenkovič, R.: Monitoring of surface water quality in the chosen location

Kleštinec, A.: Assessment and monitoring of safety culture
Klimičková, Ľ.: Analysis of accidents at work machines in the Nitra region
Kliský, M.: Risk analysis in responding to fires in buildings with photovoltaic cells
Kováč, M.: The study of conditions of electrolytic hydrogen production in a modified electrolyser
Kováčová, J.: The risk analysis process of installing and operating switchboard
Kubek, J.: Risk analysis of selected machinery in Železiarne Podbrezová
Kúdela, J.: Appraisal of the safety level in COOP Jednota Trnava
Kunšteková, L.: Determination of the ecotoxicity of selected process fluids activated sludge bacteria
Kuracina, M.: Design and construction of hydrogen generator
Kutálek, M.: WCM in the production process BFD lines for safety and environment
Kutálková, D.: Coordination of safety on the construction site
Kutyiková, G.: Quantification of noise emissions in a welding studio
Lipáková, J.: Identification of dangerous and risk in operation for metal finishing
Lovíšková, S.: Analysis of the System of Communal Waste Disposal in Považská Bystrica
Madara, J.: Production of bioethanol from sugar beet
Mahút, M.: Complex examination of working safety of arc welding
Makuková, A.: Security audit systems and workplace health protection at production plant
Malovcová, L.: Utilization of oily raw materials for biodiesel production
Máriková, Z.: Calculation the activation energy of lignocellulosic materials by dynamic thermogravimetry
Masník, M.: Comparison of PVC and halogen-free cables and their behaviour in therms of fire
Melišíková, H.: The risk analysis process packet sugar
Miča, P.: Analysis of danger of explosion in the selected company
Michalíková, Z.: Environmental management activities and job security in the integrated management of aquatic plants
Michalina, M.: On-line monitoring of degradability of selected metalworking fluids by using the parameters of O2/CO2
Mináriková, B.: Safety and environmental marking of plastic shopping bags used in selected retail chains
Mináriková, L.: Accident at work and occupational disease in Constuction
Mitašová, A.: Verification of degradation of biodegradable shopping bags from plastic packaging used in selected retail chains
Modrovská, G.: Safety assessment in the application of anti-corrosive coatings for the selected department
Molnár, K.: The impact of the way of applications of intumescent coating on the thermal degradation of electrical cables
Mráziková, A.: Labelling of textile clothing and footwear
Nagy, L.: Monitoring the external conditions of thermal degradation of thermoplastic polyurethane elastomers
Obalová, L.: Fire and environmental hazard of acids and bases for their transport
Ometáková, K.: Classification and measures to reduce occupational accidents and illnesses in the construction industry
Pauločíková, P.: Evaluation of degradability of selected metalworking fluids by the parameter TOC
Pobočková, N.: Risk analysis on a lathe in the company Sauer-Danfoss, Inc
Polakovičová, A.: Safety aspects of the use of pyrotechnics
Půšpőkyová, M.: Assessment of the impact of the amount of impurities selected bio-components for the firefighting characteristics of the automotive fuels
Rauová, J.: Monitoring the external conditions of thermal degradation of thermoplastic polyolefin
Remžová, D.: Safety and environmental reporting organizations involved in the program safe enterprise
Salvet, R.: Risk analysis non-scenario-based methods
Samolej, D.: The implementation of cooperation between management and employees on safety and health at work
Sekerová, I.: Fire risk of motor vehicle fuels
Sitnianska, M.: Analysis of groundwater in Dubnica nad Váhom´s region
Sobota, M.: Impact assessment of density convection heat flux transmitted to the operating time of selected types of electric cables
Szabová, M.: Comprehensive assessment of the safety level in the department of Mechanic specialist of the automotive production
Šandor, D.: Design of algorithm for calculating critical cuts by using the method of the defect tree analysis via Microsoft Excel.
Šellingová, K.: Principles of inherent safety and historical causes in the conditions of ordinary life
Ševčík, P.: Contamination of soils with extinguishing agents during fire fighting grassy and wooded areas
Širůček, P.: Fire security audit existing buildings of the Ministry of Defence of the Slovak republic
Štefáková, L.: Non-conventional sorbents and their utilizing for removing selected metals from the water
Štefáková, Z.: Removal of selected metals in the aquatic environment non-conventional sorbents
Šutiaková, M.: Analysis of the influence of the location and setting the air conditioner on thermal comfort in the workplace
Tarková, O.: The operational safety in warehouse area of the company COOP VOZ a. s., Trnava
Tatarka, O.: Studying the use of ozonisation of selected metalworking fluids
Tibenská, L.: Spontaneous combustion of thermally stressed oils
Uhlíková, J.: Correlation of processes and Slovak republic legal regulations in system application of environmental and security management in water company
Urban, J.: Hazard analysis and risk in the operation and maintenance of a large grinder
Valjentová, O.: The proposal of the information system for application of cutting fluids within engineering - health and safety aspects
Vašina, D.: The work safety assessment during the production of the absorption capsules for the storage tanks
Vidlička, V.: Monitoring of Batteries and its Impact on the Safety of Nuclear Power
Viskup, P.: Use of starchy raw material for bioethanol production
Vráblik, R.: Electric blast of the explosives and its safety
Vyskoč, M.: Work Safety during Construction and Reconstruction of Dwellings
Vyšváderová, Ľ.: Major industrial accident in Airport Bratislava Milan Rastislav Stefanik

PhD Theses
Jaspers Rainer, J.: Proposal of an extinguishing system for the extinguishing of tyres, stored in single-storey warehouses
Kopáčiková, I.: Study of polycyclic aromatic hydrocarbons determination in dangerous wastes
Svoboda, M.: Identification and control of unwanted events in using technological equipment in case of dangerous materials outflow

Habilitation Theses
Rusko, Miroslav: Environmental and Safety Marking of Products and Production in the Context of Sustainable Prosperity, Trnava: STU MTF, 2013

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 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 modelling and comparison of different types of modelling programs 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 equipment 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 expertise:

- 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 Emissions
- 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 **Elearning as a Handbook of Health and Safety in Welding**
Coordinator Ing. Zuzana Szabová, PhD.
Start Date 01/01/2013
End Date 31/12/2015
Programme KEGA
Annotation The project aims to create a comprehensive handbook on safety and health (OSN) and fire protection in the classic, special, modified and hybrid technologies, welding, brazing and thermal cutting of materials. The guide to health and safety in welding will be available on the Internet for students of all forms of study within elearning and for use by experts. The guide will be an important tool and source of information in assessing risks for a wide range of subjects using the technology of metallurgical bonding and cutting of materials. There will also be taken into account the effective application in existing social practice. The guide will simplify access to the information and bring a new perspective for solving practical problems of safety and health in welding.

Project Title **Progressive methods of material firetechnical characteristics determination in fire engineering**
Coordinator prof. Ing. Karol Balog, PhD.
Start Date 24/10/2013
End Date 30/09/2017
Programme APVV
Annotation The contribution to research in the area of fire engineering is in accordance with world trends through the utilisation of the progressive methods for the determination of important firetechnical characteristics for the calculation and modelling of compartment fires. The characterisation and verification of the laboratory testing methods will utilise modern equipment for obtaining the unique material characteristics and their alterations due heat and fire. The behaviour of the solid and liquid materials will be predicted in the process of initiation and propagation of combustion on the ground. New methods will be applied for the determination of critical boundary conditions of testing for representative materials in the progressive material structures for the improving of outputs from the fire scenarios used.

Project Title **Construction of an educational laboratory for fire reconstruction on a laboratory scale**
Coordinator Ing. Jozef Martinka, PhD.
Start Date 01/01/2013
End Date 31/12/2015
Programme KEGA
Annotation Investigation of fires causes is one of the most difficult tasks for fire protection. Correctly determined the cause of the fire can be a thin line between justice and miscarriages of justice, and a key tool for the determination respectively. Verification of the fire cause is its reconstruction on a laboratory scale. Reconstruction of a fire on a laboratory scale is divided into the reconstruction of initiation and the reconstruction of progress (development) of the fire. Reconstruction of initiation gives an answer to the question whether a specific ignition sources could be the cause of the fire. Reconstruction of the fire development provides valuable data about the behaviour of materials and products in the fire under conditions similar to the fire. The basic assumptions for the applicability of laboratory tests for the reconstruction of fire are the proper selection, design and implementation of laboratory tests. Currently there is no specialised facility for the reconstruction of fire on a laboratory scale, and no training centre to prepare specialists for the execution of the tests in the Slovak Republic.

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee	Country	Employee
Czech Republic	Ing. Lenka Blinová, PhD. Ing. Jozef Fiala, PhD. Ing. Kristína Gerulová, PhD. Ing. Jozef Harangozó, PhD. Ing. Ivan Hrušovský, PhD. Ing. Jozef Martinka, PhD. Ing. Peter Rantuch, PhD. RNDr. Maroš Sirotiak, PhD. doc. Ing. Ivana Tureková, PhD.	Croatia	prof. Ing. Karol Balog, PhD.
		Poland	prof. Ing. Karol Balog, PhD. Ing. Jozef Martinka, PhD.
		Romania	Ing. Jozef Martinka, PhD.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Academy of Science / Slovak Botanical Society
doc. 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
prof. Ing. Maroš Soldán, PhD.

Slovak Standards Institute TC 39
doc. Ing. Ivana Tureková, PhD.

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

Slovak Standards Institute TC 72
doc. 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
prof. Ing. Maroš Soldán, PhD.
Ing. Richard Kuracina, PhD.
Ing.Anna Michalíková, PhD.

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

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

Futurological Society in Slovakia
doc. RNDr. 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
doc. RNDr. Miroslav Rusko, PhD.

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

PUBLICATIONS (most important publications in 2013)

List of publications contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Chrebet, Tomáš - Martinka, Jozef - Balog, Karol: Lignocellulosic Material's Mass Flux Rate at the Moment of Ignition. In: Research Journal of Recent Sciences. - ISSN 2277-2502. - Vol. 2 (ISC-2012) (2013), pp. 1-6

Martinka, Jozef - Hroncová, Emília - Chrebet, Tomáš - Balog, Karol: Fire risk assessment of thermally modified spruce wood. - APVV 0353-11, ITMS 26220120048. – **registered in: Scopus.** In: Acta Facultatis Xylologiae Zvolen. - ISSN 1336-3824. - Roč. 55, č. 2 (2013), pp. 117-128

Fiala, Jozef - Blinová, Lenka - Soldán, Maroš - Balog, Karol: Study of hydrogen production using photovoltaic. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 291-294: The 2012 International Conference on Sustainable Energy and Environmental Engineering (ICSEEE 2012), 29 - 30 December 2012, Guangzhou, China (2013), pp. 593-596

Gerulová, Kristína - Fiala, Jozef - Szabová, Zuzana - Buranská, Eva - Pauločíková, Petra - Bacigalová, Petra: Potential Utilization of OECD 302 B Test in Biodegradability Assessment of Metalworking Fluids. - ITMS: 26220120045. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 726-731: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 April 2013, Guilin, China (2013), pp. 2256-2259

Gerulová, Kristína - Buranská, Eva - Turňová, Zuzana - Fiala, Jozef: Preliminary Study of Utilizing Ozone in Treatment of Operationally Exhausted Metalworking Fluids. - ITMS 26220120045. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 690-693: The 4rd International Conference on Manufacturing Science and Engineering (ICMSE 2013), 30 - 31 March 2013, Dalian, China (2013), pp. 1117-1121

Hrušovský, Ivan - Balog, Karol - Martinka, Jozef - Chrebet, Tomáš: Investigation of airflow influence on self-heating process of linseed oil using safety calorimeter SEDEX. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 690-693: The 4rd International Conference on Manufacturing Science and Engineering (ICMSE 2013), 30 - 31 March 2013, Dalian, China (2013), pp. 1340-1344

Chrebet, Tomáš - Martinka, Jozef - Balog, Karol - Turňová, Zuzana: Activation energy of pure and impregnated lignocellulosic materials obtained by isothermal method. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 690-693: The 4rd International Conference on Manufacturing Science and Engineering (ICMSE 2013), 30 - 31 March 2013, Dalian, China (2013), pp. 1179-1183

Chrebet, Tomáš - Martinka, Jozef - Balog, Karol - Hrušovský, Ivan: Moment of Lignocellulosic Materials Ignition Defined by Critical Mass Flow Rate. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 291-294: The 2012 International Conference on Sustainable Energy and Environmental Engineering (ICSEEE 2012), 29 - 30 December 2012, Guangzhou, China (2013), pp. 1985-1988

Králiková, Ružena - Rusko, Miroslav - Badida, Miroslav: Six Sigma Method Applying within Environmental Management. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 739: 2013 World Congress on Industrial Materials - Applications, Products and Technologies (WCIM 2013), 1 - 2 April 2013, Beijing, China. - , 2013, pp. 700-705

Martinka, Jozef - Chrebet, Tomáš - Kráľ, Ján - Balog, Karol: An examination of the behaviour of thermally treated spruce wood under fire conditions. In: Wood Research. - ISSN 1336-4561. - Vol. 58, No. 4 (2013), pp. 599-606

Martinka, Jozef - Hroncová, Emília - Chrebet, Tomáš - Balog, Karol: A comparison of the Behaviour of Spruce Wood and Polyolefins During the Test on the Cone Calorimeter. - APVV 0353-11, ITMS: 26220120048. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 726-731: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 April 2013, Guilin, China (2013), pp. 4280-4287

Rantuch, Peter - Chrebet, Tomáš - Balog, Karol: Comparison of optical smoke density of expanded polystyrene without and with cover components used in ETICS. - ITMS 26220120048. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 724-725: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 Apríl 2013, Guilin, China (2013), pp. 1625-1629

Rusko, Miroslav - Králiková, Ružena: Implementation of Environmental Oriented Monitoring in the Manufacturing Company. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 816 - 817. - , 2013, pp. 1225-1230

Soldán, Maroš - Sirotiak, Maroš - Michalíková, Anna: Catalytic ozonization of phenol with the use of alternative catalysts. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 781-784: The 3rd International Conference on Chemical Engineering and Advanced Materials (CEAM 2013), 6 - 7 July 2013, Guangzhou, China. - , 2013, pp. 207-210

Soldán, Maroš - Bartošová, Alica - Ševčíková, Janka: CrVI adsorption using black nickel mud as adsorbent. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 726-731: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 April 2013, Guilin, China (2013), pp. 58-61

Soldán, Maroš - Balog, Karol - Kobetičová, Hana: Evaluation of Catalytic Properties of Red Mud. - ITMS 2622022005. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 749: 2013 International Conference on Bio-Medical Materials and Engineering (ICBME 2013), 26 - 27 March 2013, Hong Kong, China. -, 2013, pp. 99-105

Soldán, Maroš - Čaplovič, Ľubomír - Galbičková, Blanka - Gerulová, Kristína: Evaluation of the Structure of Industrial Wastes. - **registered in: Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 664: 2012 International Conference on Environmental and Materials Engineering (EME 2012), Seoul Korea, 9 - 10 December 2012 (2013), pp. 185-190

Svoboda, Michal - Tureková, Ivana - Szabová, Zuzana: Determination of Parameters of Leakage of Propane from the Tank. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 785-786: The 3rd International Conference on Chemical Engineering and Advanced Materials (CEAM 2013), 6 - 7 July 2013, Guangzhou, China. - , 2013, pp. 1413-1417

Tureková, Ivana - Harangozó, Jozef - Turňová, Zuzana - Balog, Karol: Assessment of Functionality of Aged Cables at Loading by Heat Flux. - ITMS: 26220120014. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 652-654: 3rd International Conference on Advances in Materials and Manufacturing Processes (ICAMMP´2012), 22 - 23 December 2012, Beihai, China (2013), pp. 508-511

Tureková, Ivana - Turňová, Zuzana: Assessment of human factor in production engineering. - **registered in: Scopus.** In: Occupational Safety and Hygiene: Proceedings of the 9th International Symposium on Occupational Safety and Hygiene, SHO 2013. Guimaraes, Portugal, 14 - 15 February 2013. - Boca Raton: CRC Press, 2013. - ISBN 978-1-138-00047-6. - PP. 567-571

Tureková, Ivana - Turňová, Zuzana - Harangozó, Jozef - Kasalová, Ivana - Chrebet, Tomáš: Determination of Ignition Temperature of Organic Dust Layers. - Vega 1/0446/12. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 690-693: The 4rd International Conference on Manufacturing Science and Engineering (ICMSE 2013), 30 - 31 March 2013, Dalian, China (2013), pp. 1469-1472

Tureková, Ivana - Szabová, Zuzana - Kasalová, Ivana - Chrebet, Tomáš: Determination of Inductive Ignition Period and Activation Energy of Food Dust. - ITMS: 26220120048, Vega 1/0446/12. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 750-752: The 3rd International Conference on Advanced Engineering Materials and Technology (AEMT 2013), 11 - 12 May 2013, Zhangjiajie, China. - , 2013, pp. 1860-1863

Tureková, Ivana - Rybakowski, Marek - Szabová, Zuzana - Dudarski, Grzegorz: Efficiency Rating of Vision in Terms of Prevention of Road Accidents at Work. - **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld: Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 734-737: The 2rd International Conference on Energy and Environmental Protection (ICEEP 2013), 19 - 21 April 2013, Guilin, China. - , 2013, pp. 1613-1616

Tureková, Ivana - Turňová, Zuzana - Balog, Karol - Harangozó, Jozef: Study of Effect of Flame Retardants on Initiation Process of Lignocellulose Materials at Heat Flux Acting. - ITMS: 26220120014. - **registered in: Web of Science.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 291-294: The 2012 International Conference on Sustainable Energy and Environmental Engineering (ICSEEE 2012), 29 - 30 December 2012, Guangzhou, China (2013), pp. 744-747

Tureková, Ivana - Turňová, Zuzana - Vékony, Peter - Pastier, Martin: Study of Polymeric Materials Burning. - ITMS 26220120014. - **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 295-298: 2012 International Conference on Sustainable Energy and Environmental Engineering (ICSEEE 2012), 29 - 30 December 2012, Guangzhou, China (2013), pp. 471-474

Tureková, Ivana - Turňová, Zuzana - Balog, Karol - Pastier, Martin: Study of Thermal Degradation of Polymers. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 652-654: 3rd International Conference on Advances in Materials and Manufacturing Processes (ICAMMP´2012), 22 - 23 December 2012, Beihai, China (2013), pp. 1664-1667

Turňová, Zuzana - Chrebet, Tomáš - Tureková, Ivana - Balog, Karol: Study of Thermal Stability of Magnesium Alloys. - **registered in: Web of Science, Scopus.** In: Advanced Materials Research. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 690-693: The 4rd International Conference on Manufacturing Science and Engineering (ICMSE 2013), 30 - 31 March 2013, Dalian, China (2013), pp. 74-77

This part of Annual Report 2013 was verified by prof. Ing. Karol Balog, PhD.

CONTACT

Director Dr. h. c. prof. Dr. Ing. Oliver Moravčík
e-mail: oliver.moravcik@stuba.sk
tel.: +421918646065

Address Hajdóczyho 1, 917 24 Trnava, Slovak Republic
tel.: +421906068300
fax.: +421906068499

RESEARCH CENTRE OF PROGRESSIVE TECHNOLOGIES

STAFF

- Scientific Centre of Materials Research: Research Fellows: 14
- Scientific Centre of Automation and ICT Implementation: 7

ACTIVITIES OF THE CENTRE

Date	Title of event or activity at the centre in 2013
15/03/2013	Establishment of the Centre
09/10/2013	Provision of an educational programme for Human Resources Development in the field of research and development for the UVP_CAMBO Workplace of Materials Research (HZDR, Germany)

In October 2013, 14 researchers and operators were sent to Helmholtz-Zentrum Dresden Rossendorf to attend a 2-year educational programme within the working groups oriented on materials research and projects on the utilisation of ion beams. Their knowledge is being theoretically enhanced by attending specialised lectures and on-site training to use the unique equipment. The intention is that they will continue their scientific work in the Workplace of Materials Research after the construction of Slovakion is accomplished.

RESEARCH AT THE CENTRE

The Research Centre of Progressive Technologies (Faculty of Materials Science and Technology in Trnava, Slovak University of Technology in Bratislava) is primarily focused on Materials Engineering in the field of ion and plasma Technologies, Automation and ICT implementation in industrial processes and research field e.g. nanotechnology and nanostructures, sensorics, specific hardware & software development, bioengineering and health, vision and processing, big data, humanoids, simulation and modelling. The area of Materials research will include theoretical modelling using ab-initio methods, either at a very accurate level treating small systems at the molecular scale, or DFT methods concerning bulk materials and surfaces. The area of Automation and ICT implementation will also provide space for research and development in a wide range of hardware, communication and management of automated software tools, knowledge based systems, archiving and distribution of knowledge of higher-level systems.
The Research centre comprises of two new buildings for the purposes of research, located on the campus. Research centres:
1/ Scientific Centre of Materials Research with laboratories focused on:
ion beam technologies, plasmatic modification and deposition, analytical methods, computational modelling.
2/ Scientific Centre of Automation and ICT Implementation in Production Processes and related laboratories, comprised of the:
control systems, ICIM, information integration and control systems, artificial intelligence, bioengineering, medicine/health, chemistry etc.

The further activities of the centre are:
Applied research in the above-mentioned research centres and the research fields, e.g.:
- Quantum chemistry, Benchmarking, Materials technology, Nanotechnology and Nanosciences, Nuclear fission, Nuclear fusion, Hydrogen and fuel cells, Radioactive waste,
- Climate change and Carbon cycle research, Radiation protection,
- Artificial intelligence, machine learning, human-robot interaction etc.,
- Big data, Business intelligence, data mining, knowledge discovery,
- Vision and image processing, evaluation,
- Microelectronics and hardware development, microchips,
- Sensor technology, tyres, drives, controlling and control systems, industrial communication technologies,
- Software development (GIS, Telemetric systems),
- Verifications and SW testing,
- Mathematical models and representations (systems with quick feedback).

Support to transfer the advanced technologies into practice, transfer of know-how, innovations and knowledge from the academic environment into practice and providing support for start-up and spin-off activities.

PROJECTS OF THE CENTRE

Name of project **Human Resources Development in the field of research and development for the UVP-CAMBO**
ITMS of project 26110230116
Duration of project 10/2013-06/2015
Operational programme OPV-2013/1.2./07-SORO
Annotation In October 2013, 14 researchers and operators were sent to Helmholtz-Zentrum Dresden Rossendorf to attend a 2-year educational programme within the working groups oriented on materials research and projects on the utilisation of ion beams. Their knowledge is being theoretically enhanced by attending specialised lectures and on-site training to use the unique equipment. The intention is that they will continue their scientific work in the Workplace of Materials Research after the construction of Slovakion is accomplished..

Name of project **University Scientific Park „ CAMPUS MTF STU" - CAMBO**
ITMS of project 26220220179
Duration of project 03/2013-06/2015
Operational programme OPVaV - 2012/2.2/08-RO

Name of project **Implementation of an internal quality assurance system in education**
ITMS of project 26110230042

Name of project **The data-mining usage in the manufacturing systems control.**
ITMS of project VEGA 1/0214/11

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee	Country	Employee
Croatia	Ing. Jana Bohovičová, PhD. doc. Ing. Maximilián Strémy, PhD. Dr. h. c. prof. Dr. Ing. Oliver Moravčík	Czech Republic	doc. Ing. Stanislav Minárik, PhD.
		Germany	Ing. Matúš Beňo, PhD. Ing. Jana Bohovičová, PhD. Mgr. Lucia Bónová, PhD. Ing. Jozef Dobrovodský, CSc. Mgr. Juraj Halanda, PhD. Ing. Radoslav Halgaš, PhD. RNDr. Ing. Vladimír Kolesár, PhD. Ing. Marcel Meško, PhD. doc. Ing. Stanislav Minárik, PhD. Ing. Martin Muška Ing. Noga Pavol, PhD. doc. Ing. Róbert Riedlmajer, PhD. Ing. Dušan Vaňa, PhD. Ing. Anna Závacká, PhD.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Physical Society
doc. Ing. Stanislav Minárik, PhD.
doc. Ing. Róbert Riedlmajer, PhD.

International Federation of Automatic Control IFAC, branch of the Slovak Society of Cybernetics and Informatics, SAV
doc. Ing. Maximilián Strémy, PhD.

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

European Physical Society
doc. Ing. Róbert Riedlmajer, PhD.

North-Atlantic Consortium on Non-Oxide Glasses (NACNOG)
doc. Ing. Stanislav Minárik, PhD.

European Association of National Metrology Institutes - EURAMET e.v.
Jozef Dobrovodský

Euro-Asian Cooperation of National Metrological Institutions - COOMET
Jozef Dobrovodský

IRSN - Institut de Radioprotection et de Sûreté Nucléaire, Cadarache, France
RNDr. Katarína Šulková, PhD.

IRSN - Institut de Radioprotection et de Sûreté Nucléaire, Cadarache, France
RNDr. Martin Šulka, PhD.

International Association of Computer Science and Information Technology IACSIT
doc. Ing. Maximilián Strémy, PhD.

PUBLICATIONS (most important publications in 2013)

List of publications contains authentic translations of the titles into English in the original wording as translated by the Institute, i.e. without English language proofreading.

Važan, Pavel - Tanuška, Pavol - Jurovatá, Dominika - Kebísek, Michal: Analysis of Production Process Parameters by Using Data Mining Methods. - In: CECOL 2012 : III Central European Conference on Logistics. Trnava, SR, 28. - 30. 11. 2012. - Trnava : AlumniPress, 2012. - ISBN 978-80-8096-179-4. - [8]. – **registered in: Web of Science, Scopus.** In: Applied Mechanics and Materials. - ISSN 1660-9336. - Vol. 309 : 3rd Central European Conference on Logistics (CECOL 2012), November 28 -30, 2012, Trnava, Slovak Republic (2013). - ISBN 978-3-03785-636-9, pp. 342-349

Karavaev, Yury - Klekovkin, Anton - Bezák, Pavol: The Implementation of Microprocessor Device for Drilling Process Monitoring based on Artificial Neural Network. – **registered in: Scopus, IEEE.** In: Proceedings of the 2013 International Conference on Process Control: Slovakia, June 18-21, 2013. - Piscataway : IEEE, 2013. - ISBN 978-80-227-3951-1. - CD-ROM, pp. 163-167

Pivarčiová, Elena - Bezák, Pavol - Iringová, Miriam: Automation of Product Defect Detection in a Production System. – **registered in: Scopus, IEEE.** In: Proceedings of the 2013 International Conference on Process Control : Slovakia, June 18-21, 2013. - Piscataway : IEEE, 2013. - ISBN 978-80-227-3951-1. - CD-ROM, pp. 492-497

Ridzoň, Martin - Závacká, Anna: Effect of Drawing Tubes Without Interoperation Recrystallization Annealing on the Orientation of Boundaries Grain - longitudinal Direction. – **registered in: Scopus.** In: Applied Mechanics and Materials. ISSN 1660-9336. - Vol. 421 : 4th International Conference on Information Technology for Manufacturing Systems (ITMS 2013), 28 - 29 August 2013, Auckland, New Zealand. - , 2013, pp. 329-333

Ridzoň, Martin - Bílik, Jozef - Závacká, Anna: Effect of Drawing Tubes Without Interoperation Recrystallization Annealing on the Orientation of Boundaries Grain - Orthogonal Direction. – **registered in: Scopus.** In: Advanced Materials Research. - Clausthal-Zellerfeld : Trans Tech Publications. - ISSN 1022-6680(P). - ISSN 1662-8985(E). - Vol. 811 : The 2013 2nd International Conference on Mechanical Properties of Materials and Information Technology (ICMPMIT 2013), 17 - 19 August 2013, Hong Kong. - , 2013, pp. 104-107

Kozík, Tomáš - Minárik, Stanislav: New possibilities for investigation of the technological texture based on measurement of electric parameters: Theoretical analysis and experimental verification. – **registered in: Scopus, Master Journal List.** In: Journal of Electrical Engineering. - ISSN 1335-3632. - Vol. 64, No. 6 (2013), pp. 376-380

Bošák, Ondrej - Kostka, Peter - Minárik, Stanislav - Trnovcová, Viera - Podolinčiaková, J. - Zavadil, Jiří: Influence of composition and preparation conditions on some physical properties of TeO2-Sb2O3-PbCl2 glasses. - P106/12/2384, APVV SK-CZ-195-11. – **registered in: Web of Science, Master Journal List, Scopus.** In: Journal of Non-Crystalline Solids. - ISSN 0022-3093. - Vol. 377, Spec. iss (2013), pp. 74-78

Beňo, Matúš - Zvončan, Marek - Kováč, Martin - Peterka, Jozef: Circular interpolation and positioning accuracy deviation measurement on five axis machine tools with different structures. - ITMS 26220120045. – **registered in: Web of Science, Master Journal List, Scopus.** In: Tehnicki Vjesnik - Technical Gazette. - ISSN 1330-3651. - Vol. 20, No. 3 (2013), pp. 479-484

Bílek, Pavel - Jurči, Peter - Hudáková, Mária - Bohovičová, Jana - Sobotová, Jana: CrAg7N nanocomposite coatings deposited of Cr-V ledeburitic steel. - ITMS: 26220120048. In: METAL 2013: 22nd International Conference on Metallurgy and Materials. May 15th - 17th 2013, Brno, Czech Republic. - Ostrava: TANGER, 2013. - ISBN 978-80-87294-39-0. - CD-ROM, [6] p.

Bohovičová, Jana - Jurči, Peter - Hudáková, Mária - Čaplovič, Ľubomír - Sahul, Martin - Bílek, Pavel: Analysis of CrAgN coating on vanadis 6 steel after pin-on-disc testing. - ITMS: 26220120048. In: METAL 2013: 22nd International Conference on Metallurgy and Materials. May 15th - 17th 2013, Brno, Czech Republic. - Ostrava : TANGER, 2013. - ISBN 978-80-87294-39-0. - CD-ROM, [6] p.

Beňo, Matúš: Selected Aspects of the Turning Process of Slender Parts. - 1st ed. - Köthen : Hochschule Anhalt, 2013. - 113 p. - ISBN 978-3-86011-064-5

Palmans, H. - Al-Sulaiti, L. - Andreo, P. - Shipley, D. - Lühr, A. - Bassler, N. - Martinkovič, J. - Dobrovodský, J. et al.: Fluence correction factors for graphite calorimetry in a low-energy clinical proton beam: I. Analytical and Monte Carlo simulations. In: Physics in Medicine and Biology. - ISSN: 0031-9155. - Vol. 58, No. 10 (2013), pp. 3481-3499

Sorokina, S. - Marková, E. - Gurský, J. - Dobrovodský, J. - Belyaev, I.: Relative biological efficiency of protons at low and therapeutic dosed in induction of 53BP1/gH2AX foci in lymphocytes from umbilical cord blood. In: International Journal of Radiation Biology. - ISSN: 0955-3002. - Vol. 89, No. 9, (2013), pp. 716-723

Vaňa, Dušan - Podhorský, Štefan - Hurajt, Marek - Hanzen, Vladimír: Surface Properties of the Stainless Steel X10 CrNi 18/10 after Aplication of Plasma Polishing in Electrolyte. In: International Journal of Modern Engineering Research. - ISSN 2249-6645. - Vol. 3, Iss. 2 (2013), pp. 788-792

Vaňa, Dušan - Podhorský, Štefan - Šuba, Roland - Hurajt, Marek: The change of surface properties on tested smooth stainless steel surfaces after plasma polishing. In: International Journal of Engineering Science Invention. - ISSN 2319-6726(P). - ISSN 2319-6734(E). - Vol. 2, Iss. 6 (2013), pp. 7-11

HALGAŠ, Radoslav - DUSZA, Ján - KAIFEROVÁ, Jana - KOVÁCSOVÁ, Lucia - MARKOVSKÁ, Neda. Nanoindentation testing of human enamel and dentin. In Ceramics, 2013, vol. 57, No. 2, pp. 92-99. ISSN 0862-5468.

DUSZOVÁ, Annamária - HALGAŠ, Radoslav - BĽANDA, Marek - HVIZDOŠ, Pavol - LOFAJ, František - DUSZA, Ján - MORGIEL, Jerzy. Nanoindentation of WC-Co hardmetals. In Journal of the European Ceramic Society, 2013, vol. 33, pp. 2227-2232. ISSN 0955-2219.

Seliga, Emil - Bošák, Ondrej - Minárik, Stanislav - Kubliha, Marián - Labaš, Vladimír - Slabeycius, Juraj: Electrical Response of Silanization of Rubber Mixtures. - APVV-SK-CZ-0168-11, APVV-SK-CZ-0195/11. In: Advances in Materials Physics and Chemistry. - ISSN 2162-531X. - Vol. 3, No. 2 (2013), pp. 105-111

Stanislav Minarik - Vladimir Labas: Hamiltonian of Acoustic Phonons in Inhomogeneous Solids. In: Journal of Modern Physics. - ISSN Print: 2153-1196, ISSN Online: 2153-120X. - Vol.4, No.3, March 2013 , pp. 373-379.

Seliga, Emil - Bošák, Ondrej - Rusnáková, Soňa - Minárik, Stanislav: Mathematical characterization of the values of rheologic variables during the networking reaction of rubber mixtures based on SBR. - APVV-SK-CZ-0168-11, ITMS 26220120014. In: The 1st International Conference on Rheology and Modeling of Materials : Miskolc - Lillafüred, Hungary, October 7 -11, 2013. Book of abstracts. - Miskolc : Igrex Engineering Service Ltd., 2013. - ISBN 978-963-08-7390-1. - p. 41

Seliga, Emil - Bošák, Ondrej - Koštial, Pavel - Dvořák, Zdeněk - Kubliha, Marián - Minárik, Stanislav - Labaš, Vladimír: Monitoring of vulcanization process using measurement of electrical properties during linear increasing temperature. - APVV-SK-CZ-0168-11, ITMS 26220120014. In: The 1st International Conference on Rheology and Modeling of Materials : Miskolc - Lillafüred, Hungary, October 7 -11, 2013. Book of abstracts. - Miskolc : Igrex Engineering Service Ltd., 2013. - ISBN 978-963-08-7390-1. - p. 42

J. Bednarcik, S. Michalik, V. Kolesar, U. Rutt, H. Franz, In situ XRD studies of nanocrystallization of Fe based metallic glass: a comparative study by reciprocal and direct space methods, Phys. Chem. Chem. Phys., pp. 1-10, 2013.

Ł. Reimann, L.A. Dobrzański, B. Nieradka, M. Kusy, R. Riedlmajer: Influence the heat treatment of two Journal base metal alloys used on dental prosthesis on corrosion resistance. In of Achievements in Materials and Manufacturing Engineering, Volume 57, Issue 2, pp. 83-90, April 2013

Vrábeľ, R., Pavliak, D., Liška, V., Maňková, I.: Turning point control analysis of the concave steady-state solutions for nonlinear singularly perturbed heat transfer equation. In: International Journal of Mathematical Analysis, The 5th International Conference on Modelling, Identification and Control (ICMIC 2013), Cairo, Egypt, August 31-Sptember 1-2, ISSN 1312-8876. - Vol. 7, No. 39 (2013), pp. 1927-1934.

Bajčičáková, I., Kopček, M., Šutová, Z.: Design of Effective Numerical Scheme for Solving Systems with High-Speed Feedback.(http://www.m-hikari.com/ijma/ijma-2013/ijma-53-56-2013/bajcicakovaIJMA53-56-2013.pdf) In: International Journal of Mathematical Analysis. ISSN 1312-8876(P). ISSN 1314-7579(E). - Vol. 7, No. 55 (2013), online, pp. 2737-2744.

Kebísek, Michal - Bezák, Pavol: Simulation model of the temperature feedback in MATLAB/Simulink. In: Journal of Information Technologies. - ISSN 1337-7469. - Vol. 6, No. 2 (2013), pp. 9-17

Tanuška, Pavol - Važan, Pavel - Kebísek, Michal - Jurovatá, Dominika: Knowledge discovery from production databases for hierarchical process control. In: World Academy of Science, Engineering and Technology. - ISSN 2010-376X. - Iss. 83 (2013), pp. 972-977

Strémy, Maximilián - Eliáš, Andrej: Design of standard of real-time data acquisition from SMD devices and integration with ERP system. In: Science and Information Conference 2013 : Proceedings, October 7-9, 2013, London, UK. -: IEEE Computer Society, 2013. - ISBN 978-0-9893193-0-0. - pp. 249-254

This part of Annual Report 2013 was verified by Dr. h. c. prof. Dr. Ing. Oliver Moravčík

CONTACT
Head of the Division
Ing. Jaroslav Otčenáš
e-mail: jaroslav.otcenas@stuba.sk
tel/ +421 917 215 774

Address
Paulínska 16, 917 24 Trnava,
Slovak Republic
tel/+421 33 55 11 033,
fax/+421 906 068 299

DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS

SECTIONS

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

STAFF 13

PRIORITIES 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 the 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 the Faculty computer systems,
   b) provision of on-going maintenance and repairs to devices of the Faculty information technology and infrastructure,
   c) provision of consultation services for the system and the 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 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) ad-hoc 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 activities,
   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 systems.

PROJECTS OF THE DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS IN 2013

The Head of the Division, Ing. Jaroslav Otčenáš contributes to the project (2013-2015) **"Knowledge-based Faculty for economic practice".**
Ing. Pavol Závacký contributes to the project (2013-2015) **"Knowledge-based faculty for economic practice".**

ACTIVITIES OF THE DIVISION OF COMMUNICATION AND INFORMATION SYSTEMS IN 2013

- 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 centre with server and storage backend technologies,
- network intrusions detection and prevention,
- servers installing and maintenance,
- 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 UPS for servers and data storages,
- administration of CCTV and security system,
- mobile (cellular) and landline phones agenda administration,
- preparation of transition to the Active Directory for the whole faculty.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

SANET – Slovak Academic Network

This part of Annual Report 2013 was verified by Ing. Jaroslav Otčenáš

CONTACT

Head of the Division
Ing. Jana Štefánková
e-mail: jana.stefankova@stuba.sk
tel: +421 918 646 073

Address
Paulínska 16, 917 24 Trnava,
Slovak Republic
tel/ +421 33 5511 033
fax/ + 421 906 068 299

DIVISION OF ACADEMIC ACTIVITIES

SECTIONS

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

STAFF 15

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

PRIORITIES OF THE DIVISION OF ACADEMIC ACTIVITIES

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,
   d) 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:

The Head of the Division, Ing. Jana Štefánková contributes to the project (2013-2015) **"Knowledge-based Faculty for economic practice".**

The Head of the Division, Ing. Jana Štefánková is involved in the **National project "Universities as motors of the knowledge-based society development".**
The aim of the national project is to adjust the higher education to the needs of the knowledge-based society via the development of innovative forms of education, and active co-operation of universities with private sector in designing new study programmes. The project also aims to rationalise and improved the quality of the existing study fields and programmes and the process of education. One of the priorities is the integration of higher education institutions into international co-operation.

ACTIVITIES OF THE DIVISION OF ACADEMIC AFFAIRS IN 2013:

- Organisation of the International Doctoral Seminar 2013 in Dubrovnik, Croatia
- Organisation of the Students Research Conference at the Faculty 2013
- Job Day 2013
- Organisation of the "Open-house Day at MTF STU"
- Organisation of promotional activities, presentation events and preparation of collated materials for study
- Supporting the "Doctoral Week" event
- Participation at education trade fairs in Brno, Bratislava and Nitra
- 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 and publishing information for Faculty employees and students throughout the year.

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

Svetský, Štefan - Moravčík, Oliver - Schreiber, Peter - **Štefánková, Jana**: Some Aspects of Computer-Supported Teaching When Teaching Bachelors. In: US-China Education Review A. - ISSN 2161-623X(E). - Vol.3, No. 4 (Serial Number 23) (2013), s. 219-224.

Moravčík, Oliver - Sakál, Peter - Šmida, Ľubomír - **Štefánková, Jana**: Education and training in the field of sustainable development in all stages of education, university education in particular. In: Sustainable Corporate Social Responsibility [electronic source]: II. Strategy of sustainable development. - Trnava : AlumniPress, 2013. - ISBN 978-80-8096-186-2. - CD-ROM, pp. 55-73

Moravčík, Oliver - Sakál, Peter - Drieniková, Katarína - Hrdinová, Gabriela - **Štefánková, Jana**: From Sustainable Science in the European Universities towards Sustainable Competitiveness of the European Industry. In: Lecture Notes in Management Science. - ISSN 2251-3051. - Vol. 15-16: International Conference on Management Innovation and Business Innovation (ICMIBI 2013). April 21-21, 2013, Singapore. - : Singapore Management and Sports Science Institute PTE.LTD, 2013. - ISBN 978-981-07-5034-3, s. 421-426.

Svetský, Štefan - Moravčík, Oliver - **Štefánková, Jana** - Schreiber, Peter: Computer Support for Knowledge Management within R&D and the Teaching of Bachelor Students. – registered in: Scopus. In: International Journal of Emerging Technologies in Learning. - ISSN 1863-0383. - Vol. 8, Special Issue 1: "ICL 2012" (2013). - : IET, s. 22-28.

Svetský, Štefan - Moravčík, Oliver - **Štefánková, Jana**: The Personalised Computer Support of Knowledge Management. In: ICICKM-2013 : the proceedings of the 10th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning. Washington, DC, USA 24-25 October 2013. - Reading : Academic Conferences and Publishing International Limited, 2013. - ISBN 978-1-909507-77-7. - ISSN 2048-9803. - S. 429-433

Štefánková, Jana - Moravčík, Oliver: Managerial Capability Valuation of the University Management. In: Proceedings of The 9th European Conference on Management Leadership and Governance. ECMLG 2013 : Klagenfurt, Austria 14-15 November 2013. - Reading : Academic Conferences and Publishing International Limited, 2013. - ISBN 978-1-909507-86-9. - S. 257-265

Hrdinová, Gabriela - Moravčík, Oliver - Sakál, Peter - **Štefánková, Jana**: Foreword. In: Sustainable Corporate Social Responsibility [electronic source]: I. Definition of basic concepts of Sustainable Corporate Social Responsibility within the context of the paradigm change of strategic management. - Trnava: AlumniPress, 2013. - ISBN 978-80-8096-186-2. - CD-ROM, pp.5-22

This part of Annual Report 2013 was verified by Ing. Jana Štefánková

CONTACT

Head of the Division
PhDr. Kvetoslava Rešetová, PhD.
e-mail: kvetoslava.resetova@stuba.sk
tel: +421915847111

Address
Jána Bottu 25, 91724 Trnava,
Slovak Republic
Tel: +421906068300
Fax: +421906068499

DIVISION OF KNOWLEDGE MANAGEMENT

SECTIONS

- Academic Library
- Publishing House
- Public Relations

STAFF 14

- Academic Library: 7
- Publishing House: 3
- 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.
   a) operation of the Faculty publishing house and the provision of editorial activities: implementing the changes of the statute of editorial activity, including administration of anonymous reviewing, mapping the publication space in the publishing opportunities; updating and administering the publishing portal of MTF.
   a) public relations activities of the Faculty: activities related to promotion of the Faculty in the media; responsibility for the website and monitoring of the news; website of the Faculty; schedule providing information on the Faculty events; preparation of the Annual Report; regular announcements in print media; organisational support for events at the Faculty and video-recordings of events; acquisition of the technology museum; update of the MTF photo-gallery portal; innovation of poster display; production of invitations, business cards, leaflets and posters.
   a) acting as a point of contact between the Faculty and the alumni society: activity to support the Bank of Quality - Alumni MTF society.

New Activities of the Division of Knowledge Management in 2013:

Academic Library
- organisation of the Book Week as part of the International Book Day event,
- regular navigation in the electronic information sources,
- modification and restructuring of the Academic Library webpages.

Publishing House
- coordination of the process to add the Faculty journals to the Versita system (journals are indexed in the current databases: Astrophysics Data System, Celdes, CNKI Scholar, CVPIEC, EBSCO Discovery Service, Google Scholar, J-Gale, Naviga (Softweco), Paperbase, Pirabase, Polymer Library, Primo Central (ExLibris), Research RePeC , Summon (Serial Solution/Pro Quest), TDOne (TDNet), TEMA Technic and Management, WorldCat (OCLC); INSPEC (Journal Research Papers of MTF STU),
- mapping the publication space in the publishing opportunities – since 2013, Science Publishing Group,
- modification and restructuring of the publication house webpages.

Department of Public Relations
- supplying information to the webpage of the University Research Park,
- displays at the exhibitions: International Engineering Fair in Nitra (Slovak Republic),
- organisation of the Faculty activities guaranteed by the division (New Year's meeting 2013, MTF Day 2013, St. Nicholas Day 2013),
- organisational support for shooting the documentary "Spectrum of Science" for Slovak TV,
- modification and restructuring of the PR webpages (including presentation map).

PROJECTS OF THE DIVISION OF KNOWLEDGE MANAGEMENT IN 2013:

Knowledge-based Faculty for economic practice
The Project is established within the Operational Programme of Education, and financed from the European Social Fund. **ITMS 26110230113**

Modern Education for Knowledge Society / Project co-financed from the EU funds.

Time period of the Project: 10/2013 – 9/2015. Principle investigator of the Project: PhDr. Kvetoslava Rešetová, PhD.

Aims of Project
Developing the tools and partner environment of the knowledge-based Faculty for economic practice

The project is focused on developing the **tools and mechanisms for building a partner environment** of a knowledge-based Faculty for economic practice. Needs analysis is based on the long-term Faculty goals of **increasing the degree of responsibility for knowledge transfer**, and development of the knowledge-based society. It concerns the integrity of education and innovations through the development of intellectual capital and knowledge potential of the Faculty. The quality of the knowledge and intellectual potential of the institution as well as the intensity of its development are both associated with knowledge management. Transfer of knowledge represents a review of the status of knowledge in the value hierarchy of the Faculty. Tools for developing the innovative forms of the research, development and education results transfer determine the added value of the cognitive and transformation processes at the Faculty. The project maps the outcomes for the development of collaboration with economic practice and the impact of environment on the collaboration, and simultaneously creates tools for the knowledge transfer into education. The project seeks to increase the quality of education and human resources development in the fields of research and development, in order to achieve continuous adaptation of higher education institutions to the current and future needs of the knowledge society.

Sustainability of the Project results
The STU Faculty of Materials Science and Technology is well prepared to provide the wider community of economic practice with the latest information gained in the process of education and research. It has potential for value creation. It develops the means for integration of its activities and relationships with relevant partners, while bearing responsibility for the personal development of PhD students, particularly in terms of their future career societal needs. Increased demand of practice for knowledge is an incentive for the Faculty to streamline the transfer of the research and development results into the economic sphere, so as to improve the motivation of scientists to collaborate with practice, and simultaneously strengthen the Faculty's traditional mission. The sustainable environment of the STU MTF relationship with economic practice is a firm concept of the Faculty development based on the optimum coexistence of the base and applied research, innovative teaching and effective cooperation between the University and industrial sphere.

What is being prepared?
- **contractual co-operation of economic practice and STU MTF**
  - search for partners and contracts with partners, effective coordination of the contractors' activities and providing conditions for mutual long term partnership relationship between those contractors;
- membership of doctoral students and research fellows into international organisations
  - certificate of membership as a sign of credibility, recognition and professional response of the Faculty researchers and PhD students, particularly in the field of science and research;
- design of a portal of companies at the Faculty
  - high-quality and effective communication with the external environment of the Faculty, sustainable flow of information, creating the feeling of mutual understanding, solidarity and ownership;
- presentations of companies and enterprises in the Faculty premises and vice versa
  - presentation of partners, solutions to common problems of theory and practice, Faculty presentations at partner companies at home and abroad;
- support for the partners of the Faculty
  - presentation of the Faculty's partners in the domestic and international environment, promotion of the Faculty profile, curriculum and research, presentation of the partnerships in networks;
- virtual sightseeing of the technologies and manufacturing processes
  - protected access to virtual tours of the partner companies or their technological processes in order to introduce the used attractive and unique technologies in interactive forms of teaching;
- profile lectures for economic practice
  - lectures of the top Faculty experts introducing the research characteristics and the basic concept of R & D to the wide professional community;
- databases of expertise and specific offers of the Faculty for economic practice
  - the Faculty proposal for cooperation with practice, mapping the Faculty potential to address the issues of practice;
- development of information products for economic practice
  - expertise in searching the latest information in the worldwide databases for dealing with professional issues in practice.

MEMBERSHIP OF SLOVAK PROFESSIONAL ORGANISATIONS

Slovak Association of Libraries – membership of the whole academic library
Slovak Association of Publishers and Booksellers – Office of the AlumniPress

MEMBERSHIP OF INTERNATIONAL PROFESSIONAL ORGANISATIONS

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

ATRIP (International Association for the Advancement of Teaching and Research in Intellectual Property)
PhDr. Kvetoslava Rešetová, PhD.

MEMBERSHIP OF INTERNAL PROFESSIONAL ORGANISATIONS

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: Publishing Opportunities of Doctoral Candidates. In: Science Journal of Education. Vol. 1, No. 5, 2013, pp. 90-96. doi: 10.11648 / j. sjedu. 20130105.16, ISSN 2329-0897

Prelovská, Alena - Rešetová, Kvetoslava: Buiding a digital repository of publication activity and responses. In: Itlib. Information technologies and libraries. - ISSN 1335-793X. - Vol. 16, No. 3 (2013), pp. 19-23

Rešetová, Kvetoslava - Prelovská, Alena: Renowned publishers versus the evaluation of publication activity. In: Library. - ISSN 1335-7026. - Vol. 14, No. 1 (2013), pp. 41-43

This part of Annual Report 2013 was verified by PhDr. Kvetoslava Rešetová, PhD.

CONTACT

Head of the Division
Ing. Svetlana Mihoková
e-mail: svetlana.mihokova@stuba.sk
tel: +421918646016

Address
Paulínska 16, 917 24 Trnava,
Slovak Republic
tel/ +421906068200
fax/ +421906068299

DIVISON OF ECONOMIC AND ESTATE ACTIVITIES

STAFF 11

PRIORITIES OF THE DIVISION OF ECONOMIC AND ESTATE ACTIVITIES:

The Division of Economic and Estate Activities is the economic and administrative unit of the Faculty which provides economic, operative, administrative, and other services related to the proper Faculty performance, such as the complex specialised financial, accounting, budgetary and fiscal activities necessary for the proper economic functioning of the Faculty in accordance with applicable legislation in the field of business entrepreneurial activities as well as the student hostels and canteen.

The Division:
- Runs Magion the economic information system in modules such as liabilities, receivables, banks, treasury, stocks, travel orders, purchase orders , contracts, budgets and plans;
- Caries out financial control procedures for all financial transactions;
- Bears responsibility for the economical and efficient use of public resources and extra subsidies for the educational, research and investment activities as well as the activities of the Faculty hostel and canteen;
- Monitors the implementation of the current and capital expenditures for individual programmes and is responsible for observing the budgetary discipline;
- Provides the economic data necessary for the Dean and Vice-Deans' managerial activities;
- Methodically manages other divisions and departments of the Faculty and cooperates in dealing with economic problems of the Faculty;
- Develops inventories and accounts closings in accordance with the applicable legislation;
- Prepares the Annual Report on the Faculty economy and statistical and economic analyses;
- Co-operates in clearing the financial reports of research projects;
- Provides consultancy and carries out clearing of the Structural Funds projects;
- Participates in establishing the Faculty internal regulations and directives;
- Archives all the tax and accounting documents.

ACTIVITIES OF THE DIVISION OF ECONOMIC AND ESTATE ACTIVITIES IN 2013:

- Restructuring of the workplace in relation to the changes in the Organisational Regulations of the Faculty;
- Preparing reports on drawing funds for various purposes;
- Preparing legislative documentation for the economic performance of the Faculty;
- Preparing financial settlement of conferences and the entrepreneurial activity projects.

This part of Annual Report 2013 was verified by Ing. Svetlana Mihoková

CONTACT

Head of the Division
Mgr. Elena Janíčková
e-mail: elena.nemetzova@stuba.sk
tel/ +421917865242

Address
Paulínska 16, 917 24 Trnava,
Slovak Republic
tel/ +421906068200
fax/ +421906068299

DIVISION OF ESTATE ACTIVITIES

STAFF 50

PRIORITIES OF THE DIVISION OF ESTATE ACTIVITIES:

1. The Division of Estate Activities is the technical-administration unit of the Faculty which provides operative, administrative, and other services related to the proper Faculty and division operation.
2. The Division of Economic and Estate Activities is responsible predominately for logistical and controlling functions of the Faculty, maintenance of the registry system of the Slovak University of Technology at the Faculty.

ACTIVITIES OF THE DIVISION OF ESTATE ACTIVITIES IN 2013

- Reopening of the Faculty Fitness Centre in T pavilion - complete refurbishment of the room and installation of new equipment;
- Construction modifications of the buffet in T pavilion;
- Replacement of heating bodies in the Student Hostel, re-decoration of its accommodation facilities, repair of sewerage facilities, installation and insulation of new walls, repair of the plaster and tiles in both Student hostel and canteen;
- Automobile fleet renewal;
- Repair of the swimming pool and the engine room.

This part of Annual Report 2013 was verified by Mgr. Elena Janíčková

CONTACT

Head of the Division
Ing. Jaroslava Ďurišová
e-mail: jaroslava.durisova@stuba.sk
tel/+421918646017, +421906068120

Address
Paulínska 16, 917 24 Trnava,
Slovak Republic
tel/+421906068120

DIVISION OF PERSONNEL AND ADMINISTRATION

SECTIONS

- Dean's Secretariat
- Personnel Section
- Section of Employment and Economic Development
- Payroll Section (Wages and Salaries)
- Section of Safety & Health Protection at Work, Civilian Protection and Fire Safety
- Section of Security Systems

STAFF 11

PRIORITIES OF THE DIVISION OF PERSONNEL AND ADMINISTRATION

1. The Division of Personnel and Administration is the administration-service unit of the Faculty. It is responsible for securing all administrative and service activities connected with the 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 Administration 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 Administration 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 ADMINISTRATION IN 2013:

- Charity event: Christmas Bazaar
- Meeting with the Faculty former employees
- Management of the attendance system ESED
- Co-organisation of the Faculty events

This part of Annual Report 2013 was verified by Ing. Jaroslava Ďurišová

CONTACT

Head of the Department
Ing. Milan Petráš, PhD.
e-mail: milan.petras@stuba.sk
tel: +421917500924

Address
Paulínska 16, 917 24 Trnava,
Slovak Republic
tel/+421918646071
fax/ +421906068299

DEPARTMENT OF HUMANITIES AND SOCIAL SCIENCES

SECTIONS

- Humanities
- Professional Language Communication
- Physical Education and Sport

STAFF 50

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.

ACTIVITIES OF THE DEPARTMENT IN 2013

- Dies iovis occursus – Thursday meetings once a month, providing space for sharing interesting information presented by experts in the scientific, cultural and social fields.
- "On success with the successful" Project – once a month (with e.g. Škvarenina – Partners Group, Kossar – Your Buddy, Kiska, Ivo Toman, Menšík – Profesia, etc....)
- P.R.D. Project (Movement, Relax and Soul within The Youth in Action programme) for students, from 01/03/2013 to 30/11/2013); twice a week Crossfit, twice a week Yoga and lectures on healthy diet.

PROJECTS OF THE DEPARTMENT IN 2013:

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 engineering university students, as well as the framework for their evaluation are in compliance with the European Qualifications Framework and the National Qualifications Framework.

ESF: Development of pedagogical competences of the STU MTF doctoral students
(ITMS project code 26110230023). Research period: 05/2010 – 6/2014. Investigators: K. Kováč, P. Halada.
The strategic aim of the project is the development of the human potential in the research and innovation via postgraduate study and specialised preparation of researchers while networking the activities of universities, research centres and enterprises. The project goal is to develop pedagogical competences and support academic development of PhD students. Fundamental activities are the complete pedagogical and psychological training of the STU MTF PhD students for their pedagogical activities in tertiary education institutions. Another objective is the preparation and implementation of the modular course "Teacher training in the university pedagogy for STU MTF PhD students ". The development of pedagogical competencies is connected with the preparation and implementation of the "Capstone modular course".

SUBJECTS GUARANTEED BY THE DEPARTMENT IN 2013:

- Bachelor Thesis
- 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 of Education
- Sociology of Work
- Sociology of Management
- Physical Education I,II
- Pedagogy II - Andragogy
- 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
- Mental Hygiene
- Industrial Psychology
- Managerial Psychology

VISITS OF STAFF MEMBERS TO FOREIGN INSTITUTIONS

Country	Employee
Czech Republic	Mgr. PhDr. Libor Bernát, CSc.
	Mgr. Gabriela Chmelíková, PhD.
	Mgr. Karol Kováč, PhD.
	PhDr. Emília Mironovová
	PaedDr. Róbert Soták, PhD.
Estonia	Mgr. Karol Kováč, PhD.
Germany	Mgr. Gabriela Chmelíková, PhD.
	PhDr. Emília Mironovová
Austria	Mgr. PhDr. Libor Bernát, CSc.
Serbia	Mgr. Gabriela Chmelíková, PhD.
	PhDr. Emília Mironovová

MEMBERSHIP OF PROFESSONAL ORGANISATIONS

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

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

PUBLICATIONS (most important publications in 2013)

Jakábová, Martina - Urdziková, Jana - Mironovová, Emília: Standardization of Information Security Management System: ISO/IEC 27001:2005, ITIL, CoBIT. (http://online-journals.org/i-jes/article/view/2937) In: International Journal of Recent Contributions from Engineering, Science & IT (iJES) - ISSN 2197-8581(E). - Vol. 1, Iss. 2 (2013), online, pp. 11-18

Mrvová, Ľubica - Rusková, Dagmar: Metodologija ocenki ekonomičeskoj effektivnosti prirodoochrannych investicij v rabote EMS dlja predprijatij malogo i srednego biznesa v Slovakii. In: Problemy razvitija territorii. - ISSN 2076-8915. - Vol. 64, No. 2 (2013), pp. 20-25

Chmelíková, Gabriela - Mironovová, Emília: E-Portfolio - an output of the English for Science and Technology course for PhD students at the Slovak University of Technology. - ITMS 26110230042. In: ESP Conference 2013 [elektronický zdroj]: Connect and Share. 1st International Conference on Teaching English for Specific Purposes. Serbia, Niš May 17-19, 2013. - Niš : University of Niš, 2013. - ISBN 978-86-6125-080-4. - CD-ROM, [4] p.

Chmelíková, Gabriela - Božek, Pavol: Utilization of computer-aided teaching and learning of English and other subjects at STU MTF in Trnava. In: Proceedings of IACETeL 2013: International Academic Conference on Education, Teaching and E-learning. October 17th - 18th 2013 in Prague. - Praha : MAC Prague consulting, 2013. - ISBN 978-80-905442-1-5. - CD-ROM, [4] p.

Malá, Jana - Černá, Ľubica - Rusková, Dagmar: The Quality of Information in Project Management. - abstract in: Abstracts and Conference Materials for the 5th European Conference on Intellectual Capital, University of the Basque Country, Bilbao, Spain, 11-12 April 2013, pp. 57-58. In: Proceedings of the 5th European Conference on Intellectual Capital (ECIC 2013) : Volume Two. University of the Basque Country, Bilbao, Spain, 11-12 April 2013. - Reading : Academic Conferences and Publishing International Limited, 2013. - ISBN 978-1-909507-15-9(E). - ISBN 978-1-909507-13-5(P). - ISSN 2049-0941(E). - ISSN 2049-0933(P). - pp. 532-538

Mrvová, Ľubica - Rusková, Dagmar: Proposal of methodology for rating the economic efficiency of environmental investments in the operation of EMS for businesses in Slovakia (Part 1). In: Upravlenije ekonomikoj: metody, modeli, technologii: 13. Meždunarodnaja naučnaja konferencija, 31.10. - 02.11.2013, Ufa - Pavlovka. - Ufa: UGATU, 2013. - ISBN 978-5-4221-0487-1. - pp. 237-239

Chmelíková, Gabriela - Mironovová, Emília: UNIcert in the STU Faculty of Materials Science and Technology, investment into professional language training. In: Cizí jazyky. - ISSN 1210-0011. - Vol. 56, No. 4 (2012/2013), pp. 38-40

Green, Jana [translation]: Selected Aspects of the Turning Process of Slender Parts. [Author: Beňo, Matúš] - 1st ed. - Köthen: Hochschule Anhalt, 2013. - 113 p. - ISBN 978-3-86011-064-5

Chmelíková, Gabriela [translation]: Five-Axis High-Speed Machining of Low-Rigidity Thin-Walled Parts. [Author: Kováč , Martin] - 1st ed. - Köthen: Hochschule Anhalt, 2013. - 104 p. s. - ISBN 978-3-86011-062-1

Mironovová, Emília [translation]: Investigation of Self-Heating and Spontaneous Ignition of Oils. [Author: Hrušovský, Ivan] - 1st ed. - Dresden: IFW, 2013. - 118 p. - ISBN 978-3-944438-00-9

Mironovová, Emília [translation]: Theoretical Aspect of Assembly. [Author: Václav, Štefan] - 1st ed. - Köthen : Hochschule Anhalt, 2013. - 103 p. - ISBN 978-3-86011-065-2

Chmelíková, Gabriela[translation]: Optimal Pilot Bus Selection for the Secondary Voltage Control Using Parallelism. [Author: Kopček, Michal] - 1st ed. - Ilmenau : Universitätsverlag Ilmenau, 2013. - 147 p. - (Scientific Monographs in Automation and Computer Science; 10). - ISBN 978-3-86360-077-

Green, Jana[translation]: Tool Steels of the Ledeburite Type. [Author: Moravčík, Roman] - 1st ed. - Dresden : IFW, 2013. - 111 p. - (Scientific monographs). - ISBN 978-3-9808314-4-4

Mironovová, Emília[translation]: Ergonomics in Business Logistics. [Author: Beňo, Rastislav] - 1st ed. - Ilmenau : Universitätsverlag Ilmenau, 2013. - 146 p. - (Scientific Monographs in Automation and Computer Science; 12). - ISBN 978-3-86360-079-2

Chmelíková, Gabriela[translation]: PLC-Based Fuzzy Control System for a Robotic Manipulator. [Author: Škulavík, Tomáš] - 1st ed. - Ilmenau : Universitätsverlag Ilmenau, 2013. - 115 p. - (Scientific Monographs in Automation and Computer Science; 11). - ISBN 978-3-86360-078-5

Green, Jana[translation]: Design for a Testing Model of a Communication Subsystem for a Safety - Critical Control System. [Author: Špendla, Lukáš] - 1st.ed. - Ilmenau : Universitätsverlag Ilmenau, 2013. - 140 p. - ISBN 978-3-86360-083-9

Szalayová, Petra[translation]: Technology, Mechanical and Material Approach on Edgechipping in Rotary Ultrasonic Machining of Alumina. [Author: Zvončan, Marek] - 1st ed. - Köthen : Hochschule Anhalt, 2013. - 92 p. - (Scientific monographs). - ISBN 978-3-86011-063-8

This part of Annual Report 2013 was verified by M. Mironovova

CONTACT

Head of the Workplace
Ing. Peter Halada
e-mail: peter.halada@stuba.sk
tel: +421918646057

Address
Paulínska 16, 917 24 Trnava,
Slovak Republic
tel/ +421918646057
fax/ +421906068299

WORKPLACE OF PROJECT MANAGEMENT AND PUBLIC PROCUREMENT

(Previous name: CENTRE FOR TECHNOLOGY TRANSFER,
since 01/11/2014 the workplace is a part of the RESEARCH CENTRE OF PROGRESSIVE TECHNOLOGIES)

STAFF 10

PRIORITIES OF THE WORKPLACE FOR PROJECT MANAGEMENT AND PUBLIC PROCUREMENT

involve the management of structural funds and the 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 WORKPLACE FOR PROJECT MANAGEMENT AND PUBLIC PROCUREMENT 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,
- Technology Transfer.

ACTIVITIES OF THE WORKPLACE FOR PROJECT MANAGEMENT AND PUBLIC PROCUREMENT IN 2013:

- 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 the bidding processes at the Faculty,
- monitoring of project acquisition according to the Faculty profile,
- development of the agenda for the Faculty entrepreneurial activity,
- technology transfer.

MEMBERSHIP OF PROFESSIONAL ORGANISATIONS

Ing. Peter Halada, a certified member of the IPMA (International Project Management Association) project team.

This part of Annual Report 2013 was verified by Ing. Peter Halada

TABLE OF CONTENTS

www.mtf.stuba.sk