ŽILINSKÁ UNIVERZITA V ŽILINE
Fakulta riadenia a informatiky

Annual Report / 2018

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1 General Information

The Faculty of Management Science and Informatics (hereinafter referred to as FMSI) of the University of Žilina in almost 30 years of its existence has developed into a top and respected scientific and research institution known for its quality at home and abroad. This is evidenced by independent assessments as well as by the interest of students, employers and partners. The particularity of the faculty lies primarily in the combination of study programs that offer top-notch education in computer science, computer networks, computer engineering and management in one place. The combination of these areas of education and research, supported by enthusiastic and competent professionals, creates the preconditions that ensure the faculty's sustainable success.

1.1. Faculty Address

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1.2 Faculty Academic Officials

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Academic Senate of the Faculty:

Chairperson:	**Assoc. Prof. Ing. Norbert Adamko, PhD.**
Secretary:	Mgr. Lýdia Gábrišová, PhD.

Members:

Academic Senate of the FMSI - Staff:

Assoc. Prof. Ing. Norbert Adamko, PhD.	Ing. Tomáš Majer, PhD.
RNDr. Hynek Bachratý, PhD.	Ing. Lucia Pančíková, PhD.
Prof. Ing. Martina Blašková, PhD.	Ing. Ján Ružbarský, PhD.
Ing. Juraj Dubovec, PhD.	Assoc. Prof. Ing. Pavel Segeč, PhD.
Ing. Brita Endersová	Assoc. Prof. Ing. Peter Ševčík, PhD.
Mgr. Lýdia Gábrišová, PhD.	Ing. Michal Varga, PhD.
Prof. Ing. Alžbeta Kucharčíková, PhD.	Ing. Monika Václavková, PhD.

Academic Senate of the FMSI - Students:

Ing. Oľga Chovancová	Bc. Tomáš Rebro
Michal Mulík	Bc. Marián Šotek (chairperson)
Bc. Kristína Jánošíková	Bc. Jaroslava Urgasová

Scientific Council:

Chairperson: **Assoc. Prof. Emil Kršák, PhD.**

Members:

Assoc. Prof. Ing. Norbert Adamko, PhD.
Prof. Ing. Mária Bieliková, PhD.
Prof. Ing. Ivan Brezina, PhD.
Assoc. Prof. Ing. Pavel Čičák, PhD.
Prof. Ing. Milan Dado, PhD.
Assoc. Prof. Ing. Mária Ďurišová, PhD.
Prof. Ing. Štefan Hittmár, PhD. MBA
Assoc. Prof. Ing. Miroslav Hrnčiar, PhD.
Prof. RNDr. Jaroslav Janáček, CSc.
Prof. Ing. Ľudmila Jánošíková, PhD.
Prof. Ing. Martin Klimo, PhD.
Assoc. Prof. Ing. Michal Kohání, PhD.
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Prof. Ing. Karel Šotek, CSc.
Prof. Ing. Josef Vodák, PhD.
Prof. Ing. Liberios Vokorokos, PhD.
Assoc. Prof. Ing. Michal Zábovský, PhD.
Assoc. Prof. Ing. Jaroslav Zendulka, CSc.

1.3 Overview of the Most Important Events at the Faculty in 2018

Activities under the National the "IT Academy" Programme

In 2018, the working group entitled *HOOP - Object Oriented Programming at Secondary Schools implemented in a playful way* continued under the leadership of Ing. Michal Varga, PhD., in the methodology of teaching Informatics at secondary schools. During the year, there were ongoing meetings with secondary school teachers, where projects were created in the form of engaging games. Such projects, on the one hand, motivate students to work on their own, but students also use them to deepen their algorithmic thinking. Currently, the national the "IT Academy" project team has prepared a textbook for high school informatics teaching based on the HOOP concept. This is currently being verified at secondary schools and the first training courses on object-oriented programming in the form of a feature-based program for secondary school teachers have already taken place in Slovakia.

On February 15, 2018, **a symposium of headmasters of elementary and secondary schools operating in the Žilina and Trenčín regions** was held at the UNIZA Faculty of Management Science and Informatics as part of the national "IT Academy" project. A total of 76 headmasters of primary and secondary schools attended the event. At the symposium, the current project outputs and the possibility of being involved in the project were presented to the headmasters. The headmasters of elementary and secondary schools were actively involved in the discussion and expressed their

interest in intensive cooperation in improving the quality of teaching Informatics at primary and secondary schools.

Fig. 1 Symposium of Primary and Secondary School Headmasters at the FMSI UNIZA

In 2018, **the first accredited training courses for secondary school teachers** were launched at FMSI UNIZA as part of the national "IT Academy" project. Four courses were gradually opened, two focusing on networking technologies: *Introduction to Computer Networks* and *Computer Networks Scaling,* an *Internet of Things* course and a course *Data and their Presentation* focusing on JavaScript. 91 secondary school teachers from all over Slovakia have been able to participate and learn. Lecturers of individual courses are from the Department of Information Networks, the Department of Technical Cybernetics and the Department of Software Technologies.

Table 1

Accredited Training Courses for Secondary School Teachers within the "IT Academy" Project		
Name of the Course	**Date**	**Number of Teachers**
Introduction to Computer Networks	11 May – 31 July 2018	19
	18 May – 23 July 2018	8
	13 September – 24 January 2019	13
	14 February – 21 June 2019	8
Computer Networks Scaling	8 February – 7 June 2019	8
Internet of Things	10 September – 5 October 2019	15
	8 February – 15 February 2019	10
Data and their Presentation	4 February – 8 February 2019	10
Total		**91**

From 10 September to 5 October an **accredited training course** was conducted at the Department of Technical Cybernetics, entitled **Internet of Things**. The lecturer was Assoc. Prof. Ing. Peter Ševčík, PhD., the head of the Department of Technical Cybernetics. In this way, secondary school teachers had the opportunity to gain new knowledge of the issues of the Internet of Things and also to try out practically prepared tasks in a modern laboratory. We are pleased with the interest of the secondary school teachers in the area of Internet of Things, as the course capacity (15 teachers) has been fulfilled very quickly.

Fig. 2 The Participants of the Accredited Training Course on Internet of Things

On 16 February, **the Harvard University CS50 - Introduction to Computer Science course** was launched at the UNIZA Faculty of Management Science and Informatics. Tuition was led by our colleague Ing. Jozef Kostolný, PhD. from the Department of Informatics.

Fig. 3 The Participants of the Harvard University CS50 – Introduction to Computer Science

The student festival called **FRIČKOVICA** was held on 26 September 2018 at the grassland behind the Faculty near Forest Park Lesopark. It is an event that traditionally opens the winter semester. Beautiful sunny autumn weather contributed to record participation, which was high not only on the students but also on IT

companies. The event was attended by representatives of ten partner IT companies: *Accenture, Scheidt and Bachmann, Siemens, EMtest, QuadroTech, Softec, Prima Banka, Detecon, T-Systems* and *KROS*, who, besides their participation, brought various attractions and interesting prizes competitions.

Fig. 4 Record-Breaking Participation of Students and IT Companies at the FRIČKOVICA Event

Fig. 5 Attractions and Competitions within the FRIČKOVICA Event

The FRIČKOVICA event was organized by the faculty in cooperation with the FRI Club. Great music, lots of interesting competitions, good food were provided there. Students also had the opportunity to

meet informally with FMSI graduates working for the best IT companies as well as representatives of the participating companies.

Fig. 6 Pleasant Atmosphere at the FRIČKOVICA Event

At the beginning of the winter semester of the 2018/2019 academic year, **a traditional welcome** was given to **foreign students admitted mainly under ERASMUS+ programme**. 11 students from six countries (Croatia, Finland, France, Germany, Portugal, Taiwan) were welcomed at the faculty.

Fig. 7 Welcoming of Foreign Students at the FMSI UNIZA

On September 21st, first-year students were matriculated. For the second time the matriculation ceremony took place directly at the faculty premises.

Fig. 8 Ceremonial Matriculation of the First Year Students

Before the beginning of the 2018/2019 academic year, **the ERASMUS+ exhibition** was inaugurated in the atrium. Students of the faculty had the opportunity to see the map of mobilities, get to know the most popular destinations, or see photos from last year's ERASMUS EXPERIENCES competition.

Fig. 9 ERASMUS+ Exhibition at the FMSI UNIZA

On 26 April 2018, the Faculty of Management Science and Informatics belonged to skilled girls from secondary schools. Also in 2018, the faculty took part in the **Girl's Day 2018** international event, the goal of which was to bring the IT sector closer to secondary female students. Several laboratories with interesting workshops were prepared at the faculty.

Fig. 10 Girl´s Day 2018 Event at the FMSI

Also in 2018, girls could sign up for a visit to the FMSI within the **Mentoring** project. Students of the faculty agreed with the participants to visit the faculty and showed them the life at the faculty (lectures, exercises, boarding houses, canteen, relaxation zones, etc.). The above-mentioned activities were reflected in the growing trend in the proportion of girls in the Bachelor degree study programme INFORMATICS. Compared to the 2012/2013 academic year, this is an increase of more than 100%.

Fig. 11 The Growing Trend in the Proportion of Girls in the Study Programme Informatics

On 26 April, the third year of the **ACCENTURE DAY** event took place at the Faculty of Management Science and Informatics. An interesting all-day programme was prepared: Professional and practical workshops on current IT trends, latest technologies and informal barbecue on the faculty lawn.

Fig. 12 Accenture Day at the FMSI

From 5 March until 9 March 2018, the largest (in terms of number of participants) weekly intensive course entitled **"Internet of Things in Fun"** was held at the UNIZA Faculty of Management Science and Informatics. At the faculty, we welcomed 85 talented secondary school students from all over Slovakia (Banská Bystrica, Bratislava, Čadca, Handlová, Košice, Nové Mesto, Martin, Námestovo, Nižná, Piešťany, Spišská Stará Ves, Trstená, Tvrdošín, Žilina ...). These secondary school students jointly developed their first IoT application within a week. At the end of the course a great group photo was taken. Secondary school students and mentors thus met on one picture, which will be a great atmosphere to remind at least until the next event.

Fig. 13 Participants of a Weekly Intensive Course "Internet of Things in Fun"

Also in 2018, colleagues from the Department of Software Technologies organized **preparatory meetings for the Mathematical Olympiad and Olympiad in Informatics** for secondary school students from the Žilina Region. They discussed the assignments of the A category of the domestic round, accomplished several guiding tasks, and revealed a few points that could help them in the next rounds. Two meetings dealt with Mathematics and one with Informatics.

In 2018, the Faculty of Management Science and Informatics continued its intensive cooperation with the Secondary Vocational School of Transport based in Trnava. For the students of the field of study focused on electrical engineering - network and communication technologies, **a workshop "Study the Future at the FMSI UNIZA"** was prepared and realized in cooperation with employees of the Department of Information Networks, the Department of Mathematical Methods and Operational Analysis and the Department of Technical Cybernetics. The workshop took place from 12 to 14 June 2018 and was attended by 27 secondary students. Students had the opportunity to learn how 3D printing and virtual reality work, why optimizations and simulations in transport are important, how to destroy the improvised explosive device system with one's knowledge and, of course, a lot of trends in computer networks.

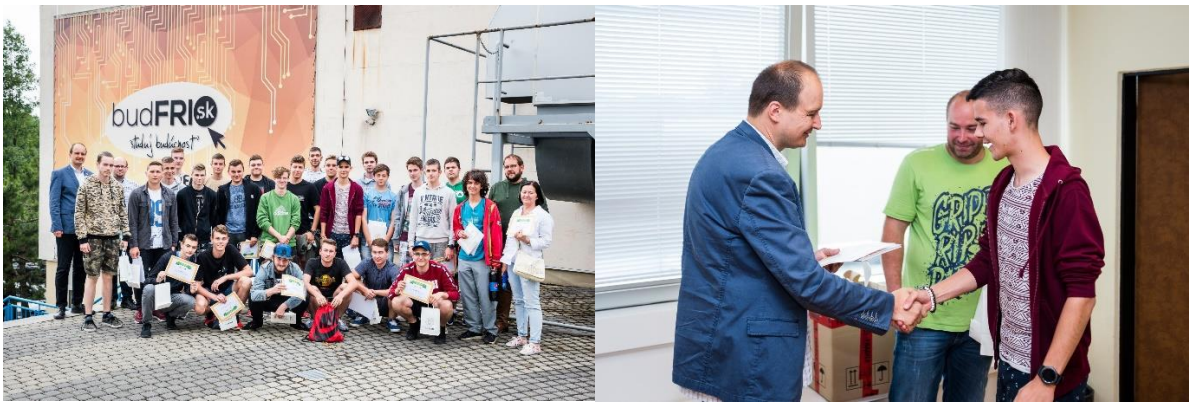


Fig. 14 Participants of the **"Study the Future at the FMSI UNIZA"** Workshop

At the beginning of July (9 July – 13 July), the first year of **the Be a Manager Summer School** took place. It was organized by the Department of Management Theories. 25 skilled secondary school students have successfully completed many interesting practical workshops in the areas of management, marketing, logistics, leadership and enterprise.

Fig. 15 Participants of the First Year of the Be a Manager Summer School

On 31 May, **FUTURIKON 3** took place at the University of Žilina, where the Faculty of Management Science and Informatics presented modern technologies. More than 1000 pupils from primary and secondary schools came to learn about IT news and trends at UNIZA. The workshops of the FMSI UNIZA were of great interest. More than 500 participants attended the Experience Theatre Workshop – Virtual Reality.

Fig. 16 FUTURIKON 3 Event

It is great to see the interest of young people in technology, modern technology and computer science. Another great **fourth FUTURIKON** took place on 20 September for great success. Again, we have achieved high participation of secondary school students in workshops organized by the faculty focusing on virtual reality, 3D printing, programming of mobile application, or destruction of the improvised explosive device system with one's knowledge.

Fig. 17 FUTURIKON 4 Event

In July 2018, the Department of Technical Cybernetics attended the **#We Help Further #Regions** organized by the Volkswagen Foundation, where it competed with its project to expand the Yrobot as a teaching system for primary and secondary schools. Thanks to the students' votes, we won, but decided to give the win to those who need it more. The Frézia Day Centre could thus enjoy the new Volkswagen up.

Fig. no. 18 Awarding Prize to Frézia Day Centre

The Faculty of Management Science and Informatics has strengthened cooperation with secondary schools within the IT competition organization. Faculty staff attended IT competitions / conferences / workshops / IT circles organized by secondary schools, in the position of lecturers, jurors or mentors (e.g. the G-robot competition, PopInfo workshop and others). On 29 November 2018, the fourth year of **the G-Robot 2018** national robotic competition for primary school pupils took place at the Viliam Pauliny-Tóth Secondary Grammar School in Martin. The task was to construct a robot that could in any way help a person in different situations. Our colleagues *Assoc. Prof. Ing. Norbert Adamko, PhD., Ing. Michal Varga, PhD.* and *Ing. Veronika Olešnaníková, PhD.* acted as referees

Fig. 19 Employees of the Faculty as Members of a Professional Jury in the Evaluation of Competition Works (G-robot)

On 9 June 2018, on behalf of the Dean, the UNIZA Faculty of Management Science and Informatics signed **the Memorandum of Understanding with the IBM Company**. By signing the memorandum, students and faculty staff have gained access to several IBM software solutions, the opportunity to undertake interesting internships, certification under privileged conditions, new opportunities for PhD students, and more.

Fig. 20 Signing the Memorandum of Understanding with IBM

On May 7 – 18, the second training course for 16 students of the Conservatoire national des artes et métiers (Cnam) Grand-Est (France), focused on the development and implementation of equipment that is based on the Internet of Things principle, subtitled **"IoT - from hardware to applications"**. As part of the training, the learners learned what specific steps need to be taken to implement their own IoT system. They worked on real-world sensors to solve a real problem, finding out how the lowest and highest layers of the IoT system work.

Fig. no. 21 Participants of the “IoT – from hardware to applications“ Training Course

In 2018, the Faculty launched the **IT Tearoom**, where successful graduates of the Faculty of Management Science and Informatics of the University of Žilina talk about their interesting IT work. They share their experience and know-how of their success with future IT specialists.

On 12 March, the first lecture entitled **From Slovakia to the World** took place. A faculty graduate **Ing. Martin Strigač** (CEO of Sygic) introduced Sygic's successful story as a leader in global navigation. The lecture was also broadcast online. The IT Tea

Fig. 22 IT Tearoom with Martin Strigač - CEO of Sygic

On 18 May, 2018, a second IT Tearoom was held at the Faculty of Management Science and Informatics. The participants came to listen to a lecture on the topic of **Informatics on the Earth, in Space and in Robotic Vehicles** of our graduate **Martin Handl and his colleague Tomáš Ondrášek from ARTIN Company.**

The lecture was also broadcast online. The participants of the lecture learned how a FMSI graduate got from Informatics for the robotic arm used at the International Space Station up to the development of robotic vehicles in the Czech Republic and Slovakia.

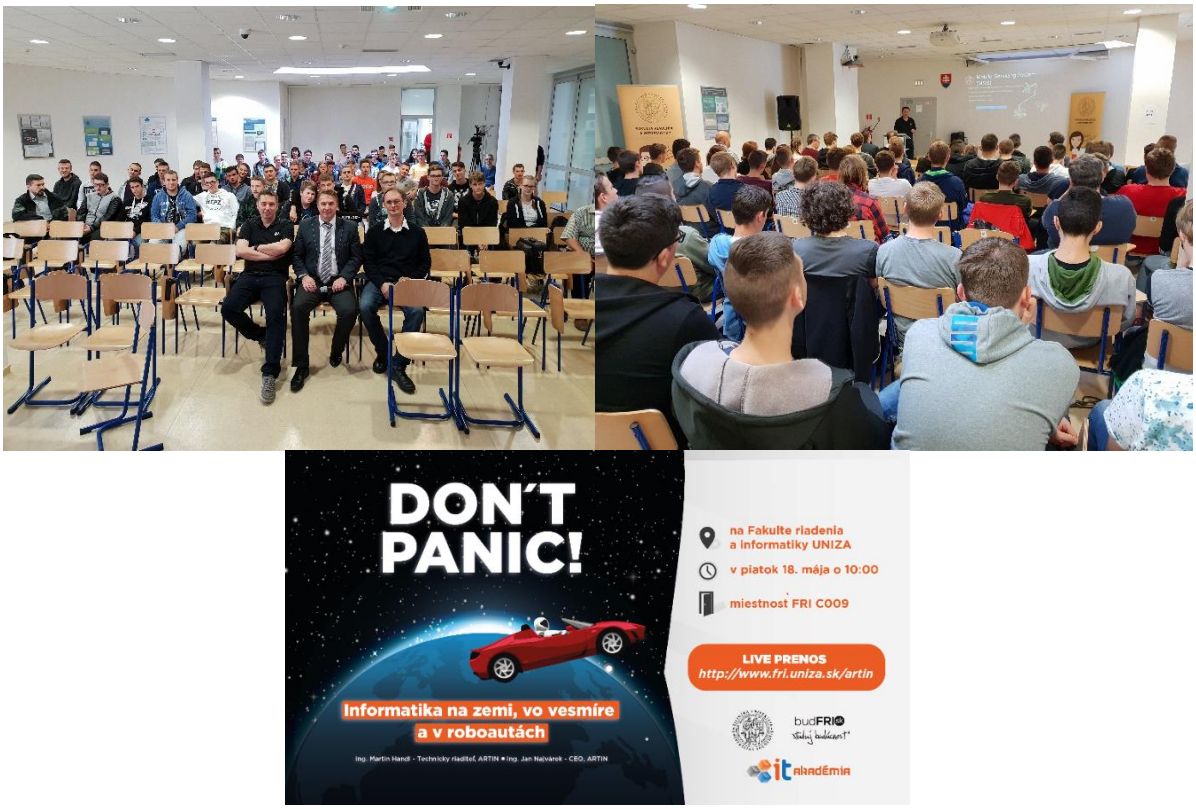


Fig. 23 IT Tearoom with Martin Handl and Tomáš Ondráček from the ARTIN Company

On 26 November 2018, the third **IT Tearoom** took place at the Faculty of Management Science and Informatics, attended by more than 200 secondary school students from 9 secondary schools. Participants came to listen to a lecture **Google vs Startup Life** of a faculty graduate Jozef Vodička from Google. The lecture was also broadcast online.

Fig. 24 IT Tearoom with Jozef Vodička on Google vs Startup Life

On 17 May 2018, **Profesia Days** event was held for the first time in Žilina. The Faculty of Management Science and Informatics had a large area within the IT zone where it presented **the Enjoy Lab FMSI UNIZA**. The interest of the general public in news and trends in the IT world has been huge.

Fig. 25 Enjoy Lab FMSI UNIZA at Profesia Days Event in Žilina

On 26 April 2018, the first **Flowmon Academy** under the direction of Technical Director Pavel Minařík took place at the Faculty of Management Science and Informatics UNIZA. Students of the faculty were acquainted with the issues of network traffic monitoring and analysis.

A comprehensive reconstruction of the RB301, RB302 and RB303 laboratories for tuition in network technologies (modern laboratories equipped with new floors, plasters, lower ceiling, lighting as well as data and power infrastructure) has been successfully completed. Specialized laboratories at the Department of Information Networks were equipped with new desktop PCs that were donated by ING BANK SLOVAKIA. In September, the **refurbished dining room with a buffet at FMSI UNIZA** was opened. In addition, a comprehensive reconstruction of social facilities in the RB building and a kitchen in the RC003 room were carried out for the purpose of conducting workshops and meetings in the faculty RC001 boardroom. In 2018, the UNIZA Faculty of Management Science and Informatics continued to build an outdoor leisure zone for students located behind the faculty. Interlocking pavement was laid around the built gazebo; the surroundings were modified with the help of students, doctoral students and the faculty staff. Activities leading to the fencing of the outdoor area have also intensified and should be implemented in 2019.

The faculty also organized or co-organized ***several scientific events***, e.g. Wireless Sensor Networks 2018 (September 9 - 12, 2018), OSSConf 2018 - Open Software in Education, Research and in IT Solutions (July 2 - 4, 2018), Horizons in the Railway Transport 2018 (October 11 - 12, 2018), New Trends in Management and Production Engineering (June 7 - 8, 2018) and others. The Faculty of Management Science and Informatics also participated in the organization and professional guarantee of the GISday 2018 event (November 14, 2018). A conference on Educating for the Future (October 8, 2018) was held in cooperation with Microsoft company. Interesting workshops for teachers and school headmasters were prepared for modern teaching at the conference.

The fifth year of **the IT Marketplace** (October, 24, 2018) took place at the faculty. The event creates an exceptional space for meeting high-quality IT students with high-quality IT companies not only from the Žilina region but also from the whole Slovak Republic. The aim of the event is to enable prospective young people who see their future in IT to meet companies interested in expanding by hiring interesting and smart people. A record number of companies participated in the fifth year of the event (14). Several IT companies have prepared interesting competitions and IT trends for students, such as virtual reality.

Fig. 26 The Fifth Year of the IT Marketplace Event at the FMSI

Within the IT Marketplace event, the second year of the **SOFT DRINKS DAY** accompanying the event took place during which students had the opportunity to have coffee, tea or other soft drinks for free and enjoy it while talking to IT companies.

On 9 October 2018, a new event called **ERASMUS café** was held at the FMSI UNIZA. The faculty students had the opportunity to talk with foreign students in the Faculty Information Centre while having their coffee. They could ask questions on anything - attractions, news, customs, their first experiences in Slovakia, or the possibility of studying at their home universities.

On 12 April 2018, **DETECON Smart City Workshop** was held at the Faculty Information Centre. The workshop was attended by 6 representatives of the Detecon Company and 11 students. During the workshop, the students learned about the Smart Cities concept, had the opportunity to work together in smaller groups on a case study on Smart Cities solutions in the city and presented their case studies at the end of the workshop. After the workshop, free networking with refreshments continued.

Fig. 27 DETECON Smart City Workshop at the FMSI UNIZA

On 13 April 2018 the students had the opportunity to meet a senior Java developer who develops for the world's largest corporations (Mercedes-Benz, Coca-Cola, smart, Mitsubishi Motors, etc.). **Hans Christian Granum** from the Norwegian company MADEO explained in his lecture on **Modern Web Development in JAVA** how it goes in the development of an international team. He devoted himself to the whole process of the development itself.

Fig. 28 Lecture on Modern Web Development in JAVA by Hans Christian Granum

Oon the 14 February 2018, a traditional FMSI student **PANEL STORY** conference was organized - presentation days of engineering study projects. This event is intended for all those interested in the academic community of the faculty, but also for the professional public. Students of engineering study programmes and third-year students of the bachelor's degree have the opportunity to get acquainted with projects where they can work after joining an engineering course. The event was also attended by IT companies whose representatives saw and evaluated the students' achievements in project tuition.

Fig. 29 FMSI Student PANEL STORY Conference

In 2018 a large number of interesting and attractive lectures by graduates, practitioners and colleagues from foreign partner universities and colleges took place at the faculty. The following table lists some of them. The talk of **Juraj Pavlovic from Tachyum company** about the creation process of a chip, which can radically change the operation of big cloud data centres of Amazon, Facebook or Alibaba and what opportunities it will bring for Slovakia as well as ecosystem of software companies developing new applications in Machine Learning or artificial intelligence.

Fig. 30 Lecture by Juraj Pavlovic from Tachyum Company

Table 2

Open Lectures at the FMSI UNIZA		
Lecturer	**Title of the Lecture**	**Institution**
Ing. Tomáš Janotík	*Usage of Data and Analytics in the Profesia company*	Profesia
Ing. Martin Handl	*Domain Driven Design*	ARTIN
Ing. Pavol Elias	*Tester and His/Her Teams*	Descartes Systems
Ing. Ivan Štefanides	*Strategy of Pay Rise in Kia Motors Slovakia*	KIA Motors Slovakia
Ing. Tibor Digaňa	*Development of Web Applications Using CICD*	Scheidt & Bachmann
Ing. Ján Zázvivec	*Not only about Microservis oriented architecture*	Softec
Jovan Krivokapić	*Organizational Design*	University of Belgrade
Helena Ondrúšková	*Manager as a Couch*	Schaeffler Kysuce
Dr. Alexandros Kakouris	*Why be creative or innovative?*	University of Peloponnese
Alexander Nedzved	*Artificial Intelligence and Data Mining*	Belarus State University
Ing. Peter Jakubík	*Practical demonstration of Spring Boot and SOAP on systems and applications*	Siemens
Ing. Kamil Schvarcz	*Rapid Development of Oracle Applications*	Apex Solutions
Sven Fröhlich	*Intelligent Transportation Systems - Traffic Management in Dresden*	TU Dresden
dr. Bratislav Predič	*WebGIS - Concepts and Technologies*	University of Niš
Ing. Daniel Harcek	*Agile Software Development and Evolvement of the Employees´ Potential*	Ringier Axel Springer
Ing. Miroslav Ivaniš	*Creation of Web Applications Using JSF and Angular Technologies*	Scheidt & Bachmann

Fig. 31 Open Lectures at the FMSI UNIZA

On 22 November 2018, the **9th representative ball of the Faculty of Management Science and Informatics** took place. Traditionally, it included great entertainment, a rich raffle, student prizes in the buffet, an interesting program, as well as a poll: The best lecturer (him/her), the best seminar leader (he/she), the most useful subject, but also the best bachelor's thesis focusing on IT awarded by Danfoss Solutions Company. The category of long-term contribution to the Faculty of Management Science and Informatics was also announced in the poll. This award was passed to Mgr. Renáta Nováková and Mgr. Mária Sičová.

Fig. 32 The 9th Representative Ball of the Faculty of Management Science and Informatics

The FMSI UNIZA celebrated its 28th birthday in 2018. Every year, faculty teachers, students and graduates can join and climb the Minčol hill together to celebrate the Faculty's anniversary. This trip is organized annually in three categories: Standard (1 day), Duo (2 days) and Quatro (4 days).

Fig. 33 The Faculty's Hiking Tour to Minčol 2018

On 16 February, an **Open Day** took place at the faculty. The interest of potential applicants to study at the faculty was enormous. More than 500 participants took part. Applicants had the opportunity to listen to the program of individual guarantors of bachelor degree study programmes, as well as the president of the association / cluster Z@ICT Ing. Marian Koprda about successful graduates of the faculty working for IT companies. Laboratories and interesting presentations were waiting for candidates at individual departments. At the faculty's information centre, we prepared the Enjoy Lab full of news from the world of IT.

Fig. 34 Open Day at the FMSI UNIZA

In 2018, the UNIZA Faculty of Management Science and Informatics continued to build an outdoor leisure zone for students located behind the faculty premises. On 15 May, in cooperation with the FRI Club, a student brigade was organized called ***"Let's build a gazebo at the FMSI - Stage 3"***, the main goal of which was to adjust the surroundings of the gazebo after laying paving in its surroundings. Tools, snacks (soft drinks, stew) and protective equipment were available. Several students, doctoral students as well as faculty employees joined the brigade.

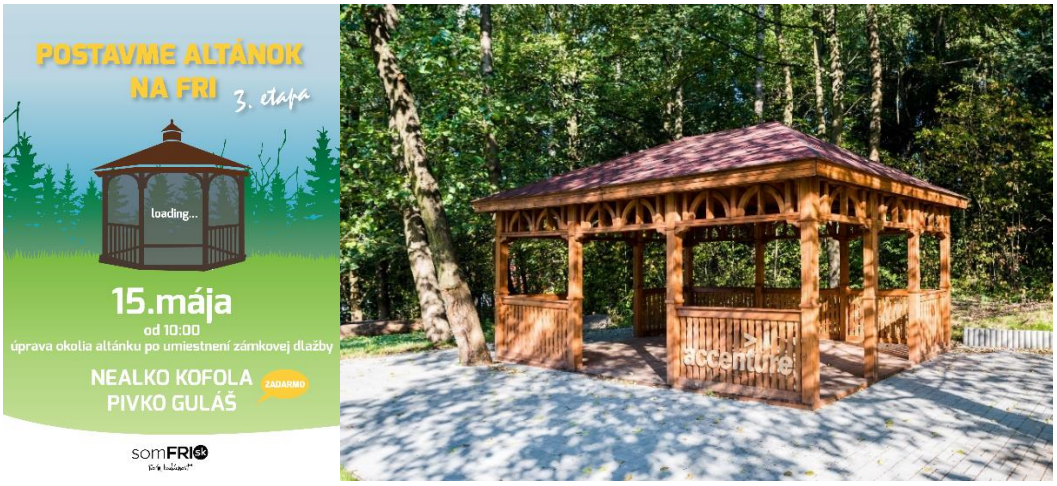


Fig. 35 Construction of Gazebo at the FMSI – Stage 3

The faculty organized a **spring and autumn ONLINE Open Day (OD)** on 7 March 2018 (spring) and 14 November 2018 (autumn). The dean, vice-deans, guarantors, teachers, students or graduates and IT professionals from successful IT companies answered the inquiries of those interested in studying at the Faculty of Management Science and Informatics UNIZA via chat available at http://www.studuj.fri.uniza.sk/. An archive is also available from the online OD. In order to increase the number of visitors, a promotional video was recorded as part of the engineering study project entitled "Fight of the Female Secondary School-Leavers" (in Slovak *Súboj maturantiek*), which achieved a positive response and good reach. Participation in the autumn online OD was twice as high compared to the last year's online OD.

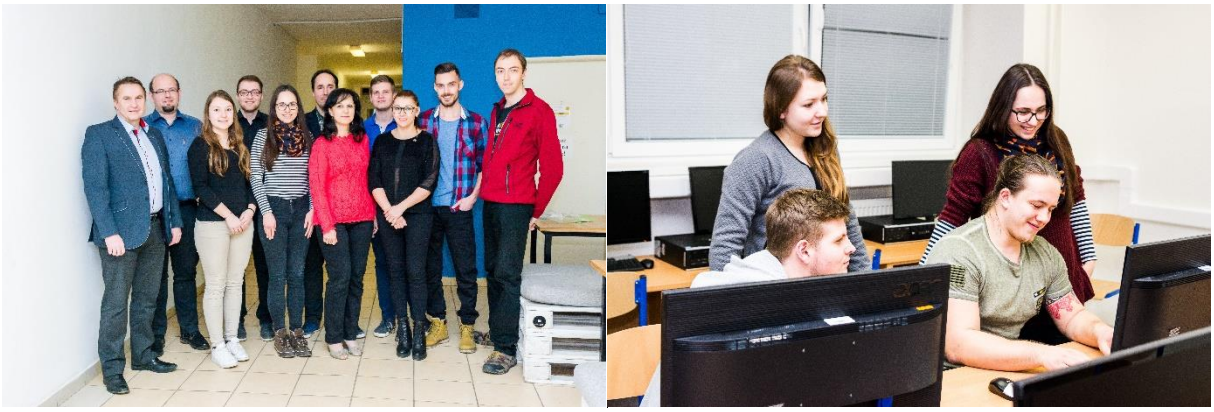


Fig. 36 ONLINE Open Day at the FMSI UNIZA

On 9 May 2018, the traditional **faculty FRIfest music festival** took place. During the day, many music bands were playing in which students or staff of the faculty are active. It is an event where students have the opportunity to gain energy into the exam period, final state examinations and defence of their final theses, as well as informally talk with teachers, trainers, graduates or representatives of IT companies.

Fig. 37 Faculty FRIfest Music Festival

Within the framework of the FRIfest event, the 5th annual Run of Jean de Mijon competition took place. It is a very popular competition among the FMSI students, which has a long tradition and ties to the person of Jean de Mijon - "Traveller, Founder of Cybernetics, Mountain Farming and Herd Management". In his honour, there are runs, where students have to find a secret place, solve a task, refresh themselves and return to the faculty as soon as possible. The fifth year was historically attended by the largest number of teams (15).

Beh Jeana de Mijona

Fig. 38 Run of Jean de Mijon

The Faculty of Management Science and Informatics was traditionally ranked **among the most demanded faculties by the Slovak employers** (source: profesia.sk). **In the ranking of higher education institutions, according to the income of their graduates**, the faculty occupied the 9th place in Slovakia and **1st place among the non-Bratislava universities** (source: Social Insurance Agency).

At the end of May, faculty management visited partner faculties at the technical university Universidad Politecnica de Valencia - Faculty of Business Administration and Management, School of Informatics and School of Telecommunications Engineering. One of the objectives of the visit was to intensify cooperation within ERASMUS+ programme. The visit evaluated the mutual successful cooperation and discussed new opportunities for joint projects.

Fig. 39 Our Visit at the Spanish Partners'

In 2018, the faculty became one of the institutions supporting the Doctors Without Borders organization. At the faculty, the first two Žilina mapathons - Missing Maps - were organized, where participants are dedicated to digital mapping of undiscovered cities in the world. They use open source tools in the OpenStreetMap online environment in order to create map layers of buildings and roads based on satellite imagery. The outputs of the mapathons help the medical teams in the areas most at risk of crisis. The first mapathon took place on 4 July. The second one took place on 23 October.

On 28 September 2018, the **Researchers' Night** took place in the Aupark Shopping Centre in Žilina. Our colleagues from the Department of Technical Cybernetics presented the world of technology, robotics and IT to the general public.

Fig. 40 The Researchers' Night

From 17 September to 21 September, there was the zero year of the **Machine Learning Summer School**. Interesting workshops and tempting topics from the field of machine learning awaited the participants. There was great interest in the summer school not only from students but also from IT companies.

Fig. 41 The Zero Year of Machine Learning Summer School Event

The Faculty of Management Science and Informatics UNIZA hosted the first round of **regional (23 March) and the national round (26 April) of the Young Accountant Olympiáda Competition** organized by the faculty partner KROS Company. Organizational events were provided by the Department of Management Theories.

Fig. 42 The Winners of the Slovak National Round of the Young Accountant Olympiáda Competition

At the end of the year 2018 **a new student organization FRI FOTOKLUB was established at our faculty**. The founders of the organization are PhD students Ing. Dobroslav Grygar and Ing. Oľga Chovancová. Membership is for everyone who enjoys photography. Currently, the organization has 17 members. More information about the organization can be found on the FRI fotoclub website: http://fotoklub.fri.uniza.sk/

Fig. 43 Information Poster of the Organization Together with a Preview of the Work of the Founder Ing. Dobroslav Grygar

On 15 March, an event called **Science in the City** was held for the first time at our faculty as part of the national "IT Academy" project. Lectures on IT trends (Computer Simulations, Virtual Reality, Internet of Things, 3D Printing, etc.) were held at the Faculty of Management Science and Informatics, and more than 300 primary school pupils and secondary school students were given a chance to try them out.

Fig. 44 The First Year of the Science in the City Event

The Faculty of Management Science and Informatics also supports young innovators. From 26 – 28 October 2018 the **7th annual Startup Weekend Žilina** took place. It was a 54-hour hackathon that lasted from Friday evening to Sunday. The event brings together people of diverse focus, experience and knowledge. Designers, developers, entrepreneurs, marketers, and many others joined in order to implement interesting projects together.

Fig. 45 Participants of the 7th Year of Startup Weekend Žilina

A new version of the faculty website www.fri.uniza.sk corresponding to the design manual of the University of Žilina was launched in September 2018. The faculty website has a modern design and clear functionality.

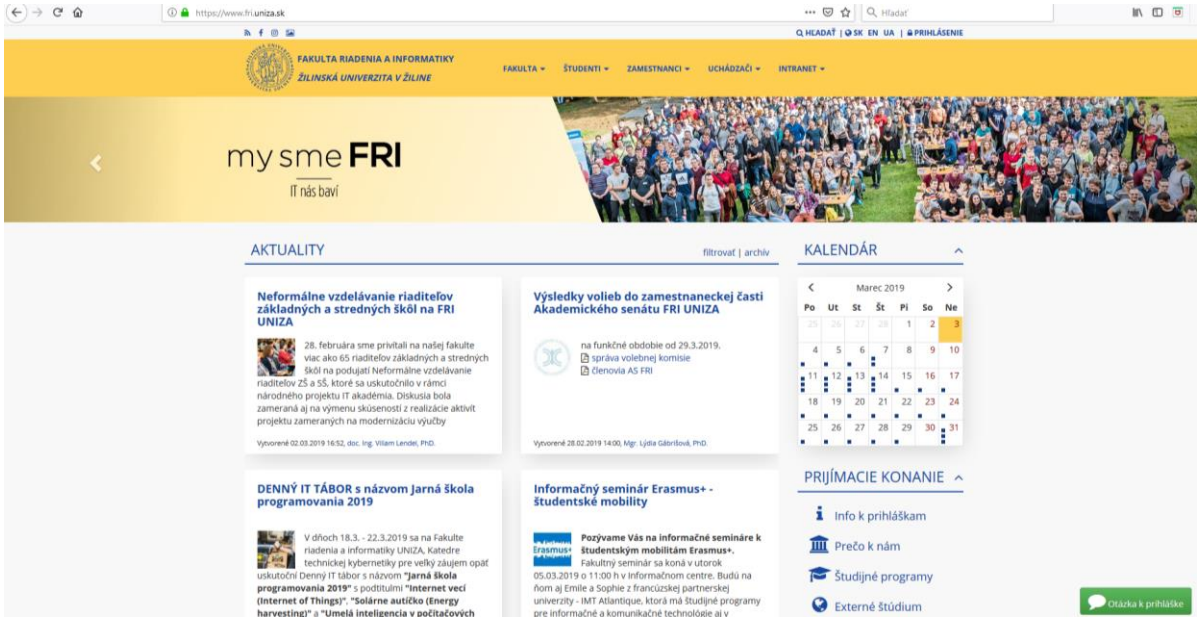


Fig. 46 New Version of FMSI UNIZA Website

The Faculty of Management Science and Informatics UNIZA, has launched a new YouTube channel called **somFRI edu** *(in English: I am FMSI edu)*, focusing on education, based on the requirements of its students. Students find virtual exercises in Algebra, Probability and Statistics and Programming

Practice here. In the future, it is envisaged to include more subjects. Over the six months of its existence, the new YouTube channel has reached more than 16,000 views of the videos and has got 182 subscribers.

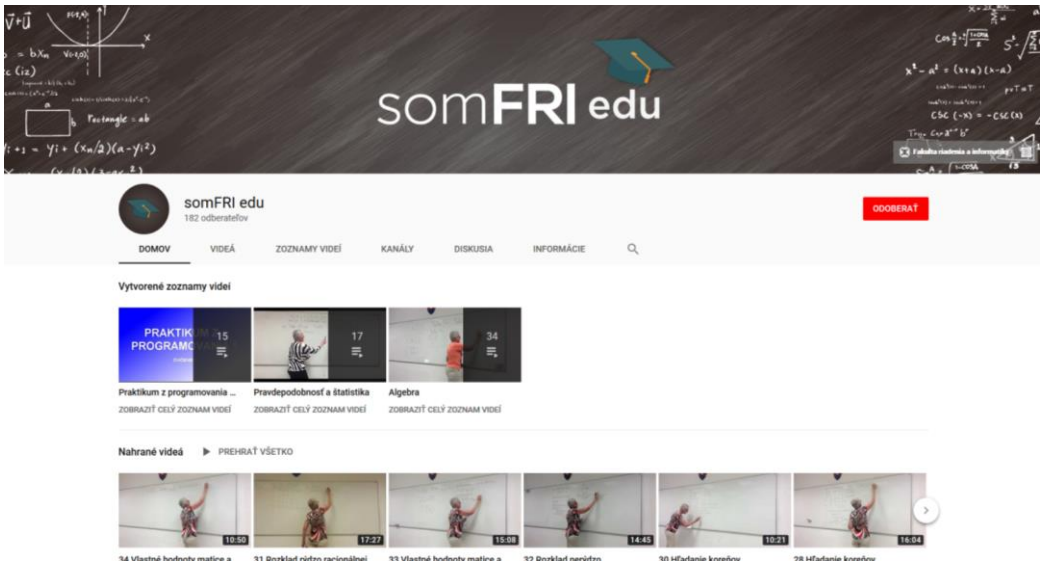


Fig. 47 New YouTube Channel somFRI edu

The Faculty of Management Science and Informatics also has a YouTube channel called **budfri.sk** *(in English be FMSI)* focused on communication with the internal as well as eternal environments (graduates, students, applicants for study, companies, etc.). It includes promotional videos, lectures, faculty graduate videos, as well as videos capturing traditional faculty events.

In 2018, a detailed Ukrainian version of budfri.sk webpage (http://www.ukr.budfri.sk/) was created. It contains all information available in the Ukrainian language. There were also two promotional videos recorded about the stories of successful students from the Ukraine who came to study at the Faculty of Management Science and Informatics and share their experience(s).

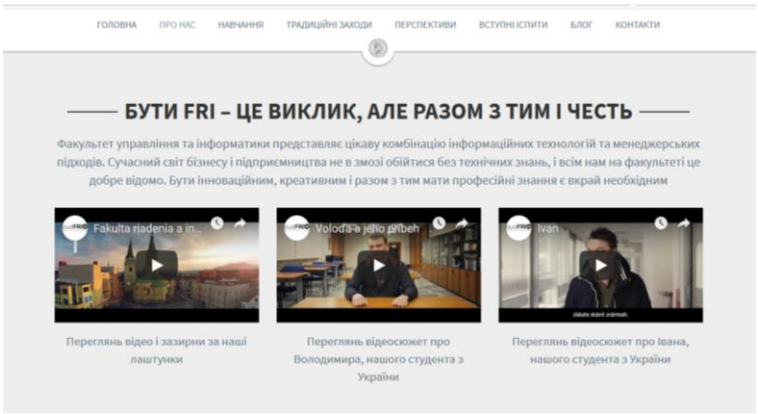


Fig. 48 The Ukrainian Version of the budfri.sk Webpage

Our colleague **Ing. Peter Palúch, PhD.,** currently in Brussels at CISCO Company, has received an exceptional award. He became a **new member of the CISCO Community Hall of Fame.** At present, Peter Palúch is involved in the innovation of network subjects at our faculty, as well as in the creation of network methodologies for the modern teaching of network technologies in secondary schools created within the framework of the national "IT Academy" project.

Fig. 49 Information on the Induction of Peter Palúch into the CISCO Hall of Fame

Our colleague **Assoc. Prof. Ing. Pavel Segeč, PhD.** from the Department of Information Networks, he has won the prestigious **Instructor Excellence Award - Expert,** ranking him among the top 10% of the best instructors in the world. Also our colleague **Ing. Marek Moravčík, PhD.** from same department was awarded the **Instructor Excellence Award - Advanced,** ranking him among the top 25% of instructors worldwide.

Fig. 50 The Dean's Congratulations to Our Colleagues for their Prestigious Awards

Our colleague **Ing. Lucie Lendelová, Ph.D. MBA** from the Department of Management Theories won with her team the most prestigious management competition in the world, the **Global Management Challenge**, whose world final was held in Dubai in late April 2018. She was able to defeat world countries represented by both students and, above all, managers of major global companies, who have long won in this competition such as China, Russia and Macao.

Fig. 51 The Dean's Congratulations to Our Colleague for the Prestigious GMC Award

Our colleague **Assoc. Prof. Ing. Michal Varmus, PhD.** from the Department of Management Theories won the **Prize for the Development of Tennis**, which was ceremoniously handed over to him at The Tennis Player of the Year Gala. Michal Varmus has been involved in the field of sports management at the faculty as well as the connection of sports and academic environments.

Fig. 52 Ceremonial Prize Award for the Development of Tennis to Mr. Michal Varmus

The Association of Slovak Science and Technology Companies awarded the **Silver Medal** to our colleague **Assoc. Prof. Ing. Petr Márton, PhD.** for his achievements within the Slovak Science and Technology Transport Society.

Fig. 53 Ceremonial ZSVTS Silver Medal Award

The Faculty of Management Science and Informatics organized the 7th annual round of the **First Lego League** robotic competition for elementary and secondary school pupils/students, which took place on 14 December 2018. **More than 120 competitors** from the Žilina Region (Žilina, Martin, Ružomberok, Liptovský Hrádok, Trstená), the Trenčín Region (Trenčín, Podolie, Domaniža, Púchov, Dubnica nad Váhom) and the Bratislava Region (Bratislava) participated in the event.

Fig. 54 The Regional Round of the First Lego League Robotic Competition at the FMSI

At the end of the winter semester of the academic year 2018/2019, a traditional Christmas event called **FMSI PUNCH** ***(FRI PUNČ)*** was held at the FMSI on 13 December, during which faculty educators and students decorated the Christmas tree. There were competitions, space for discussion with a glass of good punch, music as well as demonstrations of Christmas products of the ŽIVENA association with the possibility of their purchase. The Dean appreciated the students for their successful representation of the faculty at the Central European Programmer's Competition ACM ICPC – CERC.

Fig. 55 Christmas Event – FRI PUNČ

At the end of 2018, we visited several secondary grammar and vocational schools (Secondary Technical School of Electrical Engineering in Prešov, Secondary Vocational School of Electrical Engineering in Žilina, Secondary Grammar School of Pavel Horov in Michalovce, Secondary Vocational School of Handlová, Secondary Technical School in Martin, Secondary Grammar School of Anton Bernolák in Námestovo, Secondary Vocational School of Electrical Engineering in Liptovský Hrádok, Secondary Technical School of Information Technologies in Kysucké Nové Mesto), in which we presented not only the presentation of our faculty, but also news from the world of IT and management.

Fig. 56 Presentation of the FMSI UNIZA and News from the World of IT and Management

On 7 December 2018, the first year of the **FRIday 2018** took place, during which more than 250 secondary school students from 17 secondary schools attended the faculty. They learned why it is worth studying informatics, IT and management. We presented the latest trends in IT and management for them, and the students had a chance to try them out in practical workshops.

Fig. 57 The First Year of the FRIday Event

On 29 October 2018, the 3rd year of the **Dean's Day-off** took place. Teachers, students and graduates from the faculty together with the dean visited Súľov rocks (Súľovské skaly) with beautiful nature and views in the autumn season.

Fig. 58 The Third Year of the Dean's Day-off Event

1.4 Profile and Structure of the Faculty

The Faculty of Management Science and Informatics is one of the seven faculties of the University of Žilina in Žilina. Currently, it benefits from a symbiosis of informatics and management studies. It has 117 employees and 1,340 students.

Fig. 59 The Faculty of Management Science and Informatics

The community at the faculty created by members of student and employee part of the academia is able to use the advantages of modern management approaches with the support of information technology. This is reflected not only in the formation of study programmes, but also in the management of the faculty. The faculty has traditionally cultivated a culture of demandingness and is well known among the professional public for the quality of its outputs, which are research project solutions, study programmes and especially its successful graduates. During the academic year, there are traditional and very popular events held at the faculty such as: FRIfest (FRIfestival), FRIples (FRIball) and FRIpunč (FRIpunch) which give the studies another dimension up to family level. The organizational structure of the faculty consists of the Dean's Office, seven departments and three special-purpose specialized workplaces. These are:

- Department of Information Networks
- Department of Informatics
- Department of Macro and Microeconomics
- Department of Management Theories
- Department of Mathematical Methods and Operational Analysis
- Department of Software Technologies
- Department of Technical Cybernetics

- Centre of Information Technologies
- Information Center
- Project Center

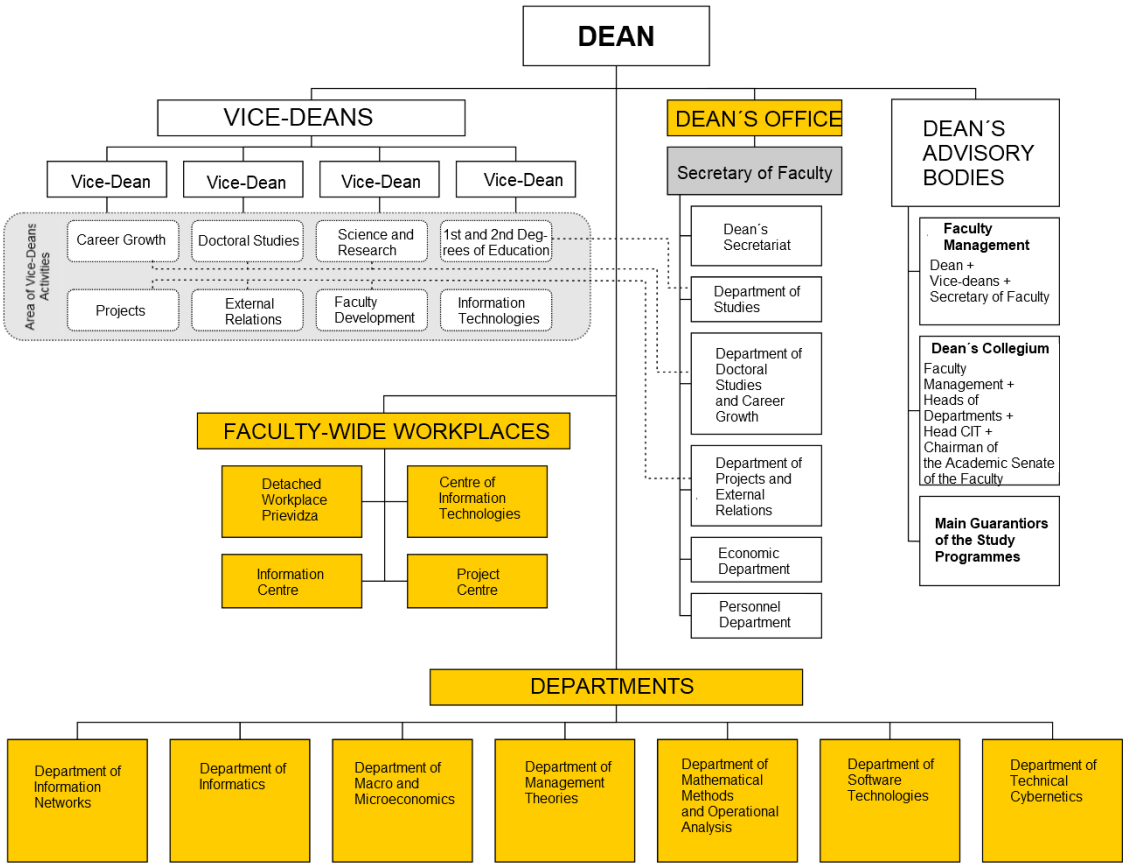


Fig. no. 60 Organizational Structure of the Faculty

Department of Information Networks

kis.fri.uniza.sk

The department provides education and research in the field of Information and Communication Networks with a focus on more detailed computer communications networks knowledge based on IP (Internet Protocol). Department staff actively participated in the standardization of NGN architecture, protocols and services (ETSI). Other activities are focused on research in the field of voice quality transmission (IP QoS), cooperation of information technologies (Grid and Cloud computing) with NGN and speech synthesis, within which the Text-to-Speech system was designed. Currently, research has been expanded to study the properties of fuzzy flip-flop circuits for speech recognition in learning networks and security issues in ICT systems.

Department of Informatics

The department carries out pedagogical activities in the fields of informatics, programming, work with database systems, spreadsheets, data structures, operating systems, programming techniques and design of large software systems. Research and scientific activities are focused on the creation of information and management systems for transport, development of distributed information systems, database resources, research of systems reliability, knowledge mining, applications for high-performance computing and specialized program resources. In research, the department cooperates with other departments and faculties of the University of Žilina in Žilina and with the faculties of many Slovak universities.

Department of Macro and Microeconomics


fria.fri.uniza.sk/~kmame

The department provides the teaching of economic science disciplines to the extent that allows to define the conditions and requirements for the analysis and design of information systems and their effective application and use in the management of economic operators. Subjects provided by the department are oriented towards economic theory, transformation process of the company, surroundings of the company and application of mathematical-statistical apparatus for forecasting macro and microeconomic development by econometric methods and soft computing technologies. Within the framework of education, the department participates in the study programmes informatics, management, computer engineering, information systems in terms of graduate profile. In the context of international economic development, the scientific and research activities of the department are focused on solving the problem of ensuring efficient use of production inputs at the macro, microeconomic and regional levels with the application of machine learning methods in modelling and forecasting economic and financial data.

Department of Management


kmnt.fri.uniza.sk

The department is a scientific and pedagogical workplace providing teaching and research of management disciplines in all programmes accredited at the faculty. The department guarantees the first, second and third level degree of study in the management study programme and is involved in guaranteeing the habilitation and inauguration procedures in the management programme. The department is the exclusive workplace of the faculty for complex teaching of management and related subjects (management, marketing, human resources management, operational management, enterprise information systems) that are scientifically being developed and taught both in general and in terms of operation of graduates in actual areas of application.

Department of Mathematical Methods and Operational Analysis


frdsa.fri.uniza.sk

The department is the basic workplace for educational and scientific activities in the field of mathematical foundations of management. It provides teaching of students in the field of algebra, mathematical analysis, probability theory and mathematical statistics, scheduling theory, operational analysis, modelling and simulation of systems, and other disciplines related to its research activities such as information

theory, cryptography, data structures, computer graphics, geographic information systems, artificial intelligence and multimedia information systems. The research activities of the department are focused on the development and application of optimization and simulation methods in systems to support decision-making in planning and management of processes.

Department of Software Technologies

The department provides teaching of subjects in the field of object technology, software engineering, informatics, web technologies, information and control systems and their support tools and quality management with a focus on services. The scientific activity of the department is focused on solving optimization tasks of transport and communications, especially optimization of technological processes with the use of means of transmission and computing technology, applied mathematics and informatics. Emphasis is put primarily on the analysis of technological processes, their modelling, methods of process management and computer support of decision-making in the management of processes in transport and communications.

kst.uniza.sk

Department of Technical Cybernetics

The department provides teaching in the fields of analysis, modelling, simulation and methodology for designing technical and program security of management and information systems. The scientific activity of the department is focused on the development of new control algorithms, design of computer network elements and parameters, development of algorithm methods and technical means of digital signal processing, analysis of dynamic properties of transport processes and means of movement between nodes and modelling of human dynamics in control of technical systems.

frtk.fri.uniza.sk

The Department of Technical Cybernetics has developed a highly effective teaching system built on a modular architecture called Yrobot. The developed system represents the Open HW platform where students can learn the basics of electronics, informatics and computer engineering. Yrobot is intended to serve as a basis for the development of other expanding applications. Unlike typical Open HW systems such as Arduino and Raspberry PI, the Yrobot system also includes a motion subsystem that allows students to verify the designed and implemented algorithms in an attractive manner. The next stage was developed in 2018.

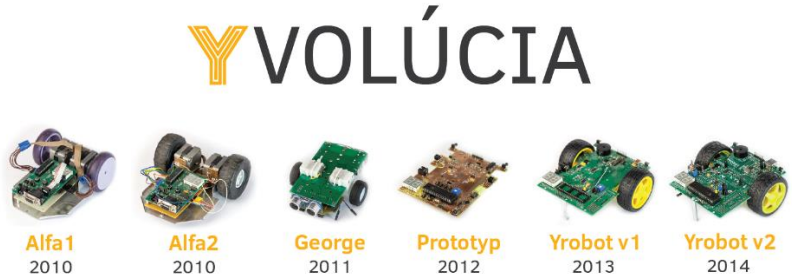


Fig. 61 Development of Yrobot Teaching System

1.5 Personnel Structure of the Faculty

The personnel structure of the Faculty of Management Science and Informatics for the monitored period 2008 – 2018 is shown in the following table.

Table 3

Recalculated Number of Employees for the Monitored Period 2008 - 2016													
Year	prof. - position	prof. - title	Honorary prof.	Assoc. Prof. - position	Asst. Prof. with PhD. title	Asst. Prof. without PhD. Title	Assistents	Lecturers	Teachers	Researchers	Total:	Technicians	Total:
31.10.2008	11	6	0.48	12	47	17.33	1	6	94.81	10.88	105.69	44.66	150.35
31.10.2009	10	5	0.48	14.5	57.8	12.83	0	5	100.61	6	106.61	44.67	151.28
06.12.2010	9.6	5	0.18	14.67	58.8	11.30	0	4.75	99.27	6.33	105.6	44.71	150.31
31.10.2011	8	5	-	17	52.33	9	-	4	90.33	6	96.33	44	140.33
31.10.2012	8	6	-	17.75	56.70	8.33	-	3.67	94.45	5.17	99.62	41.15	140.77
31.10.2013	10	6	-	16	55.666	5	-	2	90.666	4	94.666	38.333	132.999
31.10.2014	10	8	-	22.5	49.499	-	-	5	86.999	3.5	90.499	39.133	129.632
31.10.2015	11	9	-	22.5	53.666	0.80	-	2	89.966	3	92.966	22	114.966
31.10.2016	12	10	-	20.1	48.333	1	-	3	84.433	2	86.433	22	108.433
31.10.2017	12	10	-	23.1	50.933	1	-	3	90.003	3	93.003	23	116.003
31.10.2018	12	11	-	24.3	50.600	1.90	-	3	91.800	3	94.800	22	116.800

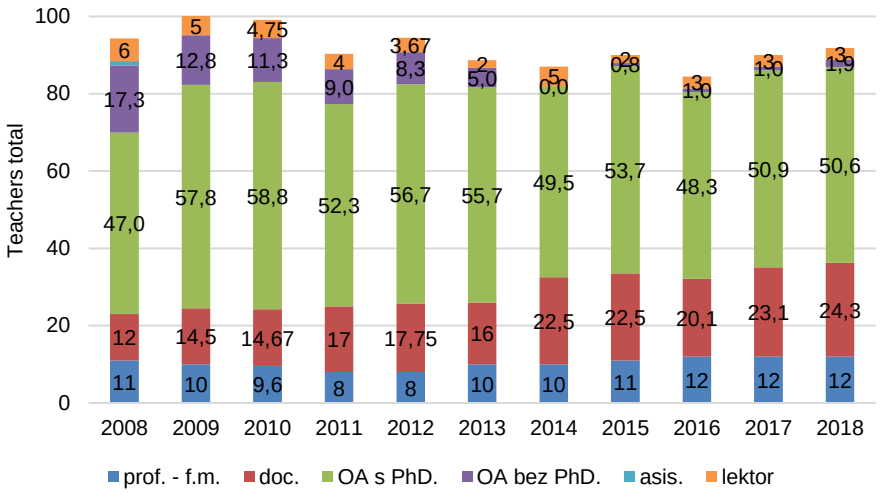


Fig. 62 Development of the Number of Teachers at the Faculty of Management Science and Informatics UNIZA

The following table shows the development of the value of the criterion considered in the period 2008 - 2018.

Table 4

Criterion: The Number of Students in the First and Second Degree Programmes for the Recalculated Number of University Teachers						
Year	**Students**			**Total**	**Registered number of university teachers**	**Students/ teachers**
	Full – time total	**Part – time total**	**calculation**			
2008	1,363	0	0	1,363	94.81	14.37
2009	1,234	0	0	1,234	100.61	12.27
2010	1,301	0	0	1,301	99.27	13.10
2011	1,324	32	9	1,333	90.33	14.75
2012	1,383	24	8	1,446	94.45	15.31
2013	1,403	22	7	1,410	90.66	15.55
2014	1,448	0	0	1,448	86.99	16.65
2015	1,501	0	0	1,501	89.97	16.68
2016	1,524	0	0	1,524	84.43	18.05
2017	1,493	10	3	1,496	90.00	16.62
2018	1,302	4	1	1,303	91.80	14.19

Table 4 shows the development of the indicator, not only the number of students per teacher, but also the individual categories of qualification structure of teachers.

Table 5

Development – Students and Qualification Structure of Teachers						
Year	**Students/ Teachers**	**Students/ PhD and more**	**Students/ Prof.**	**Students/ Assoc. Prof.**	**Students/ Asst. Prof. With PhD.**	**Students/ (Prof.+ Assoc. Prof.)**
2008	14.37	19.34	118.73	113.58	29.00	58.05
2009	12.27	14.91	117.75	85.10	21.35	49.40
2010	13.10	15.63	133.03	88.68	22.13	53.21
2011	14.75	17.24	166.63	78.41	25.47	53.32
2012	15.31	17.54	180.75	81.46	25.50	56.16
2013	15.55	17.27	141.00	88.13	25.33	54.23
2014	16.65	17.66	144.80	64.36	29.25	44.55
2015	16.68	17.22	136.45	66.71	27.97	44.81
2016	18.05	18.95	127.00	75.82	31.53	47.48
2017	16.62	17.39	124.67	64.76	29.37	42.62
2018	14.19	14.99	108.58	53.62	25.75	35.89

2 Educational Activities

Study programmes of the faculty are interdisciplinary and in their design the faculty builds on more than twenty-five years of successful tradition in education of students in the field of study cybernetics in transport and communications at the former Faculty of Mechanical Engineering and Electrical Engineering of the University of Transport and Communications (SET VŠDS) and long-term traditions in the fields of study information and management systems and applied mathematics at the Faculty of Management Science and Informatics of the University of Žilina in Žilina (FMSI UNIZA). Activities of the Faculty of Management Science and Informatics (FMSI) are determined by new trends in the development of information and communication technologies, while the faculty's priority task is to ensure continuous interconnection of research, education and graduate application in practice. The main educational and professional activities are connected with the following areas:

- design and implementation of technical means for information and control systems,
- analysis, synthesis and design of integrated information and control systems,
- management, marketing, logistics, business,
- creation of transport and communication systems,
- management and optimization of transport of goods and passengers,
- management and optimization of creation of databases and transmission and processing of information,
- multimedia information systems and graphic information systems, simulation tools for communication networks and systems and mathematical modelling.

Education at all levels of study is provided through active participation of university teachers, researchers, students and PhD students in scientific research work. Students are involved in creative activities by participating in solving project works, bachelor's theses, diploma and doctoral theses, which follow the scientific-research focus of solving teams of the faculty, university and cooperating organizations.

The faculty's experience in providing education in individual fields confirms the correctness of the previous steps, which are also confirmed by the long-term interest of the practice in the faculty graduates, many of whom have been employed during university studies. The creation of study programmes is based on the assumption that they are provided within a given field (covering a defined core of knowledge) and are more universal, allowing future graduates to adapt flexibly to the rapidly changing conditions and requirements of engineering practice and labour market.

2.1 Overview of Accredited Study Programmes

The Faculty carries out education in accredited study programmes according to the provisions of Act no. 131/2002 Coll. on Higher Education and on Changes and Supplements to Some Laws listed in the following table.

Table 6

Overview of Accredited Study Programmes			
Study programme	**FS**	**T**	**R**
Informatics	D	Bc.	3/4/-
Management	D/E	Bc.	3/-/4
Computer Engineering	D	Bc.	3/4/-
Information Systems	D	Ing.	2/3/-
Information Management	D/E	Ing.	2/3/3
Computer Engineering	D	Ing.	2/3/-
Intelligent Information Systems	D	Ing.	2/3/-
Applied Network Engineering	D	Ing.	2/3/-
Applied Informatics	D/E	PhD.	3/4
Management	D/E	PhD.	3/4
Intelligent Information Systems	D/E	PhD.	3/4

FS – form of study (D – full–time, E – part-time), **T** – academic title, **R** – length of study in years (standard length/compensatory study/part-time study)

The professional content of the study programmes is provided by the guarantors (all degrees of study) and by the co-guarantors (PhD.):

- Assoc. prof. Ing. Emil Kršák, PhD. - informatics (Bc.)
- Prof. Ing. Martina Blašková, PhD. - management (Bc.)
- Assoc. prof. Ing. Ondrej Karpiš, PhD. - computer engineering (Bc.)
- Prof. Ing. Karol Matiaško, PhD. - information systems (Ing.)
- Prof. Ing. Elena Zaitseva, PhD. - applied network engineering (Ing.)
  - applied informatics (PhD.)
- Assoc. prof. Mgr. Ivan Cimrák, Dr. - applied informatics (PhD.)
- Prof. Ing. Vitaly Levashenko, PhD. - applied informatics (PhD.)
- Prof. RNDr. Jaroslav Janáček, CSc. - intelligent information systems (Ing.)
  - intelligent information systems (PhD.)
- Prof. Ing. Ľudmila Jánošíková, PhD. - intelligent information systems (PhD.)

• Assoc. prof. Ing. Ľuboš Buzna, PhD.	- intelligent information systems (PhD.)
• Prof. Ing. Juraj Miček, PhD.	- computer engineering (Ing.)
• Prof. Ing. Josef Vodák, PhD.	- information management (Ing.) - management (PhD.)
• Assoc. prof. Ing. Viliam Lendel, PhD.	- management (PhD.)
• Prof. Ing. Alžbeta Kucharčíková, PhD.	- management (PhD.)

2.2 Number of Students

On 31 October 2018, the faculty had **1,340 students** at all three levels of study. *In the bachelor and engineering study programmes*, *1,302* students study in full-time form of study. There are 358 first-year students, 253 second-year students and 360 third-year students in bachelor's degree study programmes. There are 162 first-year students and 169 second-year students in engineering fields of study and programmes. There are *38 PhD students* (34 in full-time form of study and 4 in part-time form of study) in doctoral study *programmes*. The following table provides a detailed overview.

Table no. 7

Overview of the Number of PhD Students			
Study programme	**Full - time**	**Part - time**	**Total**
Applied informatics	21	3	24
Management	9	1	13
Intelligent information systems	4	0	4
Total	**34**	**4**	**38**

The following tables show the overall summary of the number of PhD students in standard form as of 31 October 2018. In the above-standard form of study, there was no student as of 31 October 2018.

Table no. 8

Overview of the Number of PhD Students in Standard Form							
Year	**Total**	**3.3.15 Management**		**9.2.9 Applied informatics**		**9.2.6 Information systems**	
		Full-time	**Part-time**	**Full-time**	**Part-time**	**Full-time**	**Part-time**
1	13	2	0	7	1	3	0
2	15	4	0	9	1	1	0
3	9	3	1	5	0	0	0
4	1	0	0	0	1	0	0
Total	**38**	**9**	**1**	**21**	**3**	**4**	**0**

2.3 Development of the Number of Students

The basic quantitative indicator of status of students is the number of enrolled students in particular year. The development of the number of students per year is shown in the table and in the following graphs.

Table 9

Development of the Number of Students by Years in the Monitored Period												
Year	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
1. bc.	385	381	354	442	445	429	410	407	448	461	403	358
2. bc.	285	249	240	232	286	314	296	294	289	313	302	253
3. bc.	306	324	275	285	252	284	349	339	338	336	373	360
1. ing.	200	190	163	148	174	179	155	215	189	169	186	162
2. ing.	213	212	199	187	177	201	215	193	237	245	203	169
Total	**1,389**	**1,356**	**1,231**	**1,294**	**1,334**	**1,407**	**1,425**	**1,448**	**1,501**	**1,524**	**1,467**	**1,302**

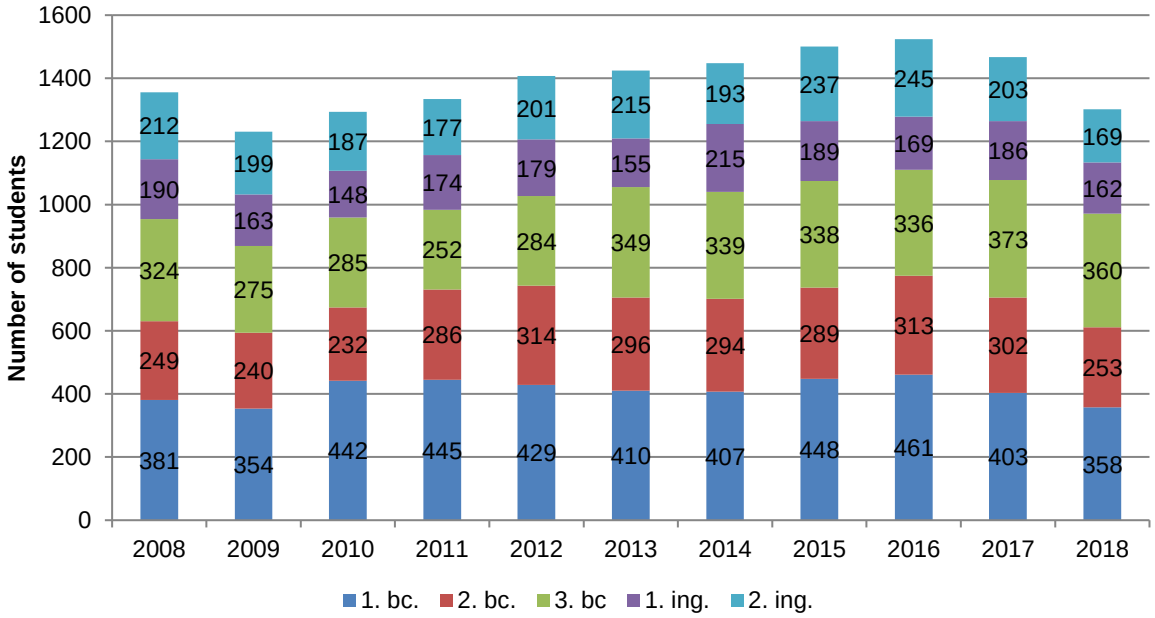


Fig. 63 Development of the Number of Students by Particular Years in the Monitored Period

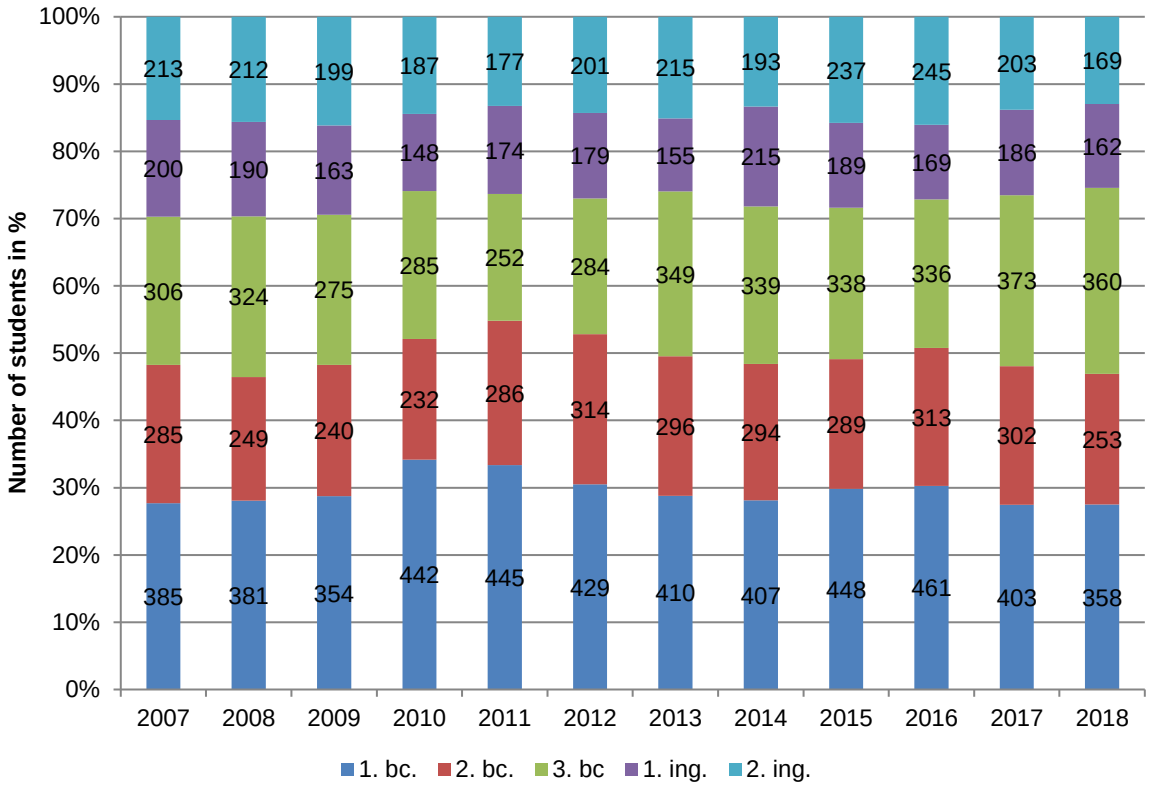


Fig. 64 Development of the Number of Students by Particular Years in the Monitored Period (Proportion in %)

Table 10

Development of the Number of Students in Individual Study Programmes in the Monitored Period														
Full-time form		**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Informatics - Bc.	1st grade A	713	555	601	509	598	609	649	690	722	743	800	768	640
	graduates	57	154	131	134	100	125	101	98	119	113	101	117	120
Computer engineering - Bc.	1st grade A	153	139	151	150	124	135	115	122	116	134	115	86	100
	graduates	-	34	24	33	35	44	26	26	29	25	31	19	16
Management - Bc.	1st grade A	151	204	209	211	237	226	239	221	202	198	195	224	231
	graduates	-	-	59	55	48	68	57	59	65	60	59	35	52
Information systems - Ing.	1st grade A	-	-	-	-	-	-	-	-	-	-	-	-	-
	2nd grade B	73	135	169	176	167	196	206	178	177	181	179	172	154
	graduates		19	21	63	83	64	65	84	65	51	47	56	53
Applied network engineering - Ing.	1st grade A	-	-	-	-	-	-	-	-	-	-	-	-	-
	2nd grade B	-	-	-	-	-	-	-	35	39	38	38	38	40
	graduates	-	-	-	-	-	-	-	-	14	18	16	18	14
Information management/ management - Ing.	1st grade A	-	-	-	-	-	-	-	-	-	-	-	-	-
	2nd grade B	33	71	93	97	93	92	101	106	135	143	126	103	88
	graduates	-	-	24	36	48	43	43	38	55	46	67	62	58
Computer engineering - Ing.	1st grade A	-	-	-	-	-	-	-	-	-	-	-	-	-
	2nd grade B	-	40	70	69	75	66	56	51	57	64	65	50	36
	graduates	-	-	-	32	25	36	28	25	16	15	27	29	22
Intelligent information systems - Ing.	1st grade A	-	-	-	-	-	-	-	-	-	-	-	-	-
	2nd grade B	-	-	-	-	-	-	-	-	-	-	5	16	13
	graduates	-	-	-	-	-	-	-	-	-	-	0	0	6
Part-time form		**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Management - Bc.	1st grade A	44	-	-	-	-	32	24	22	-	-	-	-	-
	graduates	-	40	-	-	-	-	-	-	20	-	-	-	-
Information management - Ing.	2nd grade B	-	-	-	-	-	-	-	-	-	-	-	10	4
	graduates	-	-	-	-	-	-	-	-	-	-	-	0	0

The following table and graph show the development of the number of PhD students working at the faculty in the monitored period.

Table 11

Development of the Number of PhD Students for the Years 2005-2018														
Full-time form	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
9.2.9 Applied Informatics	7	7	13	16	24	28	34	35	24	19	17	16	17	21
3.3.15 Management	8	6	8	9	11	12	10	7	7	8	10	11	11	9
9.2.6 Information Systems	0	0	0	0	0	0	0	0	0	0	0	0	1	4
Part-time form	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
9.2.9 Applied Informatics	17	14	16	11	14	19	12	5	6	10	11	10	5	3
3.3.15 Management	10	9	10	14	11	10	10	6	3	2	3	7	2	1
9.2.6 Information Systems	0	0	0	0	0	0	0	1	1	0	0	0	0	0
Total	**76**	**51**	**64**	**61**	**69**	**69**	**66**	**55**	**42**	**39**	**41**	**44**	**36**	**38**

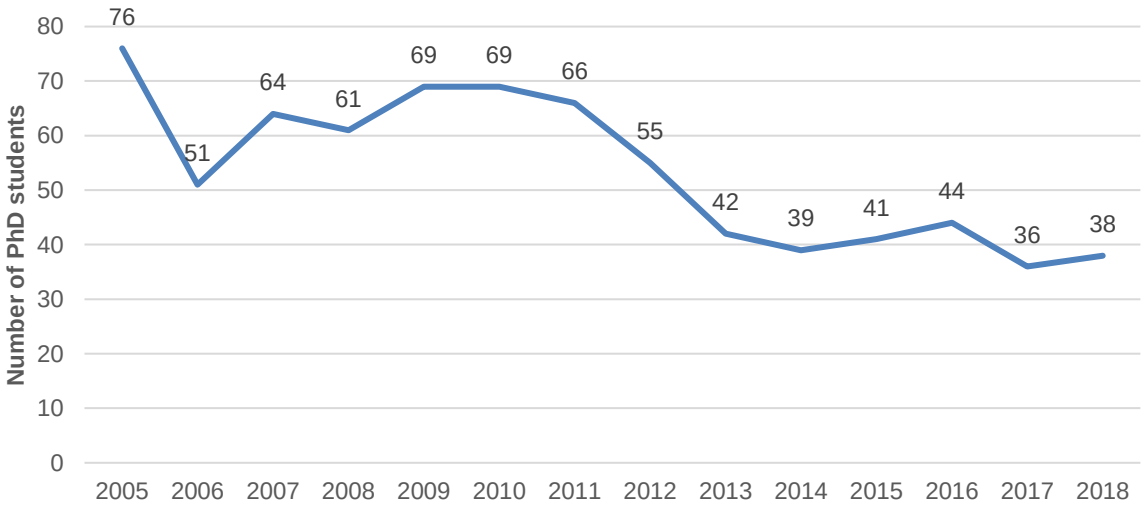


Fig. 65 Development of the Number of PhD students in the Monitored Period

2.4 Innovation in Education

Within the frame of new compulsory subject Information and communication systems principles as well as Computer networks 1 and 2 subjects, students have the opportunity to obtain Cisco Certified Network Associate Industry Certificates under the Network Academy. Similarly oriented the Juniper Academy also works at the faculty. Since 2015, the faculty has been offering SAP courses to help students increase their IT skills.

Since 2016, the Faculty of Management Science and Informatics has been actively involved as a partner in the national project ***"IT Academy - Education for the 21st Century"***. The main activities of this project are:

- innovation of education at primary and secondary schools with a focus on informatics and ICT,
- innovation of training of university students for employment in the IT sector,
- education of teachers of informatics at primary and secondary schools,
- motivating pupils and students to study ICT,
- creating partnerships and networks of schools and IT companies.

The faculty, through its employees involved in this project and in cooperation with other project partners and representatives of IT companies prepares innovation and updating of content, scope, methods and forms of informatics teaching at secondary schools. It prepares new interesting optional IT courses for secondary school students, creates new and innovates several subjects taught in the study programmes focused on the field of ICT for its students, realizes various motivational events (IT summer camps, IT workshops, conferences, competitions ...) in order to motivate pupils and students of primary and secondary schools for ICT studies. The faculty's partnerships with individual secondary schools and IT companies operating within Slovakia are also deepening and expanding.

In 2018, several new and interesting optional subjects were prepared and implemented into teaching. Students and faculty partners from companies showed interest in developing software testing (new subjects: *Basics of software testing, Prevention and solution of software errors*), IT trends (*Internet of things*), programming (C# language and *.NET*), modern methods of analysis and processing of data (*Multidimensional Data Analysis, Data Modelling and Visualization in R, Open Geographic Data*), Network Technology Trends (*Python in Network Applications, Network Security by Fortinet*), Management (*Sports Management, Operations Management 2*) and economics (*Applied Economics*).

In 2018, faculty students also had the opportunity to go for a prestigious internship at UC Berkeley, USA, CISCO, USA or CERN, Switzerland.

In 2018, faculty students also could attend interesting excursions. Traditional and popular among students is an annual **excursion to Scheidt & Bachmann, Mönchengladbach (Germany),** which took place on 3-6 May 2018.

Fig. 66 Participants in Excursion Scheidt & Bachmann, Mönchengladbach (Germany)

Information meetings with the guarantors of the individual study programmes and the vice-dean for education were held for the students of the final years of the bachelor and engineering studies. The aim of these meetings is to better prepare the final students for the process of creating and finalizing the final thesis, to point out the most common problems when writing and submitting the final theses, as well as to prepare the final students for successful completion of state examination.

An emphasis is put on practice at the faculty. Students, within their studies at the Faculty of Management Science and Informatics UNIZA have the opportunity to work on specific projects from practice, for example, within the frame of project education at engineering degree. As an example, we can mention a joint project "FRIskill: Knowledge Base Management System", developed in collaboration with GlobalLogic company. It annually awards participants of the joint project with the certificate VIP:it. The cooperation of students and experts from practice enriches not only the student but also the university, its real product is usable in practice and gives young talents the opportunity to gain real experience from top companies in Slovakia in the field of information technology.

Fig. 67 Ceremonial Awarding of VIP:it Certificates to Participants in Project Education

In 2018, the faculty introduced for students a new project called FAKULTNÁ PRAX 2018 (FACULTY PRACTICE 2018). It is intended for all students who want to complete the compulsory subject Practice and at the same time help the faculty in its progress. Practice is paid and interesting topics were prepared. Interest of students in topics was great and many topics were not only occupied by students, but also successfully defended during 2018. A second year of the Faculty Practice is ready to be launched in spring 2019.

Within the framework of improving the quality of education, the 5th year of student voting in categories the best lecturer, best seminar leader and most useful subject was held. The results of the survey are shown in the following table.

Table 12

Results of the Student Survey in 2018		
Category	**Rank**	**Awarded teacher**
Best Lecturer	1st place	RNDr. Ida Stankovianska, CSc.
	2nd place	Assoc. Prof. Ing. Norbert Adamko, PhD.
	3rd place	Assoc. Prof. Ing. Michal Varmus, PhD.
Best Seminar Leader	1st place	RNDr. Ida Stankovianska, CSc.
	2nd place	Mgr. Peter Czimmermann, PhD.
	3rd place	Ing. Marek Kvet, PhD.
Most Useful Subject	1st place	Algorithms and Data Structures 1
	2nd place	Informatics 1
	3rd place	Algebra

The award was presented to the teachers by the Dean of the Faculty within the 9th Representative Ball of the Faculty of Management Science and Informatics UNIZA.

Fig. no. 68 Presentation of Awards at the Ball of the Faculty of Management Science and Informatics

2.5 Admission Procedure

Admission procedure for bachelor's degree studies took place on 14 June 2018 and for master's (engineering) degree studies on 7 June 2018, in accordance with the conditions for admission to the individual levels of study.

Table 13

Overview of the Admission Procedure to the 1st Year of Bachelor's Degree Studies (Full-Time Form)					
Study programme	**Applicants**	**Admitted without exam**	**Admitted after exam**	**Not admitted**	**Did not come**
Informatics	546	112	261	0	173
Management	139	74	43	1	21
Computer Engineering	70	34	23	0	13
Total	**755**	**220**	**327**	**1**	**207**

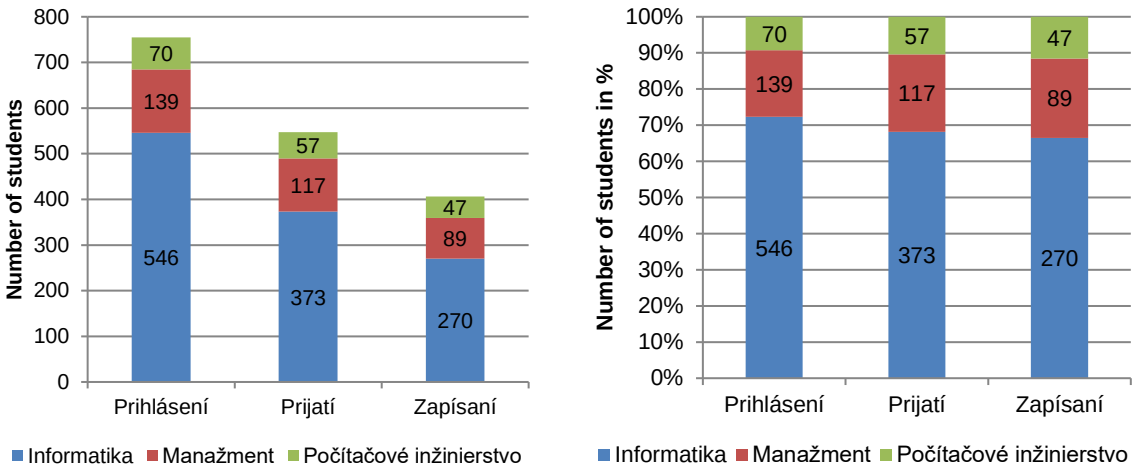


Fig. 69 Number of Applicants, Admitted and Enrolled Students in the 1st Year of the Bachelor's Degree Studies

Table 14

Overview of the Admission Procedure to the 1st Year of Master's (Engineering) Degree Studies			
Study programme	**Applicants**	**Admitted**	**Enrolled**
Information Management	58	56	46
Information Management – part-time form	12	0	0
Information Systems	100	90	66
Computer Engineering	12	11	11
Applied Network Engineering	18	18	17
Intelligent Information Systems	13	10	7
Total	**213**	**185**	**147**

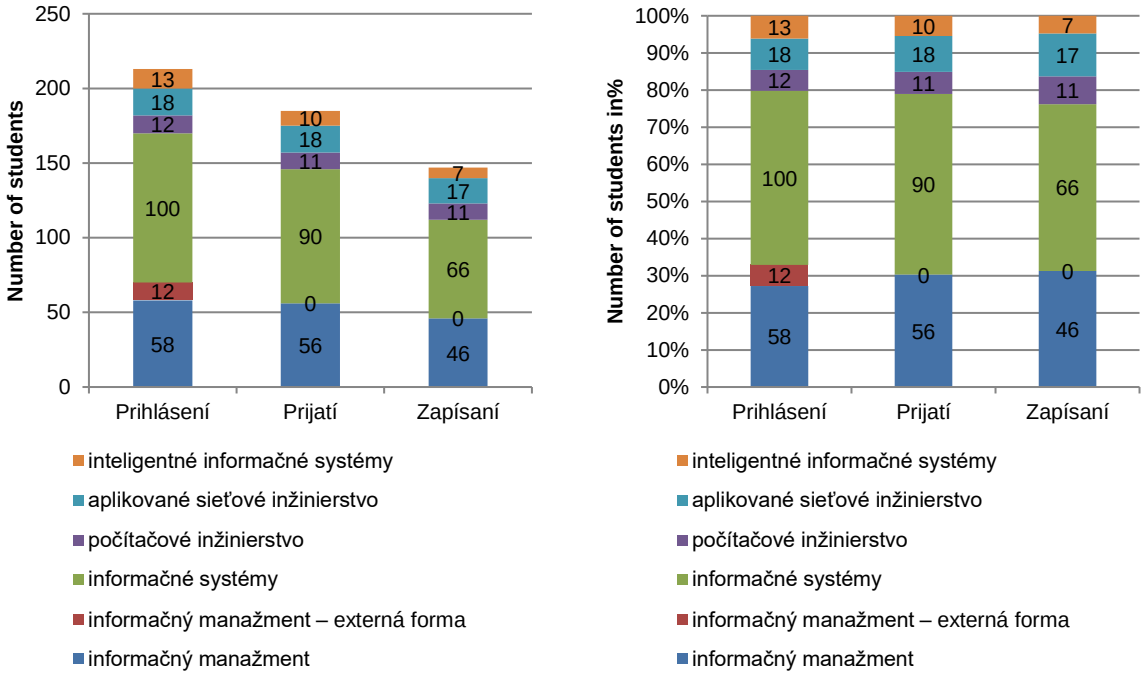


Fig. 70 Number of Applicants, Admitted and Enrolled Students in the 1st Year of the Master's (Engineering) Degree Studies

On 21 - 22 June 2018, entrance examination for doctoral studies were held in the academic year 2017/2018 according to the Act of the Ministry of Education, Science, Research and Sport of the Slovak Republic No. 131/2002 Coll. on Higher Education and on Changes and Supplements to Some Laws. On the basis of the entrance examination, students were admitted and started their doctoral studies. They are listed in the tables no. 15, 16 and 17.

Table 15

Newly Admitted PhD Students in the Study Programme Management (Field of Study 3.3.15 Management)		
Name and surname of PhD student	**Form of study**	**Supervisor**
Ing. Mária Demjanovičová	Full-time	Assoc. Prof. Ing. Michal Varmus, PhD.
Ing. Dominika Hriníková	Full-time	Prof. Ing. Martina Blašková, PhD.

Table 16

Newly Admitted PhD Students in the Study Programme Intelligent Information Systems (Field of Study 9.2.6 Information Systems)		
Name and surname of PhD student	**Form of study**	**Supervisor**
Ing. Dobroslav Grygar	Full-time	Assoc. Prof. Ing. Michal Kohání, PhD.
Ing. Maroš Janovec	Full-time	Assoc. Prof. Ing. Michal Kohání, PhD.
Ing. Patrik Vasilovský	Full-time	Assoc. Prof. Ing. Michal Kohání, PhD.

Table 17

Newly Admitted PhD Students in the Study Programme Applied Informatics (Field of Study 9.2.9 Applied Informatics)		
Name and surname of PhD student	**Form of study**	**Supervisor**
Ing. Roman Čerešňák	Full-time	Prof. Ing. Karol Matiaško, PhD..
Ing. Lukáš Formánek	Full-time	Assoc. Prof. Ing. Ondrej Karpiš, PhD.
Mgr. Katarína Jasenčáková	Full-time	Assoc. Prof. RNDr. Katarína Bachratá, PhD.
Ing. Peter Sedláček	Full-time	Prof. Ing. Elena Zaitseva, PhD.
Ing. Miroslav Chochul	Full-time	Assoc. Prof. Ing. Peter Ševčík, PhD.
Ing. Tibor Poštek	Full-time	Assoc. Prof. Mgr. Ivan Cimrák, Dr.
Ing. Michal Kochláň	Part-time	Assoc. Prof. Ing. Peter Ševčík, PhD.
Ing. Tomáš Kello	Full-time	Assoc. Prof. Ing. Emil Kršák, PhD.

2.6 Statistical Overview of the Admission Procedure

The development of the number of applicants admitted and enrolled in the 1st year of bachelor's degree studies is shown in the table and subsequently also graphically.

Table 18

Development of the Number of Students Admitted and Enrolled in the 1st Year of Bachelor's Degree Studies						
Year	Admitted			Enrolled		
	Informatics	Computer Engineering	Management	Informatics	Computer Engineering	Management
2009	336	58	138	219	33	80
2010	355	93	164	246	65	92
2011	380	72	143	262	51	96
2012	403	49	147	243	37	89
2013	411	68	113	292	55	86
2014	401	51	100	326	41	82
2015	402	80	163	300	63	100
2016	416	59	153	306	49	92
2017	389	30	129	265	16	82
2018	373	57	117	270	47	89

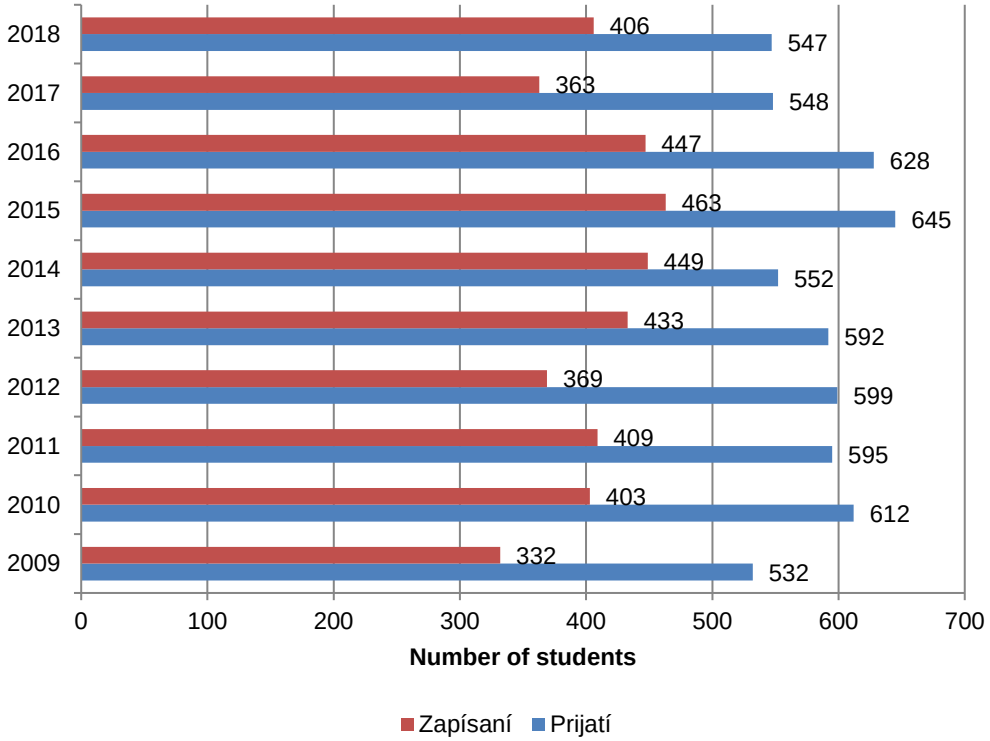


Fig. 71 Development of the Number of Students Admitted and Enrolled in the 1st Year of the Bc. study

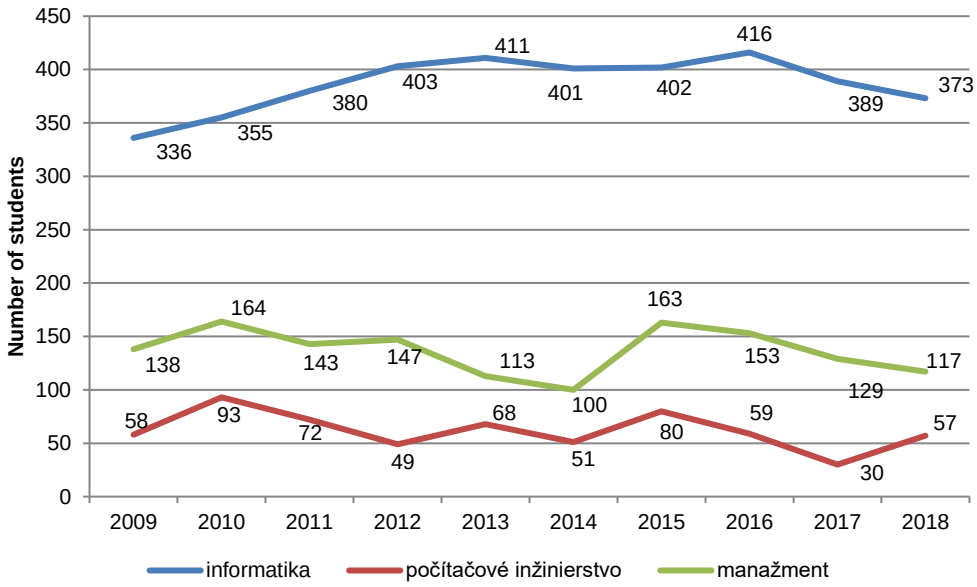


Fig. 72 Development of the Number of Admitted Students in Individual Study Programmes in the 1st Year of the Bc. study

Development of the number of applicants, admitted and enrolled candidates in the 1st year of master's (engineering) degree studies is shown in the table and subsequently also graphically.

Table 19

Development of the Number of Students Admitted and Enrolled in the 1st Year of Master's (Engineering) Studies										
Year	**Admitted**					**Enrolled**				
	IS	**PI**	**IM/M**	**ASI**	**IIS**	**IS**	**PI**	**IM/M**	**ASI**	**IIS**
2009	99	37	47	0	0	99	37	46	0	0
2010	78	35	48	0	0	78	35	48	0	0
2011	108	29	49	0	0	108	28	45	0	0
2012	91	21	56	16	0	88	20	53	16	0
2013	77	23	58	18	0	64	21	46	18	0
2014	107	29	88	19	0	106	29	88	19	0
2015	87	28	66	21	0	77	25	62	17	0
2016	67	30	57	19	5	63	30	52	17	5
2017	99	18	45	20	9	74	18	41	20	9
2018	90	11	56	18	10	66	11	46	17	7

IS – Information Systems, **PI** – Computer Engineering, **IM/M** – Information Management/Management, **ASI** – Applied Network Engineering, **IIS** – Intelligent Information Systems

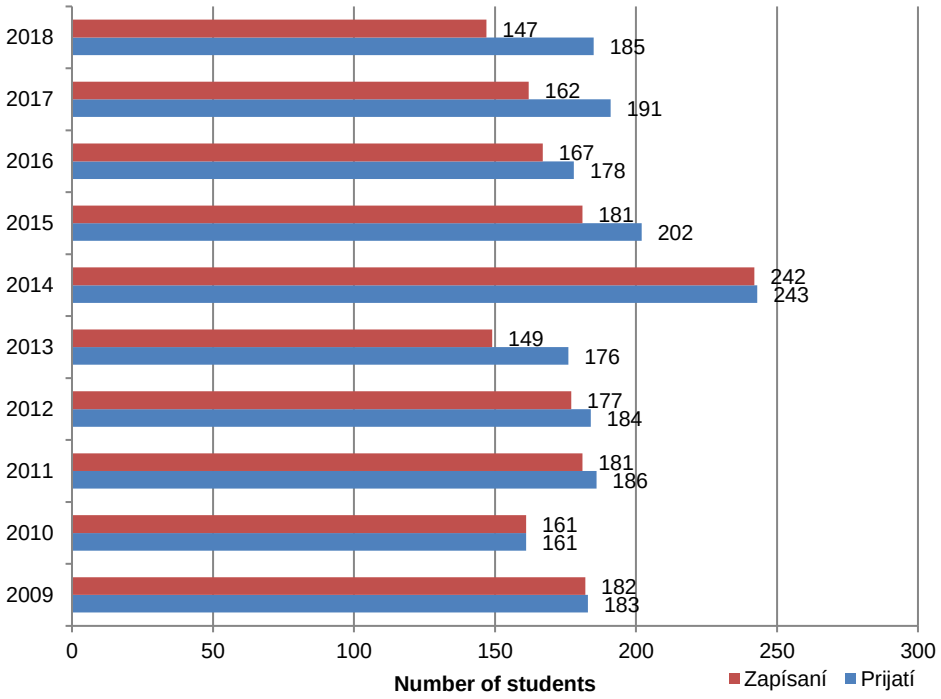


Fig. 73 Development of the Number of Students Admitted and Enrolled in the 1st Year of the Master's (Engineering) Studies in the Given Period

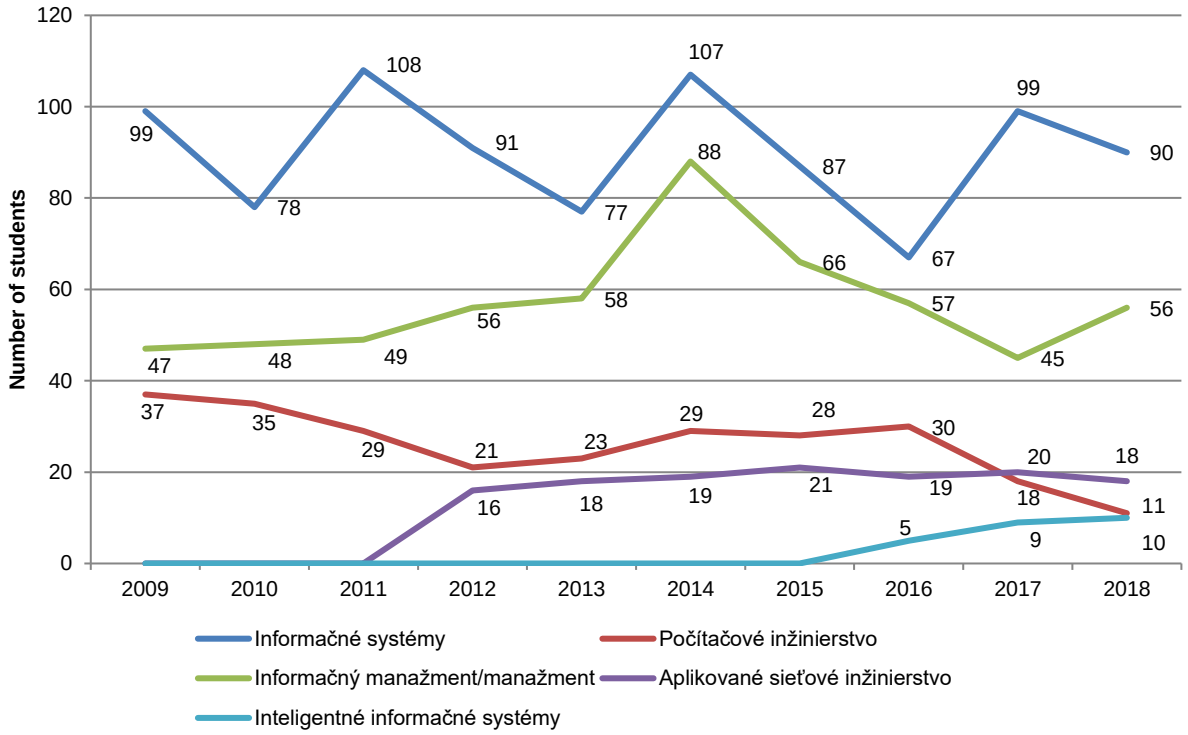


Fig. 74 Development of the Number of Admitted Students in Individual Study Programmes in the 1st Year of the Master's (Engineering) Studies in the Given Period

2.7 Graduate Prospects

The faculty currently provides education in a bachelor's degree studies with a standard length of study of 3 years and master's (engineering) degree studies with a standard length of study of 2 years. The development of the average length of study from the first start of study to the relevant degree is presented in the following table and in total for the 1st and 2nd degree in the following graph.

Table 20

Average Length of Study												
Form of study	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Bachelor's degree	3.23	3.32	3.48	3.43	3.49	3.31	3.45	3.31	3.40	3.37	3.53	3.41
Master's (engineering) degree	2.00	2.33	2.06	2.09	2.26	2.18	2.21	2.11	2.27	2.22	2.33	2.40

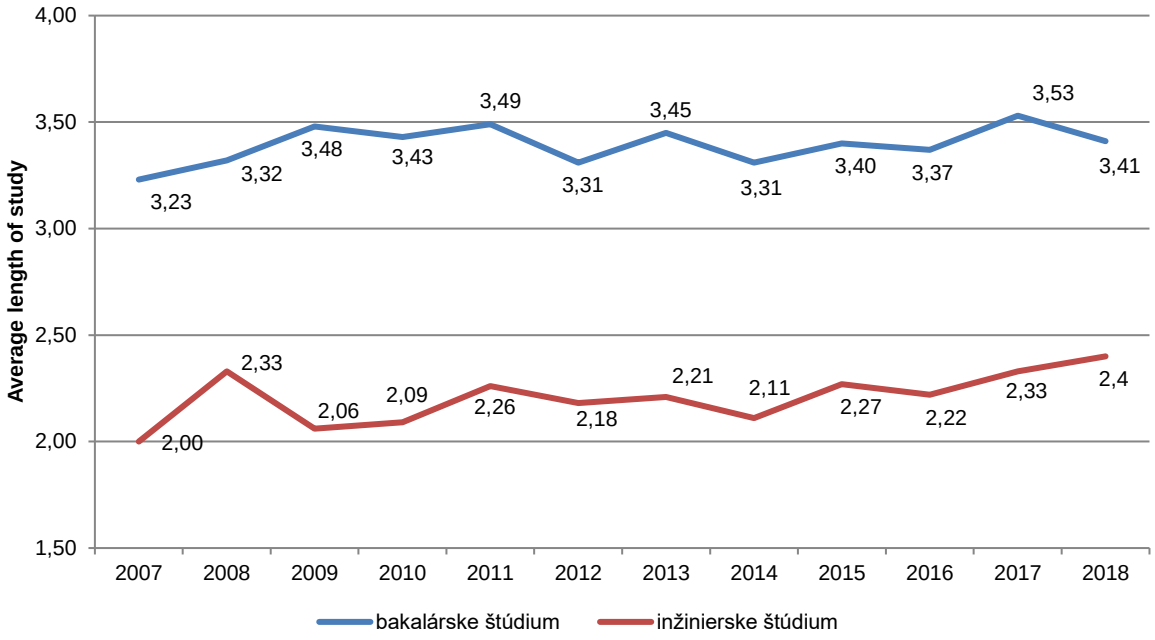


Fig. 75 Development of the Average Length of Study in Individual Forms of Study in the Monitored Period

Table 21

Statistical Evaluation of Enrolled Students and Graduates			
Study Programme	**Enrolled in the 1st Year**	**Graduates**	**Ratio**
Informatics /Bc./	270	120	**0.444**
Computer Engineering /Bc./	47	16	**0.340**
Management /Bc./	89	52	**0.584**
Information Systems /Ing./	66	53	**0.803**
Intelligent Information Systems /Ing./	7	6	**0.857**
Computer Engineering /Ing./	11	22	**2.000**
Information Management /Ing./	46	58	**1.261**
Applied Network Engineering /Ing./	17	14	**0.824**
Total	**553**	**341**	**0.617**

The statistics are processed in accordance with Annex no. 5 point 3 of Decree 558/2007 Coll.

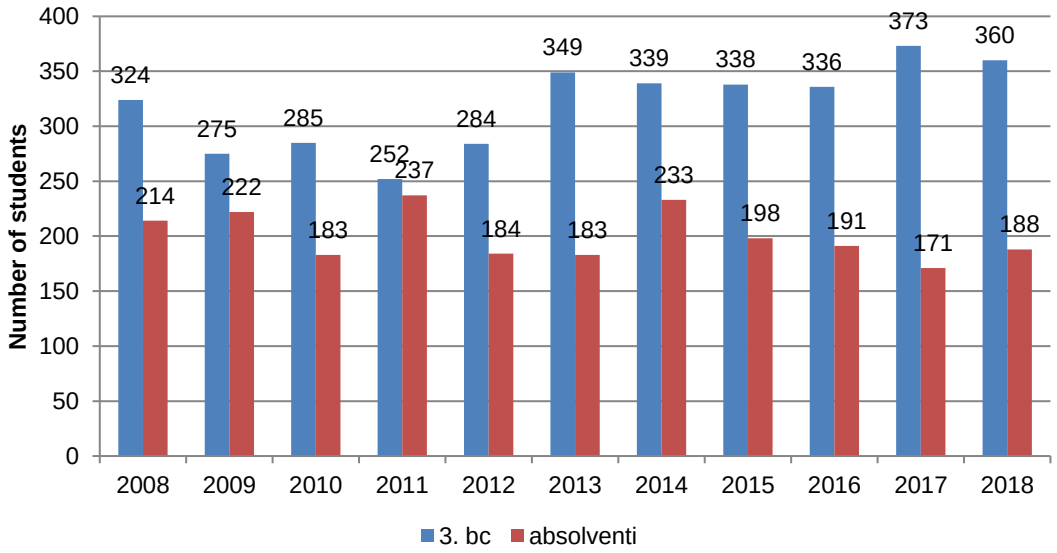


Fig. 76 Development of the Success of the Last Year of Bc. study

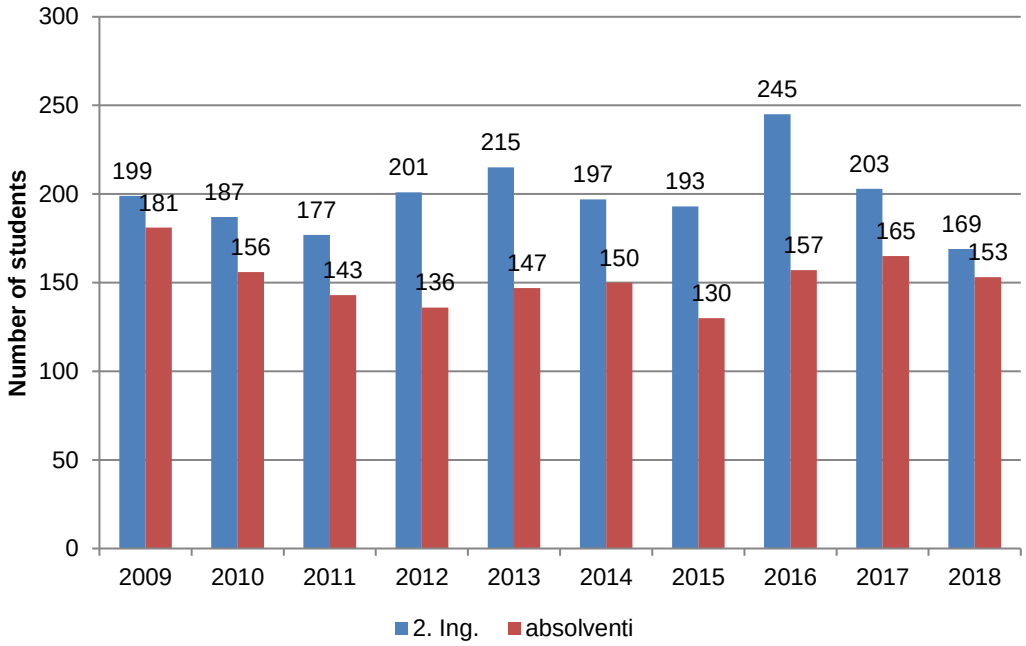


Fig. 77 Development of the Success of the Last Year of Master's (Engineering) Degree Studies

Dissertation examinations were held in August and October during the evaluated period (i.e. until October 31, 2018). Dissertation examinations were performed by 14 students. 7 students asked for defending of dissertation thesis. 7 students completed doctoral studies by defending of dissertation thesis in the dates listed in the following table.

Table 22

Dissertation Defence Statistics	
Date	**Full-time form**
14 March 2018	Ing. Zuzana Škutchanová
21 August 2018	Ing. Martin Slavík, Ing. Marek Moravčík, Ing. Samuel Žák
22 August 2018	Ing. Kristína Poláčková, Ing. Martin Holubčík, Ing. Martin Latka

Graduate Prospects

Study programmes of the Faculty of Management Science and Informatics are designed in such a way that each student who has completed his / her studies and has defended his / her final thesis has obtained the required theoretical knowledge and skills for teamwork and creative work, as well as practical habits and skills in terms of graduate profile. Project works are generally team projects and require a student's creative application of gained theoretical and practical knowledge in its entirety.

Only students who systematically and continuously study individual subjects can successfully complete their studies. Every graduate is prepared to:

- find and present his / her own solutions to problems in research, development, project and design of program resources, information systems, computer systems and generally in the broader context of information technology systems,
- lead projects and take responsibility for comprehensive solutions, adapt and implement modern information technology in different application areas and work effectively as an individual or as a member of a team or team leader.

A significant percentage of students extend their practical knowledge and skills through practical activities in various sectors of the economy such as programmers, developers and software system administrators, computer network administrators and designers, developers and technical equipment designers, and so on during their studies. After graduation, most of these students find employment especially in those organizations in which they worked during their studies, as leaders of development teams, independent workers or managers.

Graduates of study programmes can find employment in both domestic and international labour markets in many sectors of the economy, both in the private and public sectors. They can work practically in all sectors that use methods and means of informatics and information technologies for process control and management (industrial enterprises, banking, transport, health care, educational institutions, etc.). Second degree graduates are also ready to study third degree programmes of higher education.

Bachelor´s Degree Study Programmes

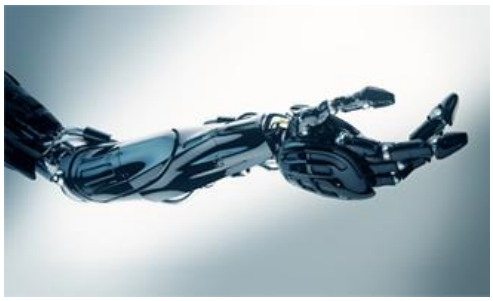
Informatics (field of study Informatics)

Graduates of the bachelor´s study programme Informatics will gain basic knowledge of informatics. They will be able to work with enterprise information system software and to participate in its creation and implementation, they will gain business knowledge. They are employable in all sectors of industry, public administration, in the private sector and as independent entrepreneurs. The study programme prepares experts in computer technology who are able to apply modern information technologies, and creates conditions for their further qualification growth in the field of informatics during the master´s (engineering) degree studies.

Management (field of study Management)

Graduates of the bachelor´s study programme Management will acquire key knowledge, skills and competences in the field of management disciplines. They are employable as managers at lower and middle level management of production and non-production organisations. They will become qualified professionals able to analyse existing problems in the systems of management of organisations, prepared to creatively design their solutions, able to improve and optimise processes in organisations in order to create new values and achieve synergies and strategic competitive advantages.

Computer Engineering (field of study Computer Engineering)



Graduates of the bachelor´s study programme Computer Engineering are prepared to continue their study at master (engineer) level or they are employable in enterprises and institutions in the design, implementation, operation, maintenance and innovation of computer systems, means of communication technology, industrial automation, measurement and diagnostic technology and so on. They are experts in the development of digital systems based on microprocessors and programmable circuits, enabling them to work as developers, designers or technologists.

Master´s (Engineering) Degree Study Programmes

Information Systems (field of study Information Systems)

Master´s (engineering) degree study in the study programme Information Systems prepares graduates to find and present their own solutions to problems in the research, development and design of programme resources to support decision-making, information systems and computer systems. After graduation, graduates are ready to lead, adapt and implement modern information technology in various application areas and work efficiently as an individual, a team member or a team leader.

Information Management (field of study Information Management)

Theoretical knowledge, practical skills and competences of graduates integrate the field of management, marketing management, economy, economics and informatics with the field of business and design of management systems. Graduates of the study programme Information Management are able to use the knowledge and skills of system approach in the decision-making management processes in managing the organization and its parts. They know how to apply modern information and communication technologies in solving the difficult problems of management and in the use of information and communication systems. They are able to demonstrate their abilities in supervisory and management positions in service-oriented, manufacturing and business organisations or in the public sector.

Computer Engineering (field of study Computer Engineering)

Graduates are ready to continue their studies at third level, or to work as solvers of complex projects in research and development institutions focused on the area of computer systems. They are also qualified to work in companies dealing with the development and deployment of computing devices and digital systems in all areas of the economy. Graduates are also employable as developers of embedded systems based on microcomputers, FPGA circuits and other peripheral devices.

Intelligent Information Systems (field of study Information Systems)

Graduates of the study programme Intelligent Information Systems will gain advanced knowledge of informatics and will be able to use their competences at various levels of management in software companies, industrial businesses, educational system, both in the public and private sector, banking, transport, health institutions, ecology etc. Moreover, they can apply for the positions of application software developers, systems analysts and programmers.

Applied Network Engineering (field of study Information Systems)

Graduates of the study programme Applied Network Engineering will find employment in domestic and international labour markets in various sectors of the economy, both in private and public sectors. They are practically employable in all industries that use methods and means of informatics and information and communication technologies to control and manage processes (industrial businesses, banking, transport, healthcare, educational institutions, etc.). Graduates are prepared to continue their study in the doctoral study programmes (the third degree of higher education).

Doctoral Degree Study Programmes

Applied Informatics (field of study Applied Informatics)

University graduates of the third degree studies in Applied Informatics are able to apply and use the scientific methods of research and development in the field of applied informatics with a main focus on methods, technologies and means of applied informatics in order to find solutions of the issues of selected application areas. They have acquired principles of independent and team scientific work and are able to present scientific formulation of problems (abstract formalisation), they master ways of presenting scientific results and their transfer into practice and are aware of legal and environmental aspects of new solutions, ethical and social aspects of their scientific work. Graduates are aware of the social, moral, legal and economic context of their profession. They understand the needs of continuing professional development and lifelong learning in order to carry out a research with a high degree of creativity and independence, to lead major projects and take responsibility for complex solutions. They are able to work efficiently as members of creative teams or their leaders in public and private sectors, in all sectors where there is the need for highly qualified labour in the field of applied informatics.

Management (field of study Management)

Graduates of the third degree studies in Management will become acquainted with the general methodology of scientific research; they will acquire the newest knowledge of the current state of scientific knowledge and build on this knowledge through independent research and scientific work, thus advancing the current level of knowledge in theory and practice of management. Graduates are able to use scientific methods of research and development in the field of management focusing especially on methods and means of solving of decision-making problems of selected parts of management. Furthermore, they will gain the principles of independent and team scientific work, scientific formulation of problem and its objectives, legal and environmental aspects of new solutions, ethical and social context. Graduates are aware of the social, moral, legal and economic context of their profession and the need for continuous professional development and lifelong learning in order to carry out research activities creatively. They are able to work efficiently as leaders of creative teams in management of demanding and complex projects wherever there is a need for highly qualified creative work in the field of management.

Intelligent Information Systems (field of study Information Systems)

Graduates of the third degree study in the field of Information Systems master scientific methods of research and development in the field of information systems with a main focus on methods, technologies and means of informatics for solutions of complex issues in selected application areas. They understand information systems, as well as related areas of applied informatics in respective application areas as a discipline and field of knowledge, as a profession in its broader social context. They will acquire the principles of independent and team scientific work, scientific formulation of problems (abstract formalisation), legal and environmental aspects of new solutions, ethical and social aspects of scientific work, presentation of results, development of their field of study and benefits for the practice. Graduates are aware of the social, moral, legal and economic context of their profession,

and the need for continuing professional development and lifelong learning in order to carry out a research with a high degree of creativity and independence and to lead major projects and take responsibility for complex solutions. They are able to work efficiently as members of creative teams or their leaders in public and private sectors, banking, transport, health, and generally wherever there is the need for scientific work in the field of applied informatics.

2.8 Information on Final Theses

In 2018, a total of 343 final theses were submitted at the Faculty of Management Science and Informatics for defence, of which 342 were defended. The final theses were led by a total of 121 supervisors. Professionals from practice led 22 final theses. Detailed statistics are given in the following table.

Table 23

Final Theses Submitted for Defence in 2018					
Final thesis	**Number of submitted final theses**	**Number of defended theses**	**Physical number of supervisors**	**Physical number of supervisors without PhD.**	**Physical number of supervisors (professionals from practice)**
Bachelor	188	188	69	0	9
Diploma	155	154	52	0	13
Dissertation	7	7	7	0	0
Total	**350**	**349**	**128**	**0**	**22**

2.9 Commented Achievements of Students

In 2018, students of the faculty were actively involved in various competitions with the support of individual teachers. The result is a number of significant awards.

At the end of March, a national round of the world-famous global management game **Global Management Challenge** took place. Three faculty teams qualified into the national round. Students **Róbert Hrabovec, Matej Ille** and **Barbora Valušová** ranked **third in the national round.**

Fig. 78 Faculty Teams – National Round of Global Management Challenge Competition

Student of bachelor study programme Informatics - **Martina Pitáková** received the **"Medallion for Excellence" award in the Web Development category** at the prestigious Euroskills competition held in Budapest. This competition is held every two years, with over 500 contestants from 28 European countries competing in 37 fields.

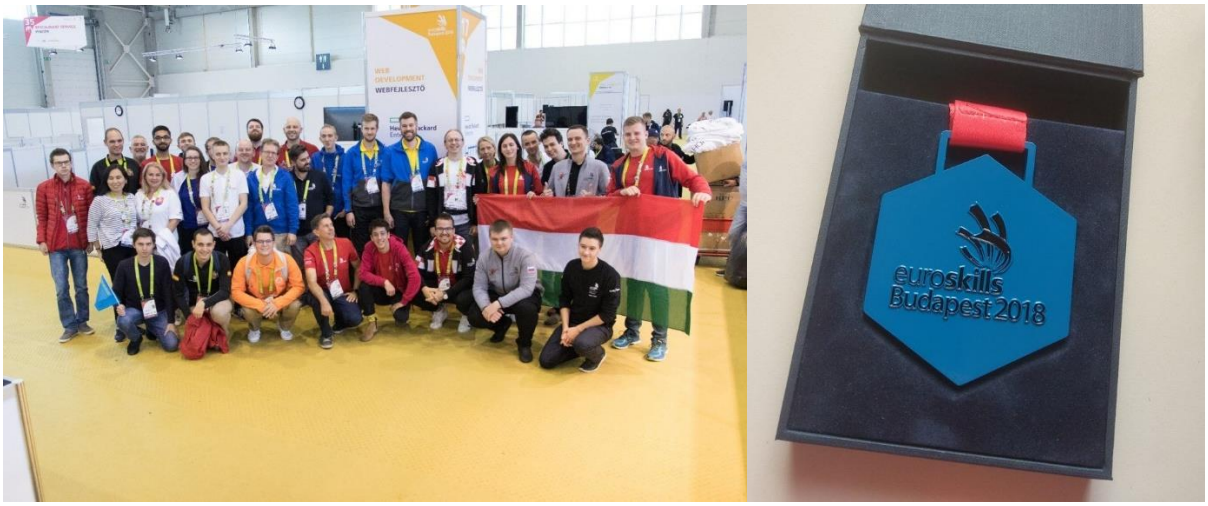


Fig. 79 "Medallion for Excellence" Award in the Web Development Category (Euroskills)

At the 9th Representative Ball of the Faculty of Management Science and Informatics UNIZA, **Ing. Jakub Stehlík** was awarded by Accenture company **for the best diploma thesis** - Verification of Portability of Cloud Systems. On behalf of Accenture, Milan Smieško presented the award.

Fig. 80 Awarding the Accenture Award for the Best Diploma Thesis

At the Faculty Ball, **Bc. Andrej Beliančín** was awarded prize by Danfoss Solutions company for **the best bachelor thesis** – *Use of GPU Parallel Calculations to Generate Artificial Data*.

In Prague (30 November – 2 December 2018), the Central European round of the programming competition **ACM ICPC - CERC 2018** took place. Two faculty teams participated in this competition. A total of 74 teams from 7 countries (Austria, Croatia, Czech Republic, Hungary, Poland, Slovakia and Slovenia) participated in the competition. The best team from our teams was represented by **Marek Baláž, René Fabricius** and **Milan Ondrašovič** who ranked **37**. **Within the participating Slovak universities, the faculty got an excellent 2nd place.**

Fig. 81 Faculty Teams – the Central European Round of the ACM ICPC - CERC 2018 Programming Competition

Accenture and IT Cluster, in collaboration with UNIZA's Faculty of Management Science and Informatics awarded **prizes for achievements in project education** and an excellent presentation of the project within the PANEL STORY event held on 14 February 2018.

Table 23

Projects Awarded by Accenture Company		
Project Title	**Project Guarantor**	**Students**
Applications of Augmented Reality	Assoc. Prof. Ing. Michal Zábovský, PhD.	Jozef Chmelár, Lukáš Zátek, Lenka Jánošová
Complex System for Time Entry for Developers	Ing. Jozef Kostolný, PhD.	Viktor Tešlár, Jakub Dibdiak, Katarína Pilarčíková, Jerguš Smolár
Development of Embedded Systems	Prof. Ing. Juraj Miček, PhD.	Adrián Bednár
Hybrid Multi-Robot System	Ing. Lukáš Čechovič, PhD.	Miroslav Chochul
Distributed Network of Smart Sensors	Prof. Ing. Juraj Miček, PhD.	Zdenka Šibíková

Table 24

Project Awarded by IT Cluster Z@ICT		
Project Title	**Project Guarantor**	**Students**
Video processing and modelling of biological experiments	Assoc. Prof. Mgr. Ivan Cimrák, Dr.	Jakub Podhorský, Miroslav Buzgo, Tomáš Milo, Jana Molnárová

Fig. 82 Awarding Prizes to Students for the Achievements in Project Education

Diploma thesis of graduate **Ing. Michal Moravčík** - **Intelligent System Designed to Monitor the Behaviour of a New-born**, won the **Scheidt and Bachmann Prize**. In his work, the graduate designed and practically implemented a system for monitoring the behaviour of a new-born, which consists of a smartphone as a control unit and selected sensors and actuators allowing direct intervention in this behaviour.

Within the *Advanced Application Development* course, a **competition for the best semester work** in cooperation with Davinci Software took place in the summer semester of the 2017/2018 academic year. The winner of the competition was the student **Juraj Haluška** with his work **The eJazda Web Application**. He received the *OCJP Certificate from Davinci*.

Fig. 83 Announcement of the Competition Results for the Best Semester Work by Davinci Software

2.10 Student Support

The Faculty of Management Science and Informatics grants students several types of scholarships - excellent results, special, field of study, faculty or social scholarships. An overview of scholarships paid can be found in the following table.

Table 25

Overview of Scholarships Paid in the Academic Year 2017/2018		
Type of scholarship	**Amount paid**	**Average number of scholarship holders**
excellent results and faculty	88,029 EUR (65,325 EUR/22,704 EUR)	239
special	4,648 EUR	22
social	130,345 EUR	82
field of study	189,500 EUR	337
Total	**412,522 EUR**	**680**

In the academic year 2018/2019, EUR 282,177 for 598 students were paid out on excellent results, special, field of study and faculty scholarships, so the average scholarship was approximately EUR 472.

Also in 2018, the Faculty's Information Centre noted an increase in student demand for its services. Information Center provides for students:

- Advisory service when drawing up study plans,
- Coordination of student mobility and counselling on study opportunities at other universities,
- Library services (the possibility of borrowing books, magazines and final works),
- Space for work on assignments in leisure time at the faculty.

In 2018, the study environment was significantly improved. **A complex reconstruction** of **RB301, RB302 and RB303 laboratories for teaching of network technologies** was successfully completed. Modern laboratories with new floors, plasters, views, lighting as well as data and power infrastructure are fully available to both students and teachers.

Fig. 84 Specialized Laboratory RB301 Equipped with New Desktop PCs

In 2018, specialized laboratories at the Department of Information were equipped with new desktop PCs. Computers were donated by ING BANK SLOVAKIA.

Fig. 85 Specialized Laboratory RB 301 Equipped with New Desktop PCs

On September 3, 2018, the **refurbished canteen with a buffet at the Faculty of Management Science and Informatics UNIZA** was opened. The space got a modern look and the buffet has a better spatial organization.

Fig. 86 Ceremonial Opening of the Refurbished Canteen with a Buffet at the Faculty of Management Science and Informatics UNIZA

In 2018, a complex reconstruction of sanitary facilities in the RB building was carried out and a kitchen in the RC003 room was set up for the purpose of conducting workshops and meetings in the faculty meeting room RC001.

In 2018, the Faculty of Management Science and Informatics UNIZA continued to build an outdoor leisure zone for students located behind the faculty. Interlocking pavement was laid around the built gazebo and the surroundings were modified with the help of students, doctoral students and faculty staff. Activities leading to the fencing of the outdoor area were also intensified and it should be implemented in 2019.

Fig. 87 Pavement laid around the Gazebo of the Faculty of Management Science and Informatics

On the ground floor of the RA building, an exhibition entitled **"Moments of Student Life at the Faculty of Management Science and Informatics**" was installed in March. It captures the atmosphere of major events at our faculty. The author of the photographs is a graduate of the faculty and the current internal doctoral student **Dobroslav Grygar**. The exhibition received a very positive response from students and staff and helped to beautify the environment at the faculty.

Fig. 88 Moments of Student Life Exhibition

3 Science and Research Activities

3.1 Research Focus of Individual Departments and Workplaces

The FMSI's scientific and research activity is mainly focused on the management of complex and large systems. In particular, there are problems of information, management, communication and transport systems, including integrated interactive decision support systems. The faculty's area of interest also includes systems of small and regional enterprises, including management and economic contexts issues, information transfer, mathematical modelling, automation and management and optimization of systems.

The FMSI's scientific and research activity is in line with the Research and Innovation Strategy for Intelligent Specialization of the Slovak Republic (RIS3 SK). In the area of the defined R&D priorities, information and communication technologies and biomedicine as well as biotechnology are being developed at the FMSI. In the area of technological priorities, industrial technologies (automation, control and robotics) are being developed at the FMSI. In the area of social priorities, selected areas of social sciences are being developed at the FMSI.

The scientific and technical focus of the FMSI lies in the following areas of complex territorial large-scale systems management:

1. Mathematical Modelling, Simulation and Optimization:
    - Databases,
    - Information and communication networks
    - Transportation of goods and passengers,
    - Throughput and quality of communication network service
2. Information and Technical Support:
    - Analysis and creation of database systems
    - Analysis and creation of multimedia systems
    - Multimedia information and communication services, parallel and distributed systems
    - Future generations' communications networks
    - Embedded and multi-agent systems
3. Monitoring and Management of Traffic Processes:
    - Analysis and development of traffic monitoring and control information systems;
    - Basic and operational management of transport processes
    - Intelligent transport systems
4. Human and Technical Resource Management:
    - Management, marketing, logistics and business,
    - Economics and economy, evaluation and prediction of the economic situation of enterprises
    - Automation control systems

5. Analysis, Synthesis and Design of Integrated Information and Control Systems.

The faculty is involved in scientific research activity not only in the field of information and communication systems theory, applied informatics, mathematical methods, automation and management, but also in the possibility of extensive interdisciplinary interaction based on a broad-spectrum erudition of the faculty teachers and scientists. Therefore, the following perspective directions can be specified as a priority:

- Information Science and Knowledge Systems
- Intelligent Transport Systems
- Mathematical Modelling in the Field of ICT, Communication Systems and Management
- Management (Information / Communication Management)
- Information Technology and Information Technology.

3.2 Implemented Research Tasks

The FMSI research teams and staff address research challenges supported by different science, research and innovation support schemes:

- EU research and innovation funding program (FP7, HORIZON 2020, COST)
- Joint European projects for the development of study programmes and TEMPUS curricula,
- The EU Lifelong Learning Activities Program Erasmus + - Strategic Partnerships in Higher Education
- General calls of the Research and Development Agency (in Slovak APVV) to support research and development projects in the different fields of science and technology (in Slovak VV)
- Bilateral cooperation supported by the APVV
- Supporting the preparation of projects from the EU research and innovation funding programme;
- Scientific grant agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and The Slovak Academy of Science (the VEGA projects),
- Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (the KEGA projects),
- Foundations of industrial enterprises and financial institutions to support science and research (e.g. Technology Support - Volkswagen Slovakia Foundation, Pontis Foundation, Tatra Banka Foundation)
- Faculty research grants for the 3rd degree study students and young scientists.

The projects are implemented by the individual departments, research teams bringing together experts from several faculties, or by research teams consisting of employees from several UNIZA workplaces.

European Union funds

Table 26

H2020 and COST Projects Implemented at the FMSI in 2018			
Project Number	**Implemented from - to**	**Project Title**	**Project Coordinator**
730844	11/2016-10/2018	Governance of the Interoperability Framework for Rail and Intermodal Mobility (GoF4R)	Soviar Jakub, Assoc. Prof. Ing. PhD.
723989	10/2016-09/2019	Skills and Competences Development of Future Transportation Professionals at the Levels	Márton Peter, Assoc. Prof. Ing. PhD.
636537	05/2015-04/2018	HIGHTS - Precise Positioning for Cooperative IDS	Michal Hodoň, Ing. PhD.
COST IC1401	12/2014-12/2018	Memristor - Devices, Models, Circuits and Applications	Klimo Martin, Prof. Ing. PhD.

Support for Research and Development from the State Budget - Institutional Form

Table 27

KEGA Projects Implemented at the FMSI in 2018			
Project Number	**Implemented from - to**	**Project Title**	**Project Coordinator**
052ŽU-4/2018	1/2018-12/2020	Interconnection of Mathematics and Informatics in the Bachelor's Degree Study	Assoc. Prof. RNDr. Katarína Bachratá, PhD.
011STU-4/2017	1/2017-12/2019	Updating Subjects Focused on Computer Networking according to the Practice Specification	Assoc. Prof. Ing. Segeč Pavel, PhD.
041ŽU-4/2017	1/2017-12/2019	Experimental Mathematics - Accessible to All	RNDr. Blaško Rudolf, PhD.

Table 28

VEGA Projects Implemented at the FMSI in 2018			
Project Number	**Implemented from - to**	**Project Title**	**Project Coordinator**
1/0342/18	1/2018-12/2020	Optimal Dimensioning of Operating Service Systems	Prof. RNDr. Jaroslav Janáček, CSc.
1/0354/17	1/2017-12/2020	Reliability Analysis Based on Uncertain Data	Prof. Ing. Zaitseva Elena, PhD.
1/0643/17	1/2017-12/2020	Innovative Methods and Models for Optimization of Microfluidic Devices	Assoc. Prof. Mgr. Cimrák Ivan, Dr.
1/0617/16	1/2016-12/2019	Diagnostics of Specifics and Determinants of Strategic Management of Sports Organizations	Assoc. Prof. Ing. Kubina Milan, PhD.
1/0582/16	1/2016-12/2018	Economic Optimization of Processes on Networks	Assoc. Prof. RNDr. Palúch Stanislav, CSc.
1/0463/16	1/2016-12/2018	Economically Efficient Operation of Electric Vehicles in Smart Cities and Communities	Assoc. Prof. Ing. Buzna Ľuboš, PhD.
1/0038/16	1/2016-12/2018	Fuzzy Data Based Decision Support	Prof. Ing. Levashenko Vitaly, PhD.
1/0652/16	1/2016-12/2018	Impact of Territorial Location and Sectoral Focus on the Performance of Business Entities and their Competitiveness in the Global Market / joint project with the Institute of Management of the Slovak Technical University in Bratislava	Assoc. Prof. Ing. Kucharčíková Alžbeta, PhD.

Table 29

APVV Projects Implemented at the FMSI in 2018			
Project Number	**Implemented from - to**	**Project Title**	**Project Coordinator**
PP-H2020-18-0039	11/2018-12/2018	Engineering Artificial Crypts of the Intestine by Defined Single Cell Deposition Technology	Cimrák Ivan, Assoc. Prof. Mgr., Dr.
PP-H2020-18-0040	11/2018-12/2018	Mapping Disruptive Innovation for Rail towards Advanced Mobility - PP H2020	Assoc. Prof. Ing. Márton Peter, PhD.
PP-H2020-18-0044	11/2018-12/2018	Remote Sensing for Analysis of Land Degradation Risks under Socio-Economic and Climate Changes at European Frontier	Prof. Ing. Zaitseva Elena, PhD.
SK-FR-2017-0003	1/2018-12/2019	Multilevel Logic Units for Neuromorphic Calculations	Prof. Ing. Zaitseva Elena, PhD.
APVV-16-0297	11/2017-12/2019	Update of Anthropometric Database of Slovak Population / joint project with the Technical University of Zvolen, for the FMSI	Prof. Ing. Kucharčíková Alžbeta, PhD.
APVV-15-0511	7/2016-6/2020	Research on Online Reputation Management (ORM) of Automotive Operators (joint project with the Faculty of Management of the Economic University of Bratislava)	Prof. Ing. Vodák Josef, PhD.
APVV-15-0751	7/2016-6/2020	Computational and Mathematical Modelling for Optimization of Microfluidic Devices Designed for Cell Sorting, Isolation and Manipulation	Assoc. Prof. Mgr. Cimrák Ivan, Dr.
APVV-15-0179	7/2016-6/2020	Reliability of Rescue Systems on Infrastructure with Uncertain Functionality of Critical Elements	Prof. RNDr. Janáček Jaroslav, CSc.
APVV-14-0658	7/2015-6/2018	Optimizing Urban and Regional Public Transport	Assoc. Prof. RNDr. Palúch Stanislav, CSc.
APVV-14-0560	7/2015-6/2018	Resistance Switching Structures for Pattern Recognition (joint project with The Slovak Academy of Science)	Prof. Ing. Klimo Martin, PhD.

Faculty Research Grants

Table 30

Faculty Research Grants in 2018	
Project Title	**Project Coordinator**
The Structure of Revenues in Football in Poland and Slovakia	Ing. Adámik Roman
Agent-Oriented Simulation of Transport and Logistics Systems	Assoc. Prof. Ing. Adamko Norbert, PhD.
Machine Learning in Decision Support Systems	Assoc. Prof. Ing. Boháčik Ján, PhD.
Teaching System for IT and Robotics Teaching Support	Ing. Čechovič Lukáš
Identification of the Main Actors in the Innovation Process and the Definition of Their Responsibilities	Ing. Čerňanský Juraj
Current Situation in the Management of the Value of Small and Medium Enterprises through Marketing Activities	Ing. Demjanovičová Mária
Science and Research in University Practice	Assoc. Prof. Ing. Ďurišová Mária, PhD.
Innovation in Customer Relationship Management	Ing. Ďurmeková Stanislava
Impact of Noise and Incomplete Information on Consumer Decision-Making	Ing. Falát Lukáš, PhD.
Managing Stakeholder Relationships in Organizations Acting in Field of Sport	Ing. Ferenc Patrik
Assessment of the Human Factor Impact on Technical Systems	Ing. Forgáč Andrej
Scientific Paper for the MiST Conference	Ing. Formanek Lukáš
Applications in IoT and IDS	Ing. Hodoň Michal, PhD.
Intrusion Detection in High-Speed Computer Networks	Ing. Hrabovský Jakub
Current Situation in Motivation and Creativity of Human Potential	Ing. Hriníková Dominika
Scientific Paper for the MiST Conference	Ing. Chochul Miroslav
Use of Financial Statements of the Company in Financial Management	Assoc. Prof. Ing. Jacková Anna, PhD.
Neural Networks for Prediction of Elastic Objects Behaviour	Mgr. Jasenčáková Katarína
Comprehensive Performance Measurement and Management System	Ing. Jelínková Lucie, PhD., MBA.
Computer Image Processing for the Development and	Ing. Kajánek František

Faculty Research Grants in 2018	
Project Title	**Project Coordinator**
Verification of Computational Models of Biological Cells	
Effect of Data Filtering on Training Quality of Artificial Intelligence	Ing. Kello Tomáš
Design of Compression Scanning Algorithms for FPGA Implementation	Ing. Kochláň Michal
Current Challenges in Integrated Routing Protocols	Ing. Kontšek Martin
Application of Reliability Theory in Practical Examples	Ing. Kostolný Jozef, PhD.
Risk Factors of Interest Rates on the Bond Market	RNDr. Kozubík Aleš, PhD.
Financial Literacy	Ing. Kozubíková Zuzana
Work Environment Ergonomics as a Learning Factor	Prof. Ing. Kucharčíková Alžbeta, PhD.
Logical Differential Calculus and Reliability Analysis of Complex Systems	Ing. Kvaššay Miroslav, PhD.
Management of Innovation Processes in Company	Ing. Latka Martin
Innovation Management: Decision-Making and Information Support	Assoc. Prof. Ing. Lendel Viliam, PhD.
Managerial Decision-Making on Investment	Ing. Malichová Eva, PhD.
Principles of Human Capital Management for Human Potential Development	Ing. Mičiak Martin
Migrate Services for Cloud Computing	Ing. Moravčík Marek, PhD.
Compressed Sensing, IoT, WSN, Robotics	Ing. Olešnaníková Veronika, PhD.
Computational Algorithms for the Development, Validation and Application of Biological Cell Models	Mgr. Ondrušová Mariana
Security Engineering Project	Ing. Papán Jozef, PhD.
Managerial Decision-Making in Employee Motivation	Ing. Poláčková Kristína
Reliability Analysis	Ing. Rabčan Ján
Teamwork Dynamics in University Environment	Ing. Rechtorík Miroslav
Analysis of the Reliability and Risks of Complex Systems	Ing. Rusnák Patrik
Analysis of the Reliability and Risks of Complex Systems	Ing. Sedláček Peter
Current Challenges in Integrated Routing Protocols	Assoc. Prof. Ing. Segeč Pavel, PhD.
Detecting DDoS attacks Using Mathematical Methods	Mgr. Smieško Juraj, PhD.

Faculty Research Grants in 2018	
Project Title	**Project Coordinator**
Analysis of Large-Scale Data in Power and Transport Applications	Ing. Straka Milan
IoT, Digital Signal Processing	Ing. Šarafín Peter, PhD.
Internet of Things Applications	Assoc. Prof. Ing. Ševčík Peter, PhD.
Managing the Innovation Process, Information Security of the Innovation System	Ing. Špaleková Dominika
Drivers and Barriers of Corporate Social Responsibility	Assoc. Prof. Ing. Tokarčíková Emese, PhD.
Smart Imaging Devices and Internet of Things (IoT)	Ing. Toth Štefan, PhD.
Creation of Own Attack Dataset for Testing Network Attack Detection Methods	Ing. Uramová Jana, PhD.
Development of Educational Tools for Teaching Informatics	Ing. Václavková Monika, PhD.
Online Reputation and Innovation; Online Reputation in Higher Education	Ing. Zraková Diana
Adaptive Control of Energy Collection System from the Environment	Ing. Žák Samuel, PhD.
Applications in IoT and IDS	Ing. Žalman Róbert, PhD.

3.3 Proposals of International Research Projects Submitted

In 2018, FMSI UNIZA employees made several proposals for international projects, responding to calls from various grant schemes:

- The EU research and innovation funding program (Horizon 2020)
- The EU Lifelong Learning Activities Program Erasmus + - Strategic Partnerships in Higher Education
- bilateral cooperation supported by APVV.

Table 31

International Research Projects - Proposals Submitted in 2018		
Project Title	**Grant Scheme**	**Project Coordinator**
Rail Track Maintenance Planning Using Monitoring Data from On-Board Sensors	H2020-EIC-FTI-2018-2020	Assoc. Prof. Ing. Peter Márton, PhD
Remote Sensing for Analysis of Land Degradation Risks under Socio-Economic and Climate Changes at European Frontier (RESALD)	H2020-MSCA-RISE-2018	Prof. Ing. Elena Zaitseva, PhD.
Mapping Disruptive Innovation for Rail towards Advanced Mobility	H2020 S2R-OC-IPX-01-2018	Assoc. Prof. Ing. Peter Márton, PhD.
Establishment of Calibration Cell Standard to Unravel the Nature of Cell Deformability and Enable High throughput and Precision Measurement Techniques	H2020-FETOPEN-2018-2020	Assoc. Prof. Mgr. Ivan Cimrák, Dr.
Engineering Artificial Crypts of the Intestine by Defined Single Cell Deposition Technology	H2020-FETPROACT-2018-2020	Assoc. Prof. Ing. Ivan Cimrák, Dr.

3.4 Research for Practice, the Most Important Deliverables

The Main Not Subsidised Activity

Table 32

Educational and Consulting Projects Implemented at the FMSI in 2018			
Provider	**Implemented from - to**	**Project Title**	**Project Coordinator**
Enterprise Service Slovakia Ltd., Bratislava	1/2018-12/2018	Development and Application Support of the IKVC-VIS Information System	Kršák Emil, Assoc. Prof. Ing., PhD.
Scheidt and Bachmann Slovakia Ltd.	12/2017-5/2018	Test Fixture for Fuel Pumps	Ševčík Peter, Assoc. Prof. Ing. PhD.
SADS User Association (SANET)	1/2018-12/2018	Ensuring 24-Hour Operation of Optical Infrastructure for High-Speed Academic Data Network for Science, Research and Education - SANET	Kršák Emil, Assoc. Prof. Ing., PhD.
Erasmus+ KA2 Strategic Partnership	9/2017-8/2019	TEAMSOC21	Márton Peter, Assoc. Prof. Ing. PhD.
SANET	1/2010-12/2018	Ensuring the SANET Network Operation and Providing Technical, Programming, Consulting and Administrative Services	Kršák Emil, Assoc. Prof. Ing., PhD.
Ministry of Education, Science, Research and Sport of the Slovak Republic	3/2017-10/2020	IT Academy - Education for the 21st Century	Kršák Emil, Assoc. Prof. Ing., PhD.
Tatra Banka Foundation	1/2019-11/2019	3D Printing Group at the FMSI	Čechovič Lukáš, Ing., PhD.
EACEA	12/2013-11/2017	Centres of Excellence for Young RESearchers (CERES)	Matiaško Karol, Prof. Ing., PhD.

Table no. 33

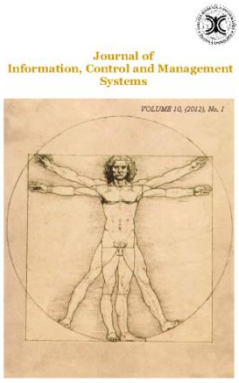
Research Projects Implemented at the FMSI in 2018			
Provider	**Implemented from - to**	**Project Title**	**Project Coordinator**
Ministry of Agriculture and Rural Development of the Slovak Republic	3/2017-10/2018	Joint 3D Digitization of Historical Objects of the Cross-Border Area SK-PL	Matiaško Karol, Prof. Ing., PhD.
Tatra Banka Foundation	12/2017-11/2018	Smart City - Gateway to the City	Olešnaníková Veronika, Ing. PhD.
Research and Development Agency / APVV	1/2017-12/2018	Increasing the Efficiency of Rail Services with Decision Support Tools	Márton Peter, Assoc. Prof. Ing., PhD.
Automation of Railway Transport Ltd. Prague / AŽD Praha s.r.o.	10/2018-11/2018	Analysis and Implementation of the GTNv5 Control System for 6 Controlled Rail Traffic Areas with Electronic Security Equipment	Kršák Emil, Assoc. Prof. Ing., PhD.
Automation of Railway Transport Ltd. Prague / AŽD Praha s.r.o.	6/2018-9/2018	System SW GTNv5.4 with ASVC - Modifications for Specific Input Station Binding and for Integrated Track-Side Signalling - Research and Development Work	Kršák Emil, Assoc. Prof. Ing., PhD.
Automation of Railway Transport Ltd. Prague / AŽD Praha s.r.o.	6/2018-8/2018	Research and Development Work Consisting in Creating New Modules of Addressable SW GTN v5.4 and Implementation for Controlled Sections	Kršák Emil, Assoc. Prof. Ing., PhD.
Automation of Railway Transport Ltd. Prague / AŽD Praha s.r.o.	4/2018-6/2018	Creation of Research and Development Work Consisting in Modification and Debugging of GTNv5.3 SW Type with New Functionalities for GTN Implementation in Brno	Kršák Emil, Assoc. Prof. Ing., PhD.
Automation of Railway Transport Ltd. Prague / AŽD Praha s.r.o.	12/2017-12/2018	Research and Development Work on Addressable SW GTNv5.3 - Specialization for 5 Controlled Areas in the Czech Republic	Kršák Emil, Assoc. Prof. Ing., PhD.

Research Projects Implemented at the FMSI in 2018			
Provider	**Implemented from - to**	**Project Title**	**Project Coordinator**
Automation of Railway Transport Ltd. Prague / AŽD Praha s.r.o.	3/2018-6/2018	Research and Development Work Consisting in Analysing, Design and Implementation of Data Processing Algorithms for the Automatic Train Operation - Trackside (ATO-TS) demonstrator/function pattern within the Horizon 2020 Project, Shift2Rail, X2Rail-1 WP4: Automatic Train Operation (ATO) over ETCS	Kršák Emil, Assoc. Prof. Ing., PhD.
Railway Infrastructure Administration SOE Prague / SŽDC, s.o. Praha	3/2018-6/2018	Design and Development of KANGO-Kmen Data Interface via Webservice	Kršák Emil, Assoc. Prof. Ing., PhD.
Lloyd's Register Foundation Programme	1/2017-12/2018	Decentralized Electric Vehicle Charging, Optimum, Fairness and Durability	Buzna Ľuboš, Assoc. Prof. Ing., PhD.
Railway Infrastructure Administration SOE Prague / SŽDC, s.o. Praha	6/2018-12/2019	Development of the 30000 KANGO Information System – Design, Development and Implementation of New Modules for Timetable Creation	Kršák Emil, Assoc. Prof. Ing., PhD.

3.5 Published Journals

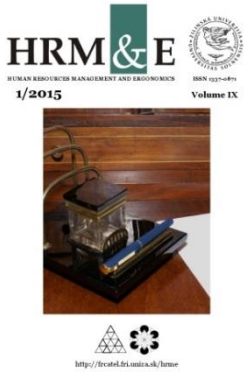
In 2018, the Faculty of Management Science and Informatics published three scientific journals that focus on the fields of research addressed within the faculty:

- Journal of Information, Control and Management Systems,
- Slovak Scientific Journal Management: Science and Education ~ m:se,
- Human Resources Management and Ergonomics ~ HRM&E.



Journal of Information, Control and Management Systems is a scientific journal that accepts scientific papers presenting results of original, unique, theoretical, applied research, as well as the results of practical verified experience of authors and collectives of authors in the field of Applied Informatics, Information Systems, Computer Networks, Information and Communication Technologies, Computer Engineering and Management Systems. The editor-in-chief of the scientific journal is Assoc. Prof. Ing. Viliam Lendel, PhD. In 2018, the 16th edition was published in two issues.

Slovak Scientific Journal **Management: Science and Education ~ m:se** is a scientific journal aimed at presenting theoretical and selected practical knowledge and experience from general management issues. The journal focuses on the publication of original and unique results of theoretical and applied research, as well as practical verified experience of authors and collectives of authors concerning the latest trends and theories, current approaches and views on the complexity of management issues and its individual parts. The editor-in-chief of the scientific journal is Prof. Ing. Štefan Hittmár, PhD. In 2018, the 7th edition was published in two issues.



The scientific journal **Human Resources Management and Ergonomics ~ HRM&E** accepts scientific papers presenting the results of original, innovative, theoretical and applied research, as well as the practical results of authors in the field of management and development of human potential and ergonomics. HRM&E journal has been included in *the EBSCO Publishing Database "Central & Eastern European Academic Source"* since 1 December 2010, and is listed in *the 11th Edition of Cabell's Directory of Publishing Opportunities in Management*. The editor-in-chief of the scientific journal is Prof. Ing. Martina Blašková, PhD. In 2017, the 13th edition was published in two issues.

3.6 Organized Scientific and Professional Events

In 2018, the Faculty of Management Science and Informatics organized or participated in the organization of several scientific and professional events.

New Trends in Management and Production Engineering – Regional, Cross-border and Global Perspectives 2018

The aim of the 5th International Scientific Conference was to exchange knowledge and experience on the latest trends in management development (theory and practice). The conference is intended for university teachers, PhD students and researchers in economic, social and other related fields. The conference focuses on management, production, corporate social responsibility, economic and social aspects of local and regional development and the development of cross-border cooperation. The conference was held on 7-8 June 2018 in Brenna (Poland). The Faculty of Management Science and Informatics was a co-organizer of the conference.

Human Potential Development 2018

The aim of the 16th International Scientific Conference was to exchange knowledge in the field of human potential and to confront it with the latest theoretical knowledge and current conditions in business practice. The main thematic areas of the conference were the development and use of human potential, new challenges in human resources management, innovative models and practical approaches to human potential and the development of creativity. The conference was held on 29 - 31 May 2018 in Kaunas (Latvia).

Wireless Sensor Networks (WSN'18)

The aim of the 7th International Scientific Conference was to exchange knowledge between the scientific and professional public on wireless sensor networks. The conference was held on 9-12 September 2018 in Poznan (Poland).

Horizonty železničnej dopravy 2018 (Railways Horizons 2018)

The aim of the conference is to broaden both traditional and current theoretical and practical knowledge in two areas, on operational and technological issues, with an emphasis on the interoperability of the rail system in an integrated Europe, as well as in rail management and marketing. The thematic focus emphasized the need for the creation of a single European Union railway area, which would create the preconditions for increasing the competitiveness of the rail transport system. The conference took place from 11 to 12 October 2018. The Faculty of Management Science and Informatics was a co-organizer of the conference.

Otvorený softvér vo vzdelávaní, výskume a v IT (OSSConf 2018)

Open Software in Education, Research and IT (OSSConf 2018)

The 10th OSSConf 2018 International Conference focuses on the use, development and implementation of open software in teaching at all types of schools, in research, and in practice in companies operating not only in field of information technology. The conference is organized in cooperation with the Society for Open Information Technologies (SOIT). The conference was held on 2 - 4 July 2018 at the Faculty of Management Science and Informatics UNIZA.

3.7 Habilitation Procedure and the Procedure for Appointment of Professors

In 2018, one procedure to appoint a professor took place in the Scientific Board of the Faculty of Management Science and Informatics. One faculty employee was appointed as Professor.

Table 34

Procedure for Appointment of a Professor at the FMSI in 2018		
Name of the Candidate	**Field of Study**	**Title of the Inaugural Lecture**
Prof. Ing. Alžbeta Kucharčíková, PhD.	3.3.15 management	Management of Human Capital Efficiency

In 2018, the Scientific Board of the Faculty of Management Science and Informatics did not discuss the award of an Associate Professor.

4 International Cooperation

4.1 Contractual Cooperation

In the framework of international cooperation, in 2018, the FMSI actively cooperated with the following institutions within the framework of the concluded bilateral agreements:

- HfT Leipzig, Germany – Cooperation on curriculum development, organization of training activities,
- Universidad Politécnica de Valencia, Spain – Cooperation on curriculum development, organization of training activities,
- Scheidt & Bachmann, Mönchengladbach, Germany – Research on smart grids, student internships, master's theses,
- Jyväskylä University of Applied Sciences, School of Information Technology, JAMK, Finland – Participation of students in the "ITPro" programme, cooperation in the field of curriculum development, organization of educational activities,
- Szechenyi Istvan University, Gyor, Hungary – Cooperation in the field of study programs, organization of educational activities,
- Higher College of Telecommunications and Posts Sofia, Bulgaria – Collaboration on curriculum development, organization of training activities,
- United Institute of Informatics Problems, National Academy of Sciences of Belarus, Belarus – Research in the field of Information Technology,
- National University of Kaohsiung, Taiwan (Republic of China) – exchange study visits,
- University of Belgrade, Faculty of Organizational Sciences – Staff mobility, collaboration in science and research,
- University of Belgrade, Faculty of Transport and Traffic Engineering – Staff mobility, cooperation in science and research,
- Shamon College of Engineering, Beer Sheva, Israel – Collaboration on curriculum development,
- Technische Universität Dresden, Fakultät Informatik, Germany – Staff mobility, collaboration in science and research,
- Hochschule für Technik und Wirtschaft, Dresden, Germany – Staff mobility, collaboration in science and research,
- Faculty of Public Administration, Mykolas Romeris University, Vilnius, Lithuania – Research, joint projects, publications,
- United Institute of Information Problems, National Academy of Sciences of Belarus, Belarus – Organizing joint scientific conferences, research, publishing activities,
- Zaporizhzhya National Technical University, Ukraine – Research on smart systems, publishing activities,

- Moscow State University of Railway Engineering, Russian Federation – Research, publishing activities,
- Faculty of Sciences, University of Pécs, Hungary – Research, publishing activities,
- Technische Universität Ilmenau, Germany – Research in the field of Automation and Biomedical Engineering, doctoral degree study programmes,
- Scientific Centre for Aerospace Research of the Earth, Institute of Geological Science National Academy of Sciences, The Ukraine – Staff Mobility.

Faculty staff' stays abroad were held at the partner institutions as part of educational and scientific research activities. A significant part of foreign activities is related to participation in international conferences and workshops.

Long-term collaboration on research tasks has been accomplished with the following partners:

- IBM Research Slovakia,
- United Institute of Information Problems, National Academy of Sciences of Belarus,
- Transport Research Centre, The Czech Republic,
- Red Hat, The Czech Republic,
- Cisco Systems USA.

The cell-in-fluid research group cooperates with several partners from Austria.

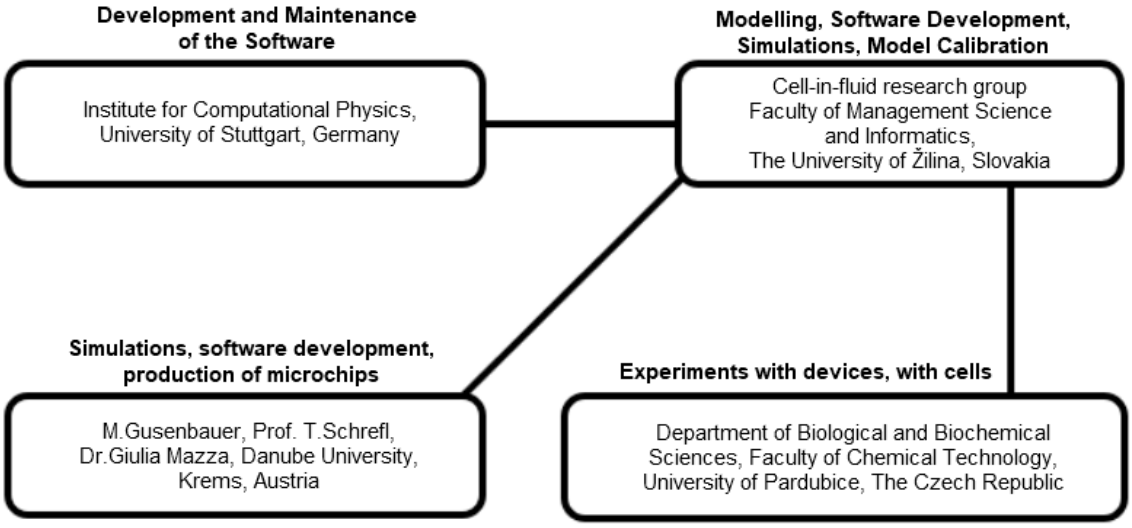


Fig. 89 The Cell-In-Fluid Research Group Cooperation

Under the Erasmus+ programme, in 2018, students and staff could carry out their mobility on the basis of more than 50 bilateral agreements. Some agreements are signed at the university level. The

Faculty of Management Science and Informatics has valid Erasmus+ bilateral agreements for cooperation with these partner institutions:

- The Czech Republic
  - Univerzita Karlova / Charles University, Faculty of Mathematics and Physics,
  - Univerzita Hradec Králové / University of Hradec Králové, Faculty of Informatics and Management,
  - Univerzita Pardubice, Dopravní fakulta Jana Pernera / University of Pardubice, Jan Perner Transport Faculty,
  - Vysoká škola báňská – Technická univerzita Ostrava / VŠB – Technical University of Ostrava,
  - Vysoká škola technická a ekonomická v Českých Budějovicích / Institute of Technology and Business in České Budějovice,
  - Škoda Auto vysoká škola / Škoda Auto University, Mladá Boleslav,
- Finland
  - University of Vaasa,
  - University of Jyväskylä,
  - Jyväskyla University of Applied Sciences,
  - Seinäjoki University of Applied Sciences,
- Norway
  - Molde University College - Specialized University in Logistics,
- Portugal
  - University of Porto,
- Spain
  - Universitat Politecnica de Valencia,
  - Universitat de les Illes Balears,
- France
  - IMT Atlantique, Campus de Brest – Pays de la Loire,
  - Telecom SudParis, Evry,
  - IMT Business School, Evry,
  - University of Lille,
  - L´université d´Orléans, Ecole polytechnique,
  - Université de Lorraine, Faculté des Sciences et Technologies,
- Germany
  - University of Applied Sciences, Aschaffenburg,
  - Hochschule für Telekomnunikation, Leipzig,
  - Technische Universität Dresden, Faculty of Transportation and Traffic Science,
  - Technische Universität Dresden, Faculty of Computer Sciences,

- Poland
  - Czestochowa University of Technology,
  - West Pomeranian University of Technology, Szczecin,
  - Lomza State University of Applied Sciences,
  - The State Higher School of Vocational Education in Ciechanów,
  - Kielce University of Technology, Faculty of Management and Computer Modelling, Faculty of Electrical Engineering, Automatics and Computer Science,
  - Kazimierz Pulaski University of Technology and Humanities in Radom,
  - University of Lodž,
  - University of Finance and Management, Warszawa,
- Latvia
  - Transport and Telecommunication Institute, Riga,
- Lithuania
  - Mykolas Romeris University, Faculty of Polotics and Management, Faculty of Social Technologies, Vilnius,
- Hungary
  - University of Debrecen, Faculty of Informatics,
  - Széchenyi István University, Gyor,
  - University of Pécs, Faculty of Sciences,
- Slovenia
  - Univerza v Mariboru, Faculty of Economics and Business,
  - Univerza v Mariboru, Faculty of Organizational Sciences (Kranj),
- Croatia
  - Faculty of Organisation and Informatics (Varaždin), University of Zagreb,
  - Faculty of Electrical Engineering and Computing, University of Zagreb,
  - Faculty of Electrical Engineering, Computer Science and Information Technology, Josip Juraj Strossmayer University of Osijek,
- Bulgaria
  - Technical University of Sofia,
  - High College of Telecommunications and Posts, Sofia,
- Serbia
  - University of Niš, Faculty of Electronic Engineering,
  - University of Belgrade, Faculty of Organizational Sciences,
- Northern Macedonia
  - Ss. Cyril and Methodius University, Skopje,
- Rumania
  - Transylvania University of Brasov,

- Dunarea de Jos University of Galati,
- Greece
  - Hellenic Open University, Patras,
  - Technological Educational Institute of Larissa,
- Turkey
  - Istanbul Kemerburgaz University.

There were seventeen foreign students at the faculty from the Czech Republic, Croatia, Finland, France, Greece, Lithuania, Poland, Portugal, the Russian Federation and Spain for their exchange stay. Out of them, there were sixteen students under the Erasmus+ programme and one under an intergovernmental agreement. Four students spent their internship at the faculty under the Erasmus+ programme - from Turkey and France.

Nineteen faculty students were enrolled in the Erasmus+ programme at a study stay - in the Czech Republic, Finland, Germany, Portugal and Slovenia. Two students were on an Erasmus+ internship - in Germany and the Czech Republic.

In the academic year 2017/18, the faculty welcomed twenty foreign teachers and administrative staff - from Belarus, the Czech Republic, Croatia, Finland, Greece, Germany, Poland, Serbia and Ukraine - as part of the teaching/training mobility programme of employees of foreign partners, particularly within the Erasmus+ programme. The FMSI employees have made 9 mobilities abroad - in the Czech Republic, Lithuania, Germany, Portugal and Spain.

4.2 Student Mobility Programmes

The following tables demonstrate student mobility in the 2017/18 academic year, i.e. the students sent as well as admitted for a study stay or an internship.

Table 36

Students Sent for Study Stay				
Name of the Programme	**No.**	**Surname and First Name**	**Receiving Institution, Country**	**Number of Months**
Erasmus+	1	Hýll Dominik	Jyväskylä University of Applied Sciences, Finland	3,5
	2	Maxian Miloš		3,5
	3	Janík Juraj		3,5
	4	Šaliga Peter		3,5
	5	Vašek Robert		3,5
	6	Urban Tomáš		3,5
	7	Magdolen Jozef		3,5
	8	Smolár Jerguš	Universitat de les Illes Balears, Spain	5

Students Sent for Study Stay				
Name of the Programme	**No.**	**Surname and First Name**	**Receiving Institution, Country**	**Number of Months**
	9	Kováč Filip		5
	10	Šiarnik Jakub	University of Maribor, Faculty of Organizational Sciences (Kranj), Slovenia	9,3
	11	Kramár Branislav	Warsaw University of Technology, Poland	4,7
	12	Piatriková Lucia		4,7
	13	Šimovič Filip		4,7
	14	Jánošová Lenka	Universidade do Porto, Portugal	5
	15	Kureková Slavomíra	University of Vaasa , Finland	5
	16	Tešlár Viktor		5
	17	Slovík Lukáš	Universitat Politècnica de València, Spain	5
	18	Hančík Martin		5
	19	Trojáková Terézia	Technische Universität Dresden, Germany	5
	20	Pištek Marek	Hochschule für Technik und Wirtschaft Dresden, Germany	4,5
Total - 20				**92,4**
Female Students out of the Total – 4				**19,7**

Table 37

Students Sent for Internship				
Name of the Programme	**No.**	**Surname and First Name**	**Receiving Institution, Country**	**Number of Months**
Erasmus+	1	Turcer Peter	IBA CZ, Ltd., The Czech Republic	4
	2	Urban Tomáš	Jyväskylä University of Applied Sciences, Finland	6
	3	Magdolen Jozef		6
	4	Mangera František	BD Electronics Ltd., Malta	3,5
	5	Jana Michalová	FU International Academy Tenerife, Spain	2,5
CERN	6	Róbert Vašek	European Organization for Nuclear Research	8

Students Sent for Internship				
Name of the Programme	**No.**	**Surname and First Name**	**Receiving Institution, Country**	**Number of Months**
Erasmus+	1	Turcer Peter	IBA CZ, Ltd., The Czech Republic	4
	2	Urban Tomáš	Jyväskylä University of Applied Sciences,	6
Total - 6				**30**
Female Students out of the Total - 1				**2,5**

Table 38

Students Admitted for Study Stays				
Name of the Programme	**No.**	**Surname and First Name**	**Sending Institution, Country**	**Number of Months**
Erasmus+	1	Gaspar Oliveira Mariana	University of Porto, Portugal	4
	2	Estrada Pereira Gouveia Joao Manuel		4
	3	Xynos Anastasios	University of Patras, Greece	4
	4	Kuzmina Olena	University of Finance and Management Warszawa, Poland	4
	5	Fernández Cecilia	University of Oviedo, Spain	4
	6	Pochobradská Lucie	Univerzita Hradec Králové / University of Hradec Králové, The Czech Republic	3
	7	Nikolic Ana	University of Zagreb, Faculty of Organization and Informatics (Varaždin), Croatia	4,5
	8	Jadek Petar		4,5
	9	Travas Neven		4,5
	10	Trogrlic Dora		4,5
	11	Prnjak Antonio		4,5
	12	Moreau Kamil Gérald	IMT Atlantique Brest, France	4,5
	13	Santamäki Arttu Elias	Tampere University of Applied Sciences, Finland	4,5
	14	Karelehto Jussi Samuli		4,5
	15	Burinskaite Leva	Kaunas University of Technology, Lithuania	4,5
	16	Drukteinis Lukas		4,5

Students Admitted for Study Stays				
Name of the Programme	**No.**	**Surname and First Name**	**Sending Institution, Country**	**Number of Months**
Total - 16				**68**
Female Students out of the Total - 7				**24,5**
Bilateral Agreement	17	Ulyanova Anna	Tyumen Industrial University, Russian Federation	5
Total - 1				**5**
Female Students out of the Total - 1				**0**

Table 39

Students Admitted for Internship				
Name of the Programme	**No.**	**Surname and First Name**	**Country of Origin**	**Number of Months**
Erasmus+	1	Kilic Ismail	Turkey	3
	2	Guilleman Olivier	France	3
	3	Ekren Ugurcan		3
	4	Zirnheld Remy		3
Total - 4				**12**
Female Students out of the Total - 0				**0**

4.4 Staff Mobility Programmes

The following tables demonstrate staff mobility in the 2017/18 academic year, i.e. the employees sent as well as admitted for mobility.

Table 40

Employees Sent for Mobility				
No.	**Surname and First Name**	**Receiving Institution, Country**	**Number of Days**	**Type**
1	Kozubík Aleš	West Pomeranian University of Technology Szczecin, Poland	5	Erasmus+ Teaching
2	Kozubíková Zuzana		5	
3	Márton Peter	Hoschule für Technik und Wirtschaft, Dresden, Germany	5	
4	Márton Peter	Universitat Politècnica de València, Spain	5	
5	Blašková Martina	Mykolas Romeris University, Lithuania	5	
6	Blaško Rudolf		5	
7	Levashenko Vitaly	Belarusian State University, Minsk, Belarus	5	
8	Zaitseva Elena	Francisk Skoryna Gomel State University, Gomel, Belarus	5	
9	Kršáková Dana	Universidad de Lisboa	5	Erasmus+ Staff Training
10	Jaroslav Janáček	Universidad de las Ciencias Informáticas	35	Intergovernmental Agreement
11	Michal Kohání		35	
Total - 9			**105**	
Females out of the Total – 3			**15**	

Table 41

Employees Admitted for Mobility			
Surname and First Name	**Sending Institution, Country**	**Number of Days**	**Type**
Sergey Ablameyko	Belarusian State University, Belarus	5	Erasmus+ Teaching
Nedzved Alexander		5	
Liauchuk Viktar	Francisk Skorina Gomel State University, Belarus	5	
Chechat Pavel		5	
Martina Hedvičáková	Univerzita Hradec Králové, The Czech Republic	5	
Imppola Jorma	Seinäjoki University of Applied Sciences, Finland	5	
Alexandros Kakouris	Hellenic Open University, Greece	5	
Fröhlich Sven	Technische Universität Dresden	5	
Marek Wojtowicz	Kazimierz Pulaski University of Technology and Humanities in Radom	5	
Agnieszka Molga		5	
Wojciech Salabun	West Pomerian University of Technology, Szczecin, Poland	5	
Remigiusz Olejnik		5	
Sanjin Milinkovic	University of Belgrade, Serbia	5	
Dusan Barac		5	
Bratislav Predic	University of Nis, Serbia	5	
Michal Turek	Vysoká škola logistiky Přerov, The Czech Republic	5	Erasmus+ Staff Training
Nikolina Mamlic	Faculty of Organization and Informatics (Varaždín), University of Zagreb, Croatia	5	
Justyna Majchrzak-Lepczyk	Poznan University of Economics and Business, Poland	5	
Iwona Scheibe	West Pomerian University of Technology, Szczecin, Poland	5	
Iryna Piestova	Scientific Centre for Aerospace Research of the Earth Institute of Geological Science National Academy of Sciences of Ukraine, The Ukraine	60	Slovak National Scholarship Program
Total - 20		**155**	
Females out of the Total - 6		**85**	

4.5 Foreign Educational and Other (Non-Research) Programmes and Projects

Table 42

Foreign Educational and Other (Non-Research) Programmes and Projects					
Project No.	**Title and Objective of the Project**	**Implementer** (Contractor, Coordinator, Partner)	**Faculty, Institute**	**Partner Foreign Institutions**	**Duration of the Project Implementation**
	TeamSoc21	University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia	FMSI	Universitat Politechnica de Valencia, Spain Hochschule für Telekomunikation, Leipzig, Germany Szechenyi Istvan University, Gyor, Hungary University of Telecommunications and Post, Sofia, Bulgaria Technical University of Košice, Slovakia, L'Ecole Nationale Supérieure Mines-Télécom Atlantique Bretagne Pays de la Loire, France University of Oradea, Romania, University of Debrecen, Hungary Faculty of Electrical Engineering, Computer Science and Information Technology, Josip Juraj Strossmayer University of Osijek Technical University Sofia, Bulgaria	2017-2019

4.6 Membership of the Faculty, Departments and Individuals in International Organizations

The employees of the Faculty of Management Science and Informatics are active in various international organizations. They are also members of scientific / programme committees of international scientific conferences, seminars and editorial boards of foreign scientific journals. In the following chapter, significant membership of the faculty employees is listed in the tables.

Table no. 43

Membership of the Faculty Employees in International Organizations		
Surname and First Name, Degree	**International Organization**	**Post**
Prof. Ing. Karol Matiaško, PhD.	National Evaluation and Foresight Agency, Spain	Evaluator
	Czech Society for System Integration	Member
	IEEE	Member
	ACM	Member
Prof. Ing. Elena Zaitseva, PhD.	IEEE Czechoslovakia Section Reliability Society Chapter	Chairperson of the Section
	Technical Committee of European Safety and Reliability Association	Member
Prof. Ing. Vitaly Levashenko, PhD.	International Association for Pattern Recognition (IAPR)	Member
	IEEE	Member
Assoc. Prof. Ing. Michal Zábovský, PhD.	Czech Society for System Integration	Member
Assoc. Prof. Ing. Peter Fabián, CSc.	GISIG – Geographical Information Systems International Group, Genova, Italy	Member of the Committee
	ECTRI - European Conference of Transport Institutes	UNIZA Deputy in the General Assembly
	EAIE - European Association for Internationalization of Education	Member
Assoc. Prof. Ing. Norbert Adamko, PhD.	European Simulation Society	Member
Assoc. Prof. Ing. Peter Márton, PhD.	International Association of Railway Operation Research	Member
Prof. Ing. Martin Klimo, PhD.	IEEE	Member

Membership of the Faculty Employees in International Organizations		
Surname and First Name, Degree	**International Organization**	**Post**
	ACM	Member
	ICTC European Commission	Member
Prof. Ing. Tatiana Kováčiková, PhD.	ETSI	Member
	Cost	Member
Assoc. Prof. Ing. Ján Janech, PhD.	IEEE: Advancing Technology for Humanity	Member
Assoc. Prof. Ing. Martina Blašková, PhD.	International Academic Network HPD CEEUS – Human Potential Development in Central and Eastern EU States	Co-Founder, First Vice President and Coordinator for Slovakia
Ing. Michal Varmus, PhD.	ESEA – European Sport Economics Association	Member
Assoc. Prof. Ing. Miroslav Hrnčiar, PhD.	EQAVET – European Quality Assurance in Vocational Education	Member
	Austrian Society for Process Management	Member
	EIPA – European Institute for Public Administration	Member
Ing. Miroslav Kvaššay, PhD.	IEEE	Member
	ACM	Member
Ing. Michal Kvet, PhD.	IEEE	Member
Ing. Jozef Kostolný, PhD.	IEEE	Member

Table 44

Membership of the Faculty Employees in Editorial Boards of Foreign Journals	
Surname and First Name, Degree	**Title of the Foreign Journal**
Assoc. Prof. Ing. Stanislav Palúch, CSc.	Central European Journal of Operations Research – CEJOR
Assoc. Prof. RNDr. Štefan Peško, PhD.	Transactions on Transport Sciences - International Scientific Journal for Transport Sciences
Prof. Ing. Elena Zaitseva, PhD.	Journal of Reliability and Statistical Studies – JRSS
	Journal Computer Science and Engineering
	Journal Automatic Control and Information Sciences

Membership of the Faculty Employees in Editorial Boards of Foreign Journals	
Surname and First Name, Degree	**Title of the Foreign Journal**
	World Journal of Computer Application and Technology
	Journal of Radio Electronics, Computer Science, Control
	Journal of Mathematical Problems in Engineering – Chairperson
	Journal on Radioelectronic and Computer Systems
	ESRA Newsletter (European Safety and Reliability Association)
Prof. Ing. Vitaly Levashenko, PhD.	Computer Science and Information Technology
	Computer Science and Engineering
	Automatic Control and Information Sciences
	Topics in Intelligent Computing and Industry Design
	IETI Transactions on Computers
	Journal of Radio Electronics, Computer Science
Prof. Ing. Josef Vodák, PhD.	Journal Nierównosci spolecznea wzrost gospodarczy
Assoc. Prof. Ing. Martina Blašková, PhD.	Journal Public Administration Research
	Journal Social Sciences
	Journal Public Security and Public Order
	Journal of Logistics & Sustainable Transport
	Psychology and Behavioural Sciences
	Journal Production Engineering Archives
Ing. Radoslav Jankal, PhD.	Financial and Credit Activity: Problems of Theory and Practice
	International Business Research
	International Journal of Business and Management
	Business and Management Research
	The GSTF Journal on Business Review
Prof. Ing. Karol Matiaško, PhD.	Systémová integrace / System Integration
Assoc. Prof. Ing. Peter Fabián, PhD.	Transactions on Transport Sciences - International Scientific Journal for Transport Sciences
Prof. Ing. Martin Klimo, PhD.	Infocommunications Journal
Prof. Ing. Matilda Drozdová, PhD.	Journal of Information and Organizational Sciences

Membership of the Faculty Employees in Editorial Boards of Foreign Journals	
Surname and First Name, Degree	**Title of the Foreign Journal**
Ing. Kozubíková Zuzana, PhD.	Balkans Journal of Emerging Trends in Social Sciences – JETSS
Assoc. Prof. Ing. Jacková Anna, PhD.	AD ALTA : Journal of Interdisciplinary Research
	GRANT Journal
Assoc. Prof. Mgr. Jakub Soviar, PhD.	Advances in Economics and Business
Ing. Michal Hodoň, PhD.	Concurrency and Computation: Practice and Experience

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Membership of the Faculty Employees in Scientific / Programme Committees of Foreign Scientific Conferences	
Surname and First Name, Degree	**Title of the Scientific Conference**
Prof. Ing. Juraj Miček, PhD.	AFASES 2017 (Romania)
	7th International Conference on Wireless Sensor Networks (WSN'18), (Poznan, Poland)
Assoc. Prof. Ing. Peter Ševčík, PhD.	2nd Workshop on Internet of Things - Enablers, Challenges and Applications (IoT-ECAW'18), (Poznan, Poland)
Ing. Michal Hodoň, PhD.	2nd Workshop on Internet of Things - Enablers, Challenges and Applications (IoT-ECAW'18), (Poznan, Poland)
Ing. Jana Milanová, PhD.	7th International Conference on Wireless Sensor Networks (WSN'18), (Poznan, Poland)
Ing. Matúš Jurečka, PhD.	7th International Conference on Wireless Sensor Networks (WSN'18), (Poznan, Poland)
Assoc. Prof. Ing. Ondrej Karpiš, PhD.	7th International Conference on Wireless Sensor Networks (WSN'18), (Poznan, Poland)
Ing. Michal Kochláň	7th International Conference on Wireless Sensor Networks (WSN'18), (Poznan, Poland)
Ing. Martin Hudík, PhD.	7th International Conference on Wireless Sensor Networks (WSN'18), (Poznan, Poland)
Assoc. Prof. Ing. Ján Kapitulík, PhD.	7th International Conference on Wireless Sensor Networks (WSN'18), (Poznan, Poland)
Prof. Ing. Martina Blašková, PhD.	CER Comparative European Research 2017 (London, Great Britain)

Membership of the Faculty Employees in Scientific / Programme Committees of Foreign Scientific Conferences	
Surname and First Name, Degree	**Title of the Scientific Conference**
	HUMAN POTENTIAL DEVELOPMENT, 15th International Scientific Conference, (Kaunas, Lithuania)
	XI International Conference Quality Production Improvement (ZABORZE koło MYSZKOWA, Poland)
	10th International Scientific Conference PROBLEMS OF ENSURING PUBLIC SECURITY: THEORETICAL AND PRACTICAL ASPECTS (Kaunas, Lithuania)
	7th International Conference SYSTEM SAFETY: HUMAN – TECHNICAL FACILITY – ENVIRONMENT (Zakopane, Poland)
RNDr. Rudolf Blaško, PhD.	HUMAN POTENTIAL DEVELOPMENT, 15th International Scientific Conference, (Kaunas, Lithuania)
Assoc. Prof. Ing. Radoslav Jankal, PhD.	HUMAN POTENTIAL DEVELOPMENT, 15th International Scientific Conference, (Kaunas, Lithuania)
	BUSINESS MODELS - STRATEGIC CHALLENGES, International Scientific Conference, (Poznan, Poland)
Assoc. Prof. Ing. Ján Boháčik, PhD.	International Conference on Data and Znalosti/ Knowledge (DaZ), 11-12 October, 2018, Brno, The Czech Republic
Ing. Michal Kvet, PhD.	Open Innovations Association (FRUCT) Bologna, Italy
Prof. Ing. Vitaly Levashenko, PhD.	International Conference on Computer and Information Systems and Technology, April 18-19, 2018, Kharkov, The Ukraine
	International Workshop on Theory of Reliability and Markov Modelling for Information Technologies (TheRMIT 2018)
	XIV International Conference on Intellectual Systems of Decision-Making and Problem of Computational Intelligence (ISDMCI), Zhelezny Port, The Ukraine
	9th International IEEE Conference Dependable Systems, Services and Technologies (DESSERT), Kyiv, The Ukraine
	21st Conference on Reconfigurable Ubiquitous Computing, RUC'2018, Szczecin, Poland

Membership of the Faculty Employees in Scientific / Programme Committees of Foreign Scientific Conferences	
Surname and First Name, Degree	**Title of the Scientific Conference**
	the Russian Federation & Europe Multidisciplinary Symposium on Computer Science and ICT (REMS 2018), 15 – 20 October 2018, Stavropol – Dombay
	International Workshop on Informatics & Data-Driven Medicine (IDDM 2018), Lvov, The Ukraine
	International Conference on Data and Znalosti / Knowledge (DaZ), 11-12 October, 2018, Brno, The Czech Republic
	IEEE International Symposium on Multiple-Valued Logic (IS MV), 2018, Linz, Austria
Prof. Ing. Elena Zaitseva, PhD	9th International IEEE Conference Dependable Systems, Services and Technologies (DESSERT)
	International Conference on Computer and Information Systems and Technology, April 18-19, 2018, Kharkov, The Ukraine
	International Workshop on Theory of Reliability and Markov Modelling for Information Technologies (TheRMIT 2018)
	IEEE International Symposium on Multiple-Valued Logic (IS MVL), 2018, Linz, Austria
	XIV International Conference on Intellectual Systems of Decision-Making and Problem of Computational Intelligence (ISDMCI), Zhelezny Port, The Ukraine
	21st Conference on Reconfigurable Ubiquitous Computing, RUC'2018, Szczecin, Poland
	the Russian Federation & Europe Multidisciplinary Symposium on Computer Science and ICT (REMS 2018), 15 – 20 October 2018, Stavropol – Dombay
	International Workshop on Informatics & Data-Driven Medicine (IDDM 2018), Lvov, The Ukraine
	10th EAI International Conference on Bio-Inspired Information and Communications Technologies (formerly BIONETICS), Hoboken, New Jersey, USA
	International Conference on Electrical & Computer System: Theory and Practice (ELTECS - 2018), 29 May – 1 June, 2018, Odessa, The Ukraine

Membership of the Faculty Employees in Scientific / Programme Committees of Foreign Scientific Conferences	
Surname and First Name, Degree	**Title of the Scientific Conference**
	European Safety and Reliability Conference (ESREL 2018), June 17-21, 2018, Trondheim, Norway
	8th Asia-Pacific International Symposium on Advanced Reliability and Maintenance Modelling in Conjunction with the International Conference on Quality, Reliability, Risk, Maintenance and Safety Engineering (APARM 2018 & QR2MSE 2018), October 21-24, 2018, Qingdao, Shandong, China
	8th Int. Workshop on Artificial Intelligence in Medical Applications (AIMA'18) of the IEEE Federated Conference on Computer Science and Information Systems (IEEE FedCSIS), 9-12 September, 2018, Poznan, Poland
	3rd International Conference on System Reliability and Safety (ICSRS 2018), Barcelona, Spain
	3rd International Conference on Information Technologies in Management (ICoITiM 2018), Warszawa, Poland
Ing. Miroslav Kvaššay, PhD.	International Workshop on Theory of Reliability and Markov Modelling for Information Technologies (TheRMIT 2018)
	9th International IEEE Conference Dependable Systems, Services and Technologies (DESSERT), Kyiv, The Ukraine
	the Russian Federation & Europe Multidisciplinary Symposium on Computer Science and ICT (REMS 2018), 15 – 20 October 2018, Stavropol – Dombay
	14th International Conference on ICT in Education, Research and Industrial Applications. Integration, Harmonization and Knowledge Transfer (ICTERI 2018), 2018, Kiev, The Ukraine
Assoc. Prof. Ing. Milan Kubina, PhD.	5th International Scientific Conference NEW TRENDS IN MANAGEMENT AND PRODUCTION ENGINEERING REGIONAL, CROSS-BORDER AND GLOBAL PERSPECTIVES (Brenna, Poland)

Membership of the Faculty Employees in Scientific / Programme Committees of Foreign Scientific Conferences	
Surname and First Name, Degree	**Title of the Scientific Conference**
Assoc. Prof. Ing. Viliam Lendel, PhD.	5th International Scientific Conference NEW TRENDS IN MANAGEMENT AND PRODUCTION ENGINEERING REGIONAL, CROSS-BORDER AND GLOBAL PERSPECTIVES (Brenna, Poland)
Prof. Ing. Josef Vodák, PhD.	International Scientific Conference Informatization of Economic and Management Processes (Brno, The Czech Republic)
Prof. Ing. Alžbeta Kucharčíková, PhD.	IV. International Strategic Researches Congress 2018 (Antalya, Turkey)
	31st International Conference IBIMA (Milan, Italy)
	32nd International Conference IBIMA 2018 (Sevilla, Spain)
Assoc. Prof. Ing. Emese Tokarčíková, PhD.	IV. International Strategic Researches Congress 2018 (Antalya, Turkey)
	Hradec Economic Days 2018 (Hradec Králové, The Czech Republic)
	31st International Conference IBIMA 2018 (Milan, Italy)
	32nd International Conference IBIMA 2018 (Sevilla, Spain)
Assoc. Prof. Ing. Jacková Anna, PhD.	CER Comparative European Research – International Scientific Conference for PhD students of the EU 2018
Assoc. Prof. Mgr. Jakub Soviar, PhD	CLC 2018 - Carpathian Logistics Congress (Praha, The Czech Republic)
Assoc. Prof. Ing. Michal Kohání, PhD.	ICORES 2018 - Madeira, Portugal

5 Development Intentions in Individual Areas for the Year 2019

5.1 The Area of Education

The Faculty of Management Science and Informatics is committed to the trend of increasing the proportion of university graduates in the Slovak Republic in line with trends in the EU countries. In line with the development of the Slovak economy and industry, we expect the intensive development of small and medium-sized businesses with a higher share of high technology, which will build on the development of large multinationals. As a result, there is a need for a higher number of undergraduates and graduates. Our strategy is as follows:

- Continuously improve study programmes,
- Develop lifelong learning process,
- Promote personal access towards students,
- Engage students in scientific research projects,
- Increase the share of foreign students,
- Increase the share of lecturers from practice and abroad,
- Ensure a quality process,
- Continuously update the regulations of the faculty (mainly the statute, study rules, etc.) so as to reflect the changing processes in the area of education provision.

In this context, we will pay particular attention to the following educational activities:

- Creating the conditions for providing education in accordance with the needs of science, technology, industry and other spheres of national economy in current study fields and programmes and in the required quality,
- Increasing the proportion of university-educated young generation in the total population in the Slovak Republic by creating conditions at the faculty so that the number of students corresponds to the interest of the environment,
- Providing quality education comparable to universities in the European educational area.

The gradual creation and accreditation of study programmes within the faculty will take the following areas into account:

- the Bologna Process Education System (ECTS Credit System, Diploma Supplement and Mobility for Students and Teachers of Higher Education) to balance learning across all three levels,
- Broader vocational basis for learning to enhance higher education specializations,
- Flexibility in learning activities,
- During the study, develop a student's ability to master modern technologies,
- The student's ability to communicate and present work results,

- Promote communication in foreign world languages; provide the opportunity to write and defend the final thesis and to take the state exam in a foreign language (English) during the 2nd and 3rd level of education,
- Integration of student's IT skills, managerial skills, economic knowledge and managerial skills,
- Mobility opportunities in the domestic as well as in the European area,
- Joint study programs and joint degrees with partners at foreign universities,
- The implications and impact on the development of the learning methodology resulting from the emerging information society;
- Strategy for the sustainable and safe development of society within the engineering departments,
- Modular structure of study programmes with consistent use of the credit system (groups of optional subjects),
- The economic demands of study programmes in relation to financial resources, the current state of the labour market, and the state's interest resulting from the development strategy of the Slovak Republic,
- Development of the faculty personnel potential,
- Assessing the possibilities of applying new forms of study (e.g. distance learning).

The concept of quality of education is understood on the basis of recommendations for the creation of a common European learning space and subsequent Slovak documents. The primary objectives for achieving the necessary quality of education resulting from these documents are as follows:

- Promote the European dimension of education, especially with regard to curriculum development, inter-institutional cooperation, mobility schemes and integrated study, training and research programmes,
- Create mechanisms to support the study of top students,
- Promote European cooperation in quality assurance, with a view to developing comparable criteria and methodologies,
- Measure the quality of education of the institution by comparing competitiveness with foreign countries,
- Focus more attention on the student,
- Promote mobility and remove barriers to free movement,
- Provide students with access to study and related services,
- Improve existing methods and ways of learning by using information and communication technologies and new learning technologies.

5.2 The Area of Science and Research

The faculty considers science, research and development (R&D) to be an integral part of its mission and will be based on it when providing pedagogical and business activities. In the course of its activities, the Faculty will concentrate mainly on the following areas:

1. Addressing the challenges of the European Research Area, such as:
   - Tasks within existing networks of European scientific and educational institutions e.g. (EUA);
   - Tasks of the relevant EU framework programme;
   - Tasks of the various other EU programmes.
2. Solving the priority tasks of R&D in the Slovak Republic, namely the tasks of the state programme of research and development, tasks based on state orders and tasks provided by the Agency for the Support of Science and Technology (hereinafter referred to as APVV).
3. Linking the objectives and tools of the doctoral degree studies as a 3rd level degree programme with existing programme intentions and R&D projects in order to increase its effectiveness.
4. Creation of conditions enabling to obtain sufficient resources for qualitative growth of the faculty depending on the strategy of financing of R&D and technology in Slovakia.
5. Establishing assumptions and rules within internal motivation criteria to support engagement in research and development projects.
6. Creation of an environment for the faculty increase (pressure on the quality of publications, international projects, etc.).
7. Promoting activities in the implementation of research and development results in the form of prototypes, as well as the forms of their commercialization through:
   - Priority support for projects with implementation output;
   - Project solutions based on collaboration with partners from the industrial environment;
   - Involvement in the implementation of projects listed by the departmental bodies in the Slovak Republic;
   - New business incubator activities, new technologies and products;
   - Developing cooperation with industrial parks in the region.

The faculty will concentrate R&D capacities preferentially on areas where there are real preconditions for applying human and material potential within the European Research Area ERA, or which belong among the medium and long-term priorities of the national R&D concept and are supported by existing cooperation agreements. The faculty will focus on new strategic goals based on the results of basic research, which is one of the main priorities of the research university. The faculty will develop long-term research plans in the following areas:

- Mathematical Modelling, Simulation and Optimization:
  - Analysis and creation of data processing systems;
  - Analysis and creation of multimedia systems;

    - Communication networks of future generations;
- Managing Human and Technical Resources:
    - Management, marketing, logistics and entrepreneurship;
    - Analysis, modelling and forecasting of economic and financial data;
    - Control systems of technological processes;
- Analysis, Synthesis and Development of Information and Control Systems:
    - Embedded Systems;
    - Distributed data processing systems based on WSN (Wireless Sensor Networks) and MAS (Multi-Agent Systems).

Further faculty directions follow not only the traditions of information and communication systems theory, applied informatics, mathematical methods, automation and management, but also the possibility of extensive interdisciplinary interaction, based on a broad-spectrum erudition of faculty teachers and scientists. Therefore, the following perspective directions can be specified as a priority:

- IT and Knowledge Systems;
- Intelligent Transport Systems;
- Intelligent Manufacturing Systems;
- Biomedical and Medical Informatics;
- Mathematical Modelling in the field of ICT, Communication Systems and Management;
- Management (Information / Communication);
- Information Technologies and Information Appliances;
- Business Economics (efficient use of production inputs).

The faculty management will create systematic pressure to obtain international grants, grants from APVV, VEGA and KEGA agencies, from other grant agencies and also to work on faculty grants, which form the preparatory basis for applications for external grants and projects (H2020, TEMPUS, COST, and COPERNICUS).

There is also the same interest in systematic collaboration on projects with industry and international companies (Scheidt and Bachman, Siemens, Deutsche Telecom, ETSI, ITU Geneve, SBB, OBB, DB, ČD, etc.) but also with national and regional companies and corporations (ŽSR – Slovak railway manager infrastructure, T-COM, KIA, Volkswagen, VARIAS, Siemens, IPESOFT, Orange).

In 2018, the Faculty of Management and Informatics established intensive collaboration with several IT companies, such as: Accenture, Autocont, Artin, Azet, Bel Solutions, Danfoss, DXC.technology, EMtest, GlobalLogic, Globesy, IBM, Ipesoft, Kros, Martes Specure, Prima Banka, Quadrot, Scheidt and Bachmann, Siemens, Transdata, T-Systems, ZSE. It also develops activities within the ICT cluster called Z@ICT and intensively cooperates with the Žilina Science Technology Park.

Fig. 90 Partners of the Faculty of Management Science and Informatics for 2018

Each of the pedagogic staff and researchers will continue to develop a timetable for improving their skills and their professional growth. Assistants as well as assistant professors without a PhD degree will, as hitherto, follow their scientific training career plan, assistant professors with the PhD degree will follow their habilitation procedure and associate professors a plan for the inauguration procedure, which will be part of their job description.

5.3 The Area of International Cooperation

The Faculty will follow the priority directions of international cooperation which will be defined primarily by:

- Creating university networks;
- Creating joint study programmes with foreign universities;
- Developing cooperation with traditional partners.

The faculty will build on the rich international cooperation to date and cooperation agreements concluded so far. New agreements with foreign partners will be formulated to be applicable within European mobility projects and contain specific objectives and conditions for their implementation in the fields of:

- Implementation of international projects;
- Exchange of students for a part of the course of their study (at least 1 semester or diploma thesis) abroad;
- Exchanges of teachers/lecturers for the presentation of specific subjects included in the study programmes.

5.4 The Area of Management and Organization

This includes funding, business activity, promotion of the faculty and material and technical equipment.

Funding

The aim is to manage multi-source funding in order to increase revenue by granting success, doing business, using own assets and reducing costs. The financial resources of the faculty activities will be based on the following sources:

- State subsidy for the implementation of accredited study programmes;
- State subsidy for scientific, research, development activities;
- State subsidy for the development of the faculty;
- Non-subsidized sources (grants, projects);
- Income from business activities.

The internal distribution of the state subsidy in the conditions of the faculty is taken into account according to the methodology of the Ministry of Education and the University of Žilina.

In order to increase the evaluation value of the faculty, allocate a part of the wage funds to the award of the most successful publications and bearers of the international cooperation.

In order to increase the grant success in the Slovak Republic and within the framework of the EU programmes, or other foreign programmes, prepare quality development projects as a potential source of inflows of funds from the state as well as foreign sources. Evaluate their researchers from the wage fund of the faculty in the form of special extraordinary rewards.

In the creation of own financial resources, the most important element will be business activity, which allows more efficient use of human resources and the faculty assets. The faculty will create conditions in order to increase business activities.

Income sources include admission exam fees, additional study-related administrative fees, sponsorship donations, bank loans, and, to a lesser extent, income from the sale of surplus and unusable assets, and so on.

Business Activity

In accordance with the valid legislation of the Slovak Republic and UNIZA's development intentions, to create conditions for business activity that will be in line with the mission of the faculty and its activities. Priority goals of the business activity development will be as follows:

- Expert and advisory services;
- Design and development activities;
- Building and operating joint research-commercial laboratories;
- Life Long Learning;
- Regional development activities;

- Renting property owned by the university, updating the current rental system according to changing market conditions and asset utilization strategies;
- Establishment of student companies with responsibility and material input of the university;
- Engagement of individual workplaces in energy consumption and maintenance as one of the conditions for their operation.

Promotion of the Faculty

In the next period, the faculty will pay particular attention to:

- Presentation of the faculty achievements in the fields of science and research;
- Presentation of the quality of education on the basis of acceptance by the labour market.

Material and Technical Equipment

The aim of the faculty will be to increase the entrusted assets of UNIZA through efficient maintenance and in accordance with the strategic aims of the development of the faculty and the university, to create the technical and material conditions for ensuring research, development and education at the current needs. In the next period, pay particular attention to:

- Maintenance, innovation and development of the faculty laboratory equipment;
- Reconstruction of the faculty buildings;
- Improvement of the technical condition of real estate and movable assets and its modernization;
- Development of the librarian and information services.

The main tasks for the development of investments and equipment are as follows:

- Maintenance and development of the laboratory equipment.
- Rebuilding the assembly hall as part of the convention centre.
- Processing and implementation the investment purchase concept.
- Processing and implementation of a long-term investment plan in line with UNIZA's intention.
- Continue to implement and innovate faculty laboratories through development projects, state research programmes and business activities.
- Implementation of energy projects for the reconstruction, modernization and automation of the workplaces' energy network.

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