ANNUAL REPORT 2013

UNIVERSITY OF ŽILINA



Edited by Faculty of Management Science and Informatics University of Žilina SLOVAKIA Printed by EDIS - Žilina University publisher

Copyright © by Faculty of Management Science and Informatics

Content

1. Foreword.	5
2. Presidium of the Faculty	7
3. Departments of the Faculty	. 8
4. Educational Activities	. 8
5. Study Programmes	. 9
6. Scientific and Professional Orientation of the Faculty	10
7. Scientific Activities of the Faculty	14
8. Scientific Board	17
9. Publication Activities	19
10. Academic Senate of the Faculty	26
10. Human Resource Management	. 26
11. Turnover of Staff in 2013	27
12. Official guests from foreign institutions accepted by Deans Office	27
14. Programmes of Study – Bachelor Programmes	
Informatics	28
Computer Engineering	.32
 Management 	35
15. Programmes of Study – Master Programmes	
Information Systems	38
Computer Engineering	42
 Management 	44
Applied Network Engineering	46
 Informatics Tools for Decision-Making Support 	48
16. Students with excellent results	50
17. Students participation at the Professional Competitions	52
18. Students	53
19. Programme ERASMUS and other international activities of the Faculty	55
20. Foreigner Students at the Faculty in 2012	56
21. Information Centre	56
21. Intranet of the Faculty	. 56

22. Department of Mathematical Methods	59
23. Department of Informatics	
24. Department of Macro and Micro economy	
25. Department of Technical Cybernetics	
26. Department of Transportation Networks	
27. Department of Information Networks	
28. Department of Management Theories	
29. Department of Software Technologies	
30. Photo-gallery	

FACULTY OF MANAGEMENT SCIENCE AND INFORMATICS



Foreword

Faculty of Management Science and Informatics, University of Žilina was founded on July 17th, 1990 by approval of University Senate. The main idea of foundation was integration of developing knowledge from IT in the Faculty Programmes of study. That was above all students and staff from Department of Technical Cybernetics existing from 1972 on the University (in that time University of Transport and Communication, Faculty of Mechanical-Electrical Engineering). From this time University and Faculty were going through many changes and development connected by evolution, as well events, caused by society changes and corresponding legislative.

Faculty of Management Science and Informatics is one of the seven Faculties at University of Žilina, which are:

- Faculty of Operation and Economy in Transport
- Faculty of Electrical Engineering
- Faculty of Mechanical Engineering
- Faculty of Civil Engineering
- Faculty of Special Engineering
- Faculty of Human Sciences

There are more than 12 000 students on the University of Žilina, including 1 400 students at the Faculty of Management Science and Informatics.

Study programmes at the Faculty are interdisciplinary coming out from more than 40- years experiences in education on the University, especially on the Department of Technical Cybernetics, as well from the programmes of study Information and Control Systems and Applied Mathematics - formers Study programmes at this Faculty.

Activities of the Faculty are determined by new trends of information and communication technology development, where the high priority task is to insure the continual interconnection between research, education and acceptation of postgraduates in the praxis. The main education and professional activities lie with fields as design and realization of technical tools for information and control systems, analysis, synthesis and design of integrated information and control systems, management, marketing, logistics, entrepreneurship, activity of transportation and communication systems, control and optimization of goods and passenger transport, control and optimization of databases design and their transmission and data processing, problematic of multimedia information systems and graphic information systems, simulation mediums for communication networks and systems and mathematical modelling.

Faculty of Management Science and Informatics offers the study in all three levels programmes of study (**Bachelor, Master** and **Doctoral**). All programmes are officially approved by the Accreditation Commission of the Slovak Republic. The programmes are interdisciplinary; they were conceived and created based on many years of the Faculty's successful research and educational tradition. Detailed descriptions of these programmes is performed in following text

During its existence, the Faculty of Management Science and Informatics, as both a research and teaching institution, became a worthy equal partner to similar faculties not just in Slovakia, but in other countries as well. Earning this reputation was a long and strenuous process; but now the scientific and academic staff of the Faculty, as well as their graduates, have achieved a well-deserved position in the world-wide academic community of informatics and management. For a long time, our graduates have experienced great interest from employers. According to an official study in 2013, our Faculty ranked fifth among the top 20 faculties whose graduates were most in demand (in 2010 we were in first place; in 2011 and 2012 we also ranked second.)

In conclusion I would like to stress that the main task of the technical-oriented faculties is to conduct continual education and research so that the knowledge obtained permits the graduates to contribute to society. I believe our Faculty's activities are helping our present and future students to be fully valuable individuals, capable of using their knowledge, skills and experiences in the conditions of the new millennium.

Prof.Ing. Karol Matiaško, PhD.

Dean

Presidium of the Faculty:

Dean:	Prof. Ing. Karol Matiaško, PhD.	Tel.: +421-41-513 40 51 Fax: + 421-41-565 40 55 e-mail: dekan@.fri.uniza.sk
Vice-Deans:	RNDr. Ida Stankovianská , PhD. Vice-Dean for Education e-mail: i	Tel.: +421-41- 513 40 72 da.stankovianska@fri.uniza.sk
	Assoc.Prof.Ing. Emil K r š á k , PhD. Vice-Dean for Science e-mail: er	Tel.: +421- 41- 513 41 00 nil.krsak@fri.uniza.sk
	Assoc.Prof.Ing. Michal Z á b o v s k ý , Ph Vice-Dean for International Affairs	D.

Tel.: +421-41-513 40 53 e-mail: michal.zabovsky@fri.uniza.sk

Faculty Registrar: Ing. Marta Rešetková, PhD..

Tel.: +421-41-513 40 75 e-mail: marta.resetkova@fri.uniza.sk

Departments of the Faculty:

Organisational structure of the Faculty creates Dean's Office, eight Departments, three special workplaces and one sub-campus:

- Department of Mathematical Methods
- Department of Macro and Microeconomics
- Department of Informatics
- Department of Technical Cybernetics
- Department of Information Networks
- Department of Transportation Networks
- Department of Management Theories
- Department of Software Technologies
- Information Centre
- Project's Centre
- Centre of Information Technologies
- Sub-Campus in the town Prievidza

Educational Activities

Educational activities consist of:

- Design and realization of technical means for information and management systems
- Analysis and synthesis of regulation and automation systems
- Control and optimisation methods
- Data transmission and data processing
- Issues concerning multimedia information systems, graphic systems and simulation of components for communication networks, systems and mathematical modelling
- Management, marketing, logistics, entrepreneurial skills, creation of transport and communication systems

Study Programmes



In the frame of **Bachelor Programme** there are three accredited programmes provided for study at the Faculty:

- Informatics
- Computer Engineering
- Management

The programme is a well-rounded higher education in the 1st degree.

Goal of the **Bachelors level** consists in preparation of experts for application of acquired knowledge in their professional life and at the same time to be able for study in the higher levels (MSc., PhD).

In the frame of **Master Programme** there are five accredited programmes provided for study at the Faculty:

- Information Systems
- Applied Network Engineering
- Information Tools for Decision-Making Support
- Computer Engineering
- Management

In the Programme *Information Systems* there are possibilities for the students to make choice in following Professional Orientations:

- Data Processing
- Information-Communication Networks
- Business Informatics
- Distributed and Parallel Systems

Goals of the **Masters level** consist in preparation of experts for commanding places in the area of application of acquired knowledge in the praxis, in the research and science and at the same time to be able for study in the doctoral level

In the frame of **Doctoral Programme** there are three accredited programmes provided for study at the Faculty:

- Applied Informatics
- Informatics Tools for Decision- Making Support Systems
- Management

Doctoral Programme is the highest level of higher education. The aim of the Doctoral Programme is to prepare the graduate student for independent, creative scientific-research work by giving the student comprehensive theoretical knowledge and mastery of the methods of scientific work as demonstrated in a given scientific project. The programme lasts three years (full time) or five years (part time). The Doctoral Programme requires 3 semesters of advanced study, satisfactory completion of a comprehensive examination, then, after 3rd semesters, submission of a written dissertation, based on independent original research that must be a significant contribution to the field of study. Oral examination consists of a defence of the dissertation. The graduate is granted the scientific academic title "**Philosophiae Doctor** (abbr. **PhD.**)", which is written in abbreviation after the candidate's name.

Scientific and Professional Orientation of the Faculty:

Ambitious of the Faculty's activities is to connect high quality education with scientific research results and development.

Faculty's orientation in the scientific area is connected not only to traditions in the field of information and communication systems theory, applied informatics, mathematical methods, automation and management, but as well to the possibility of large-scale interdisciplinary interaction, based on the broad-spectral erudition of teachers and scientific workers of the Faculty. Therefore there is possibility to specify, as a priority, following perspective directions:

- Information sciences and knowledge systems
- Intelligent transportation systems
- Mathematical modelling in the ICT, communication systems and management
- Management (information / communication)
- Information technologies and information techniques.

The Faculty is involved in the following scientific fields:

• Mathematical modelling, simulation and optimization of:

- databases,
- information and transportation communication networks,
- transport of goods and passengers
- **Information and technical security** of:
 - analysis and design of databases systems
 - analysis and design of multimedia systems
 - next generation communication networks
 - embedded and multi-agent systems

• Management of human and technical resources:

- management, marketing, logistics and entrepreneurship
- regulation automation systems

In the frame of the Faculty there are following long term research topics which should be developed in the future:

- Applied mathematics
- Multimedia technologies
- Management and logistics
- Economic management
- Modern educational techniques and technologies
- Information and communication technologies for society development
- Simulation tools and simulation of technologic activities
- Modelling of database, distributed data processing and data mining
- Management. diagnostic, decision-making in complex systems by use of methods in applied mathematics and cybernetics with application in industry management and in management of complex systems
- Digital signal processing

The scientific orientations of the Faculty's Professors are in following areas:

1. Prof.Ing Karol Matiaško, PhD.

Prof. Karol **Matiaško** is a lecturer, author, researcher and consultant, specializing in the areas of database systems and data processing. He started his career in informatics as a researcher at the Research Institute of Transport where he participated in the development of the database system core for the railway information system. His work at the University involved his participation in the design and/or development of many information systems for both industry and academia. Currently his research interests include *Data modelling and processing* and also the area of *Intelligent transport systems*. His teaching covers the areas of *Database systems*, *Data processing and Programming languages*. He has an extensive list of publications including textbooks on database systems and programming languages

2. Prof.RNDR. Jaroslav Janáček, PhD.

Prof. Jaroslav **Janáček** deals mostly with operations research and related disciplines as mathematical programming and transportation science. During the last decade, he focused on design of private and public service systems, where mathematical and informatics approach to the optimal system structure determination is based on solving discrete location problems. This research was continued with various generalizations of the approach to a many-to-many distribution system and a distribution system, where capacity limit and demand on compactness were imposed on the served areas. This part of research was performed on his own software. Recently he focused on so-called *Public service system design* and also on service systems, which provide fair access to a service. This research follows two streams, where the first one employs the above-mentioned developed software with the goal to adjust it so that it would be able to solve a public system design problem to exact optimum. The second stream makes use of *commercial software* (Xpress-IVE) and focuses on *design of an approximate method*, which would be able to solve very large instances of the p-median problem as a core of public service system design.

3. Prof.Ing. Juraj Miček, PhD.

Prof. Juraj **Miček**'s research interests include mainly control and information systems, practical system design and digital signal processing with particular emphasis on noise reduction. His work has resulted in the development of many unique systems and devices for both domestic and overseas applications; this has also resulted in more than forty scientific publications. Practical aspects of the design of systems based on thirty-two bit microcontrollers were dealt with in his textbook *Monolithic Microcomputers with ARM7Core, Architecture, Programming and Applications*. The problems of noise and interference were analysed in his scientific monograph *Noise in Signal Processing Systems*. Presently he is working on the solution of problems and the development of applications in the field of wireless sensory networks and multi-robotic systems. His teaching interests cover a wide range of subjects including signal processing, automatic control and information technology.

4. Prof.Ing. Martin Klimo, PhD.

Prof. Martin **Klimo** received his diploma in telecommunication engineering from the University of Transport and Communication (UTC) Zilina in 1973. From 1973 to 1990 he was an Assistant Professor on Technical Cybernetics Department at UTC. Since 1990 he held position as an Associated Professor and in 1993 he was appointed head of the Department of Information Networks. From 1990 to 1993, and since 1997 he is a member of University Scientific Board. He is presently a Professor at the Department of Information Networks and a national delegate in ICT Committee of the 7Frame Programme. His professional interests include *Communication theory, Queuing theory* and *Fuzzy logic implementation by memristors*. He is author of 3 monographs, 4 textbooks, 28 articles and 52 conference contributions

5. Prof.Ing. Matilda Drozdová, PhD.

Prof. Matilda **Drozdová** has been working in the area of information and communication services and information systems architecture since 1990. Currently, her research work is oriented to the implementation of ICT services to the real life, using of the principle Model Driven Engineering by the Architectures of the system creation. In the past she promotes *e-education* as one of the ICT services at the university level by means of various national and international projects. She was as the team member in four national projects of State program of research and development, project manager of five projects of Slovak ministry for education research agency. In the international projects she was the team member two Leonadro da Vinci projects, three Tempus projects, one 5. Frame project and one 6. Frame project .She is authors of two books co-author 3 books and author and co-author more than 70 papers in the journals and contributions in the conference proceedings.

6. Prof.Ing. Štefan Hittmár, PhD.

Prof. Štefan **Hittmár** is a lecturer, author, researcher and consultant, specializing in the areas of management systems and information in decision making. He started his career in transport management as a researcher at the Research Institute of Transport where be participated in the development organizational, information and managerial processes in transport systems. There he was a member of team, head and contractor a lot of many scientific and practical projects, studies and research tasks.

His work at the University has involved his participation in the preparing and development of *Management theory* and in the application it for both industry and educational process. Currently his research interest includes *decision-making processes* and also the area of *modelling managerial activities*. His teaching covers the areas problematic of the basic *Management, Strategy management, Projecting of management system, Methodology of teaching process*. He has an extensive list of publications including textbooks and monographs on management area.

7. Prof.Ing. Tatiana Kováčiková, PhD.

Activities of Prof. Tatiana **Kováčiková** are focused to converged telecommunication network architectures, services and protocols. She participated in a number of international research projects such as COST, EURESCOM and EC funded projects. Since 2002, she has been actively involved in standardization in the area of Next Generation Networks, Cloud Computing and Intelligent Transport Systems at ETSI (European Telecommunication Standardization Institute) located in Sophia Antipolis, France.

8. Prof Ing. Josef Vodák, PhD.

Prof. Josef **Vodák** is working as a lecturer, researcher and consultant in the field of performance management with a particular interest in small and medium enterprises. Within the area of performance management, he focuses on the strategic perspective of a company, its market and value delivery, collaborations with other companies and, as one of the key areas, its human capital. For the future, he will continue to develop more advanced systems for company development and for increasing company value using concepts of performance management. He strongly believes that human capital is a key factor necessary for a success in company's performance management. He is also confident that performance management is a fruitful area for scientific as well as educational activities of a university, with potentially considerable impact on the business landscape

Scientific activities of the Faculty:

In the following list there are some of research projects realized in 2013 at the Faculty:

Projects supported by EU Foundations

1. LoE STF 448/01 ETSI STF 448/01 Local Dynamic Map (LDM) Standardization for Vehicle ITS Station

Prof.Ing. Tatiana Kováčiková, PhD.

- 2. LoE STF 440/02 ETSI STF 440/02 *Cable Network Transition to IPv6* Prof.Ing. Tatiana Kováčiková, PhD.
- 3. 2013-03.15-03 *Micro-fluidic Simulations with Biomedical Applications* Mgr. Dr. Ivan **Cimrák**
- 4. FP7-PEOPLE-2011-CIG-303580 *Biomed-Micro-fluidics* Mgr. Dr. Ivan **Cimrák**

Science and Education Grant Agency – Ministry of Education in Slovak Republic

- 1. 1/1116/11 *Adaptive Data Distribution in Mobile Ad-hoc Networks* Prof.Ing. Karol **Matiaško**, PhD.
- 1/0067/11 Dynamic and Content of Decision-Making Processes in Human Potential Motivation Assoc.Prof Ing. Martina Blašková, PhD
- 1/0374/11 Modelling and Optimization of Mobility and Infrastructure in Logical Networks Assoc.Prof.RNDr. Stanislav Palúch, PhD.
- 4. 1/0888/11 *Knowledge Management Modelling and Applications* Prof.Ing. Štefan **Hittmár**, PhD

- 1/1099/11 Modelling and Simulation of Dynamic Interactions Surroundings: Driver/Car/Traffic Situation Prof.Ing. Mikuláš Alexík, PhD.
- 1/0992/11 Cooperation Management Effective Access for Concurrence Advantage Profit Assoc.Prof.Ing. Jozef Strišš, PhD.
- 7. 1/0296/12 *Public Service Systems with Fair Access to Service* Prof. RNDr. Jaroslav **Janáček**, PhD.
- 1/0339/13 Use of Complex Data Recourses in Design and Solution of Microscopic System Models Providing Public Services in Wide-Spread Area Assoc.Pro.Ing. Ľuboš Buzna, PhD.
- 9. 1/0421/13 *Efficiency Attribute and Human Capital* Assoc.Prof.Ing.Alžbeta **Kucharčíková**, PhD.
- 1/0526/13 Modelling of Multilateral Relations of Economic Subjects and Quality Enhancement in Decision-Making Processes with IOCT Support Ing. Emese Tokarčíková, PhD.
- 035ŽU-4/2013 Study Programme of 2nd Level: Operations Management and Logistics Assoc.Prof.Ing. Jaroslav Král, PhD.
- 12. 060ŽU-4/2012 Viro-on-line Tool to Education Support of Subjects in the IP Networks Area and Communities Knowledge Portal Assoc.Prof.Ing. Pavol Segeč, PhD.
- 13. 2012et018 *Special Security Level-Crossing Equipment* Ing. Michal **Hodoň**, PhD.

Applied Research Projects

- 1. 6/2013/FRI/R/190 Arrangement of Address SW GTN for Particular Controlled Area Asasoc.Prof.Ing. Emil Kršák, PhD.
- 2. 10/2007/FRI/R *Application Support Services for iKVC-VIS System* Asasoc.Prof.Ing. Emil **Kršák**, PhD.
- 7/2013/FRI/R/190 Development of SW GTNv4.7-BC Type with New Function Attribute Asasoc.Prof.Ing. Emil Kršák, PhD.
- 16/2013/FRI/R/150 Development and Realization of Address Software to Control of Railway Corridors Asasoc.Prof.Ing. Emil Kršák, PhD.

Projects supported by Agency for Science and Research

- SK-SRB-0050-11 Reconstruction and Revitalisation of Railway Infrastructure in Conformity with Regional Development Ing. Peter Márton, PhD.
- 2. 0441-11 *Optimization of Micro-fluidic Equipment for Biomedical Applications* Dr.Mgr. Ivan Cimrák
- 3. 0760-11 *Design of Fair Service Systems on the Transportation Networks* Prof. Ing. Jaroslav Janáček

Another Projects

- 867/2013 Satisfaction Inquiry of Slovak Post's, Ltd. Customers with Quality of Post Services in 2013 Assoc.Prof.Ing. Miroslav Hrnčiar, PhD.
- 2. 042/13_RT *Open Hardware for Applications in Various Research and Industry Fields* Prof.Ing. Juraj **Miček**, PhD
- 3. SK-PL-0023-12 *Support Systems for Medical Decision-Making* Assoc.Prof.Ing. Elena **Zaitseva**, PhD.
- 4. 1/2013 *Agreement of Financial Providing for Optical Network Infrastructure* Asasoc.Prof.Ing. Emil **Kršák**, PhD.
- 5. 2012et016 *Arrangement of Attractive Virtual Education Portal* Assoc.Prof.Ing. Vitaly **Levashenko**, PhD.
- 0310/2008/SMS Measurement-Preciseness Test and Verification of Position Algorithms Ing. Peter Šefčík, PhD.

Centres of Excellence

26220120050 *Centre of Excellence for Systems and Services of Intelligent Traffic IDS2* Faculty is a University Coordinator Leader of project: Prof.Ing. Karol **Matiaško**, PhD.

Scientific Board:

Chairman: Prof.Ing Karol M a t i a š k o, PhD.

Members:

Assoc.Prof.Ing. Martina Blašková, PhD.	PhD. Prof. Ing. Martin Klimo, PhD.
Assoc.Prof.Ing. Pavel Čičák,	Prof.Ing. Milan Kolesár PhD.
Prof.Ing. Milan Dado, PhD.	Prof.Ing. Tatiana Kováčiková, PhD
Prof.Ing. Matilda Drozdová, PhD.	Assoc.Prof.Ing. Emil Kršák, PhD.
Assoc.Prof.Ing. Mária Ďurišová , PhD.	Assoc.Prof.Ing Penka Martincová, PhD.
Assoc.Prof.Ing. Peter Fabían, PhD.	Prof. Ing. Juraj Miček , PhD.
Assoc.Prof.RNDr.Elena Gramatová, PhD.	Assoc. Prof. Ing. Vladimír Mlynarovič, PhD.
Assoc.Proff.Ing. Karol Grondžák, PhD	Assoc. Prof. RNDr. Stanislav Palúch, PhD.
Assoc.Prof. Zdeněk Havlice, PhD.	Assoc.Prof. RNDr. Štefan Peško, PhD.
Prof. Ing. Štefan Hittmár, PhD.	Prof. Ing. Ladislav Šimák, PhD
Assoc.Prof.Ing. Miroslav Hrnčiar, PhD.	Prof. Ing. Karel Šotek , PhD.
Assoc. Prof. Ing. Vladimír Jamrich, PhD.	Prof.Dr.Ing. Róbert Štefko, PhD.
Prof. RNDr. Jaroslav Janáček, PhD.	Prof.Ing. Liberios Vokorokos, PhD.
Assoc.Prof.Ing. Ľudmila Jánošíková, PhD.	Prof.Ing. Peter Závodný, PhD.

In the procedure to be appointed as a *Professor* in 2013 was successful

Name of candidate	Title of Inauguration work
Assoc.Prof.Ing.	Design of Systems for Support of Decision-Making on the base
Vitaly Levashenko, PhD.	of Indefinite Dates

Name of candidate	Title of Habilitation work
Ing. Pavel Segeč, PhD.	Protocol SIP in Multi-Service Communication Architectures
Ing. Norbert Adamko, PhD.	Agent Orientation in Simulation of Complex Service Systems
Ing. Ondrej Karpiš , PhD.	Wireless Sensory Networks
Ing. Milan Kubina , PhD.	Selection and Implementation of Information System CRM in the company
Ing. Peter Šefčík, PhD.	Efficient use of FPFA resources by implementation of selected DSP methods
Ing. Ján Kapitulík, PhD.	Analysis of Possibilities of Wireless Sensor Networks in Road Transport

In the procedure to be appointed as Associated Professor were successful

Scientific Board of the Faculty, after successful defence of **Dissertation Thesis**, has appointed in 2013 with title **PhD**. following graduates of Doctoral Programme:

Name	Theme of Dissertation Thesis	Supervisor	
Ing. Michal Hodoň	On board localization technologies for vehicle positioning	Prof. Dr.Dr.h.c.mult. Eckehard Schnieder	
Ing. Miroslav Rusina	Data analysis and reliability in medical systems	Assoc.Prof.Ing. Elena Zaitseva, PhD.	
Ing. Jana Púchyová	Behaviour of multi-agent systems with defined aim	Prof.Ing. Juraj Miček , PhD.	
Ing. Dušan Nemček	Modelling of selected mechanisms with guaranty of service quality in communication networks	Assoc.Prof.Ing. Katarína Bachratá , PhD.	
Ing. Ľubomír Takáč	Data-processing in wide-broad databases	Assoc.Prof.Ing Michal Zábovský , PhD.	
Ing. Štefan Toth	Image-processing with use of demand in VANET environment	Assoc.Prof.Ing. Emil Kršák , PhD.	
Ing. Michal Salaj	Application of strategic 6-sigma tools in management of slender logistic operations	Assoc.Prof.Ing. Jaroslav Král , PhD.	
Mgr. Anna Havranová	Use of BSC access in efficiency management	Prof.Ing. Josef Vodák , PhD.	
Ing. Monika Kerestéšová	Planning model in management and human potential motivation in organization	Assoc. Prof. Ing. Martina Blašková,PhD.	
Ing. Anna Závodská	Knowledge in strategic marketing	Prof. Ing. Josef Vodák , PhD.	
Ing. Filip Janovič	Filip JanovičModelling and optimization of parallel algorithms efficiency		
Ing. Dan Slováček	Modelling and optimization of parallel computers efficiency Prof. Ing. Ivan Hanuliak,		
Ing. Veronika Šramová	Use of scenarios in enterprise planning	Prof. Ing. Štefan Hittmár , PhD.	
Ing. Martin Húdik	Modelling, optimization and prediction of parallel algorithms efficiency	Prof. Ing. Ivan Hanuliak , PhD.	
Ing. Tomáš Majer	Problems of tracking in wide-ranging transport network	Assoc. Prof. Ing. Stanislav Palúch , PhD.	

Ing. Marek Kvet	Design of wide-ranging public service systems with methods of covering	Prof. RNDr. Jaroslav Janáček , PhD.
ng. Juraj Cenek Spacing plans of lines in regional collective personal transport		Assoc. Prof. Ing. Ľudmila Jánošíková , PhD.
Ing. Ľubomír Toman	Sophisticated tools for decision-making support in conditions of uncertainty by design of public service systems of evacuation types	Prof. RNDr. Jaroslav Janáček, PhD.
Ing. Miroslav Faktor	System of Micro-geometry Analysis in Tooled Surface 2D and 3D	Prof .Ing . Miroslav Neslušan ,PhD.

Publication Activities:

Members of the Faculty of Management Science and Informatics have published in the year 2013 results of research activity in **217** publications. Some of the more significant titles there are in the following list.

Scientific monographs published in inland editors

VODÁK, J., SOVIAR, J., LENDEL, V., VARMUS, M.: *Marketing and Innovative marketing Management* 1st edition, Žilina, ISBN 978-80-971206-4-1, pp. 197

University textbooks published in inland editors

HITTMÁR, Š., LENDEL, V., KUBINA, M.: *Information Systems in Company* 1st edition, University of Žilina, ISBN 978-80-554-0712-8, 2013, pp.228

MIČEK, J., JUREČKA, M.: *Modern Means of Implementation of Methods in Digital Signals Processing I* 1st edition, University of Žilina, 2013, ISBN978-80-554-0714-2, pp.350

ŠEVČÍK, P., KAPITULÍK, J.: *Modern Means of Implementation of Methods in Digital Signals Processing II* 1st edition, University of Žilina, 2013, ISBN 978-80-554-0676-3, pp. 222

HITTMÁR, Š., JANKAL, R.: *Strategic Management* 1st edition, University of Žilina, 2013, ISBN 978-80-554-0734-0, pp.148

Scientific Works in Foreign Prestigious Journals

BOHÁČIK, J., DAVIS, N.D.: Fuzzy Rule-Based System Applied to Risk Estimation of Cardiovascular Patients

In: Journal of multiple-valued logic and soft computing. - ISSN 1542-3980. - Vol. 20, No. 5-6 (2013), pp. 445-466.

ZAITSEVA, E., LEVASHENKO, V.: Multiple-Valued Logic Mathematical Approaches for Multi-State System Reliability Analysis

In: Journal of applied logic. - ISSN 1018-4864. - Vol. 11, Iss. 3 (2013), pp. 350-362

RUSÍN, M., ARSAND, E., HARTWIGSEN, G.: *Functionalities and Input Methods for Recording Food Intake*

In: International journal of medical informatics. - ISSN 1386-5056. - Vol. 82, No. 8 (2013), pp. 653-664

ZAITSEVA, E., LEVASHENKO, V.: *Importance analysis by logical differential calculus* In: Automation and remote control. - ISSN 0005-1179. - Vol. 74, No. 2 (2013), pp. 171-182

Scientific Works in Foreign Journals

KVET, M., MATIAŠKO, K.: *Management of Temporal System - Column Level* In: International journal of new computer architectures and their applications (IJNCAA) ISSN 2220-9085. - 2013. - Vol. 3, No. 3 (2013), pp. 70-80.

KAVECKÝ, S.: *Ad hoc Grid Trust Management Architecture* In: International journal on information technologies and security. - ISSN 1313-8251. - Year 5, No. 3 (2013), pp. 21-30

VODÁK, J., SOVIAR, J., NADÁNYIOVÁ, M.: Some of Important Elements of Public Transport in the Field of Customer Service Quality

In: Acta Moraviae : scientific journal for economics, management and informatics. - ISSN 1803-7607. - Vol. 5, No. 9 (2013), pp 49-62..

KUCHARČÍKOVÁ, A.: Foreign Direct Investment in the Context of Economic Recession in Slovakia

In: Journal of Finance and Economics. - ISSN 2328-7284. - Vol. 1, No. 1 (2013), s. 1-7.

TOKARČÍKOVÁ, E.: *Aspects of Concept in Social Responsible Entrepreneurship at Universities* In: Acta academica karviniensia. - ISSN 1212-415X. - Roč. 13, č. 1 (2013), s. 171-179.

III. Acta academica katvimensia. - 15510 1212-415A. - Koc. 15, c. 1 (2015), S. 1/1-1/9.

LENDEL, V., JANKOVIĆ, P.: *Using the Intelligent Systems for Transport and Logistics* In: Logi : scientific journal on transport and logistics. - ISSN 1804-3216. - Vol. 4, No. 1 (2013), pp. 86-94

BLAŠKOVÁ, M., BLAŠKO, R.: *Orientation Process of Graduates Realized by Organizations* In: Acta Pamerania : Zeszyty naukowe Powszechnej Wyższej Szkoły Humanistycznej "Pomerania" w Chojnicach. - ISSN 2080-6183. - Nr 4 (2012), pp. 159-170. TAKÁČ, Ľ., ZÁBOVSKÝ, K., MATIAŠKO, K.: *MNSight - a New Automatic on-line Media Monitoring System* In: Radiomatics : journal on communications engineering. - ISSN 1693-5152. - Vol. 3, No. 2 (2013), pp. 1-6.

HRNČIAR, M., MADZÍK, P.: *Improving the Quality of Higher Education in Central Europe*: *approach based on GAP analysis* In: Higher Education Studies. - ISSN 1925-4741. - Vol. 3, No. 4 (2013), pp. 75-88.

KAVECKÝ, S.: Grid Security and Trust Management Overview

In: IJCSI International Journal of Computer Science Issues. - ISSN 1694-0784. - Vol. 10, Iss. 3, No. 2 (2013), pp. 225-233.

DICOVÁ, J., ONDRUŠ, J.: Significance of Utilization and Effectiveness Perception in Manager Work

In:Logi: scientific journal on transport and logistics. - ISSN 1804-3216. - Vol. 4, No. 1 (2013), pp. 29-39.

DUBOVEC, J., OBDRŽÁLEK L.: The Basic Assumptions for Development of Non-Education at Universities in Slovak Republic

In: Acta Moraviae : scientific journal for economics, management and informatics. - ISSN 1803-7607. - Vol. 4, No. 7 (2013), pp. 35-39.

LENDEL, V., VARMUS, M.: Proposal of the Evaluation System of Preparedness of Businesses for Implementation of the Lateral Marketing

In: Cross - border journal of social and economics studies. - ISSN 1868-6443. - Vol. 2, No. 1 (2013), pp. 60-81

TARÁBEK, P.: An Improved Parallel Algorithm for Thinning Binary Images

In: Scientific bulletin of the "Politechnica" University of Timişoara, Romania, : Transactions on automatic control and computer science. - ISSN 1224-600X. - Vol. 57 (71), No. 3 (2013), pp. 147-154.

ŠTENCL, M., LENDEL, V.: Application of Selected Artificial Intelligence Methods in Terms of Transport and Intelligent Transport Systems

In: Periodica Polytechnica : Transportation Engineering. - ISSN 0303-7800. - Vol. 40, No. 1 (2013), pp. 11-16.

BACHRATÁ, K., BACHRATÝ, H.: *Creating of Mathematical Imaginations by Manipulations* In: Učitel matematiky. - ISSN 1210-9037. - Vol. 21, č. 2 (86) (2013), pp. 65-75.

KVASSAY, M., LEVASHENKO, V.: Birnbaum Importance for Estimation of Multi-State and Binary-State Systems

In: Radioelektronni i kompiuterni systemy = Radioelectronic and Computer systems ISSN 1814-4225. - No. 5 (64) (2013), pp. 261-266.

KOSTOLNY, J. ZAITSEVA, E.: Decision Diagram and Direct Partial Logic Derivatives in Reliability Analysis of Multi-State System

In: Radioelektronni i kompiuterni systemy = Radioelectronic and Computer systems : naukovotechničnyj žurnal. - ISSN 1814-4225. - No. 5 (64) (2013), pp. 276-281

KARPIŠ, O.: *Solar-Cell Based Powering of a Node for Traffic Monitoring* In: IOSR journal of engineering (IOSRJEN). - ISSN 2278-8719. - Vol. 3, iss. 4 (2013), pp. 28-32.

KARPIŠ, O.: *Wireless Sensor Networks in Intelligent Transportation Systems* In: International journal of modern engineering research (IJMER 2012) - ISSN 2249-6645. - 2013. - Vol. 3, Iss. 2 (2013), pp. 611-617.

KARPIŠ, O.: FFT on ARM-Based Low-Power Microcontrollers

In: International journal of engineering research and development (IJERD). - ISSN 2278-800X. - Vol. 6, No. 9 (2013), pp. 22-26.

MIČEK, J., KARPIŠ, O., ŠEVČÍK, P.: *Body Area Network: Analysis and Application Areas* In: International journal of engineering research and development (IJERD). - ISSN 2278-800X. -Vol. 6, No. 8 (2013), pp. 22-26.

MIČEK, J., KAPITULÍK, J.: Wireless Sensor Node for Traffic Monitoring: Analysis and Design

In: European international journal of science and technology [elektronický zdroj]. - ISSN 2304-9693. - 2013. - Vol. 2, No. 1 (2013), pp. 85-97.

Scientific Works in Inland Journals

BÍZIK, M.: Elimination the Knowledge Management Paradox through the Interaction with Human Resource Management - new elements

In: HRM&E: Human resources management and ergonomics. - ISSN 1337-0871. - Vol. 6, No. 2 (2013), pp. 19-30.

KVET, M., MEŠINA, J.: *Brain Tumour Detection – 3D model*: marker value processing In: Informatics & IT Today. - ISSN 1339-147X. - 2013. - Vol. 1, No. 1 (2013), pp. 1-10.

KUCHARČÍKOVÁ, A.: *Human Capital in Theory and Praxis* In: ProIN : (CEIT). - ISSN 1335-5961. -Vol. 14, No. 1 (2013), pp. 25-27.

ONDRUŠ, J., DICOVÁ, J.: *Problematic of Implementation in Urban Toll System* In: Svet dopravy - ISSN 1338-9629. -2013. - No.2 (2013), online, pp. 4-11.

MEŠKO, M., TOTH, Š.: Laser Spot Detection

In: Journal of information, control and management systems. - ISSN 1336-1716. - Vol. 11, No. 1 (2013), pp. 35-41

TOMAM, Ľ.: Near-Optimal Solution of the Evacuation Plan Design with Using Genetic Algorithms

In: Journal of information, control and management systems. - ISSN 1336-1716. - Vol. 11, No. 1 (2013), pp. 23-33

KOCIFAJ, M,: Modelling of Infrastructure for Warehouse Simulation

In: Journal of information, control and management systems. - ISSN 1336-1716. - Vol. 11, No. 1 (2013), pp. 15-22

CZIMMERANN, P., KUBACKA, J.: *On a Certain Graph Colouring Algorithm* In: Journal of information, control and management systems. - ISSN 1336-1716. - Vol. 11, No. 1 (2013), pp. 3-8.

GRONDŽÁK, K., VÁCLAVKOVÁ, M.: Dynamic Database Design for Security System Evaluation

In: Journal of information, control and management systems. - ISSN 1336-1716. - Vol. 11, No. 1 (2013), pp. 9-14.

ONDRUŠ, J., DICOVÁ, J.: *Telemetric Applications of Urban Toll System* In: Svet dopravy - ISSN 1338-9629. - 2013. - (2013), pp. 6

BÍZIK, M.: The Optimal Creation of Knowledge through the Culture and its Absorption Capacity

In: Acta Oeconomica Universitatis Selye : - ISSN 1338-6581. - 2012. - Vol. 1, No. 1 (2013), pp. 19-25.

BÍZIK, M., HITTMÁR, Š.: *Absorption Capacity of Knowledge in the Culture of Organization* In: Social and economic revue : Faculty of social and economic relations, Alexander Dubček of Trenčín : scientific journal. - ISSN 1336-3727. -Vol. 10, No. 3 (2013), pp. 13-14

KUCHARČÍKOVÁ, A.: *Managerial Approaches to Understanding the Human Capital* In: HRM&E : human resources management and ergonomics. - ISSN 1337-0871. - Vol. 7, No. 1 (2013), pp. 33-44.

BOHÁČIK, J., KAMBHAMPATI, CH., DAVIS, D. J.: Alternating decision tree applied to risk assessment of heart failure patients

In: Journal of Information Technologies - ISSN 1337-7469. - 2013. - Vol. 6, No. 2 (2013), pp. 25-33.

KOCHLÁŇ, M., MIČEK, J., HYBEN, M.: *Multiprocessor Voice Recognition System* : comprehensive digital alternative of the hybrid system In: Informatics & IT Today - ISSN 1339-147X. - 2013. - Vol. 1, No. 1 (2013), pp. 40-45.

DUBEC, J., NESLUŠAN, M., FAKTOR, M.: *Analyzing the Influence of Tool Wear when Turning, on Bearing Rings Deformation trough Barkhausen Noise* In: Technológ : časopis pre teóriu a prax mechanických technológií. - ISSN 1337-8996. -Vol. 5, No. 3 (2013), pp. 207-212.

JACKOVÁ, A., CHODASOVÁ, Z.: *Liquidity Management of the Company* In: Management of companies. - ISSN 1338-4104. -Vol. 3, No. 1 (2013), pp. 3-8.

Scientific Works in Foreign Reviewed Proceedings

LENDEL, V.: Current Situation and new Trends of Knowledge Management and its Implementation in Conditions of Czech and Slovak Businesses In: Problems of contemporary management. - Dabrowa Górnicza ; Žilina: Academy of Business ; University of Žilina, 2013. - ISBN 978-83-62897-35-3. - pp. 165-181.

ZÁBOVSKÝ, M., TAKÁČ, M., ZÁBOVSKÁ, K.: *Top Challenges of Data Processing* In: Present day trends of innovations 3. - Dubnica nad Váhom: MiF, 2013. – ISBN 978-80-89400-59-1. - pp. 94-101.

TAKÁČ, M., ZÁBOVSKÝ, M.: Large Personal Data Sets Exploration

In: Internet in the Information Society : Computer Systems Architecture and Security. - Dąbrowa Górnicza: Academy of Business in Dąbrowa Górnicza, 2013. - ISBN 978-83-62897-40-7 pp. 47-56.

Scientific Works in Inland Reviewed Proceedings

BIZIK, M.: Sinusoid of knowledge sharing within learning organization an the elements for smoothing the sinusoid

In: Young scientist's revue: University of Žilina: 2013. - ISBN 978-80-554-0725-8. - pp.30-32.

LENDEL, V.: Key Assumptions in University Teacher's Quality Work

In: Management trends in theory and practice : scientific papers. - Zilina: University of Zilina, 2013. - ISBN 978-80-554-0736-4. - pp. 168-170

KOCIFAJOVA, L., PÚČKOVÁ, K.: *Educational needs assessment in terms of knowledge* In: Management trends in theory and practice: scientific papers. - Zilina: University of Zilina, 2013. - ISBN 978-80-554-0736-4. - pp. 82-85

LENDEL, V.: Using Possibility of Norm STN EN 138 16

In: Young scientist's revue: University of Žilina: 2013. - ISBN 978-80-554-0725-8. - pp. 113-115

ZÁVODSKÁ, A., ŠRAMOVÁ, V.: Knowledge Management as a Key Factor Influencing Scenario Planning

In: Management trends in theory and practice: scientific papers. - Zilina: University of Zilina, 2013. - ISBN 978-80-554-0736-4. - pp. 93-97.

KOCIFAJOVA, L., ZÁVODSKÁ, A.: Learning as a Part of Knowledge Management in Companies and its Measurement

In: Management trends in theory and practice : scientific papers. - Zilina: University of Zilina, 2013. - ISBN 978-80-554-0736-4. - pp. 86-89

ŠRAMOVÁ, V., ZÁVODSKÁ, A.: Implementation of the CRM System in Consumer Electronics Industry

In: Young scientist's revue: University of Žilina: 2013. -.ISBN 978-80-554-0725-8. – pp. 178-181.

DICOVÁ, J., PANČÍKOVÁ, L.: *Selected Means of Predicted Modelling in Medical Decision-Making* In: Use of information and communication technologies in diagnostic algorithms ISBN 978-80-89544-40-0. - CD-ROM, pp. 8-13

Contributions in Foreign Scientific Conferences

PÚCHYOVÁ, J., KOCHLÁŇ, M., HODOŇ, M.: Development of Special Smart-phone - based Body Area Network: energy requirements

In: Proceedings of the 2013 Federated Conference on Computer Science and Information Systems: September 8-11, 2013. Kraków, Poland. - IEEE, 2013. - ISBN 978-1-4673-4471-5. – pp. 915-920.

MIČEK, J., KAPITULÍK, J.: *WSN Sensor Node for Protected Area Monitoring*. In: FedCSIS: Proceedings of the Federated conference on computer science and information systems : Wrocław, Poland.: IEEE, 2013. - ISBN 978-83-60810-51-4, pp. 803-807.

ZAITSEVA, E., LEVASHENKO, V., KOSTOLNÝ, J., KVAŠŠAY, M.: Multi-Valued Decision Diagram for Estimation of Multi-State System

In: EUROCON 2013: Zagreb, Croatia, 1-4 July 2013: IEEE, 2013. - ISBN 978-1-4673-2231-7. pp. 645-650.

TAVAČ, M., TAVAČ, V.: General Algorithm for the Design of the MDA Transformations Models

In: CICSyN2013: Fifth international conference on Computational intelligence, communication systems and networks: 5-7 June 2013, Madrid, Spain. - IEEE, 2013. - ISBN 978-0-7685-5042-8. pp. 171-176.

MEŠKO, M., KRŠÁK, E., HRKÚT, P.: Recursive Segment 3D Reconstruction Algorithm In: CICSyN2013, Fifth international conference on Computational intelligence, communication systems and networks: 5-7 June 2013, Madrid, Spain.: IEEE, 2013. - ISBN 978-0-7685-5042-8. pp. 261-26

TOTH, Š., JANECH, J., KRŠÁK, E.: *Query Based Image Processing in the VANET* In: CICSyN2013: Fifth international conference on Computational intelligence, communication systems and networks: 5-7 June 2013, Madrid, Spain.- IEEE, 2013. - ISBN 978-0-7685-5042-8. pp. 256-260

KVET, M., LIESKOVSKÝ, A., MATIAŠKO, K.: *Temporal Data Modelling*: conventional and temporal table

In: ICCSE 2013: Proceedings of the 8th international conference on computer science & education : April 26-28 2013, Colombo, Sri Lanka. - IEEE, 2013. - ISBN 978-1-4673-4462-3. - pp. 452-459.

Academic Senate of the Faculty:

Chairman:	irman: Assoc.Prof.Ing. Karol G r o n d ž á k , PhD.			
Senate Registrar:	Ing. Michal Žarnay , PhD.			
Chamber of Employ	vees:			
Assoc.Prof.Ing. Norl	bert Adamko, PhD.	Ing. Juraj Dubovec , PhD.		
RNDr. Hynek Bach	ratý, PhD.	Mgr. Lýdia Gábrišová , PhD.		
Assoc.Prof. Ing. Mar	rtina Blašková , PhD.	Assoc.Prof.Ing. Karol Grondžák, PhD.		
Ing. Jozef Juríček , I	PhD.	RNDr. Štefan Kovalík, PhD.		
Assoc.Prof. Ing. Alž	beta Kucharćíková, PhD.	Ing. Peter Márton, PhD.		
Ing. Peter Palúch , P	hD	Assoc.Prof.Ing. Peter Ševćík, PhD.		
Chamber of Stud	lents:			
Bc. Miroslav Cibul'a	a	Lukáš Lehota		
Bc. Róbert Ďurec		Oľga Chovancová		
Pavol Getler		Ing. Marek Šajna		
Michal Krupka				

Human resource management

As far as the required qualification structure of the pedagogical staff at the Faculty is concerned, the situation seen within the University's context is shown in following table. It shows current number of employees at the Faculty and its development in according to categories within the period 2009- 2013.

CATEGORY/YEAR	2009	2010	2011	2012	2013
Professors	10	9	9	8	8
Guest Professors	1	-	-	-	-
Assoc. Prof.	15	16	17	18	22
Senior Lecturers PhD.	58	56	52	58	57
Senior Lecturers	13	9	9	7	6
Assistants	-	-	-	-	-
Lectors	5	4	4	3	2
Research staff	6	8	б	5	4
Tech. Admin. Staff	47	44	44	44	36
Total	155	146	141	143	134

Turnover of staff in 2013

Within the space of year **2013** the Faculty has accepted into pedagogical and scientific staff following members:

Ing. Jana **Púchyová**, PhD. Ing. Martin **Húdik**, PhD. Ing. Štefan **Toth**, PhD. RNDR. Zuzana **Borčinová**

In the same period following members left the Faculty:

Ing. Tomáš **Bača**, PhD. Ing. Mgr. Ľubomír **Sadloň**, PhD. Assoc.Prof.Ing. Peter **Gubiš**, PhD. Ing. Ján **Repka** AssocProf.Ing. Jaroslav **Král**, PhD.

Official guests from foreign institutions accepted by Deans Office in 2013:

Mr. V. Soběslav	University of Hradec Kralove (CZ)
Mr. Jorma J. Imppola	Sein]joki University of Applied Sciences (FIN)
Prof. S. Stankevich	CASRE, Kiev, (UA)
Assoc.Prof. IngZ.V.Sovreski, PhD	.University of Goce Dolčev – Štip (MD)
Assoc. Prof.V. F. Oana	Universitatea "Dunarea de Jos" din Galati (RO)
Assoc. Prof. R Dačiulyte	Mykolas Romeris University (LT)
Prof. V. Gražulis	Mykolas Romeris University (LT)
Assoc.Prof.Ing. M.Hub, PhD.	University of Pardubice (CZ)
Dr.W. Korneta State H	Higher School of Vocational Education in Ciechanów (PL)
Assoc.Prof.Ing. S. Baumann, PhD.	Technical University of Dresden (D)
Dipl. Ing. B. Graf .	HfT Leipzig (D)
Dr.R. Szczebiot	PWSIP Lomza (PL)
Dr. A. Molga	University of Technology Radom (PL)
Dr.M. Wojtowicz	University of Technology Radom (PL)

Programmes of Study:

Bachelor Degree Programme: INFORMATICS

1st year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BF001	Algebra	2-2-0	6	DMM
	5BI037	Informatics 1	2-2-2	8	DI
	5BF015	Mathematics for Informatics	2-2-0	8	DMM
	5BL033	Introduction to studies	2-0-2	3	DIN
	5BE001	Basics of Economic Theory	2-2-0	5	DMME
1		OPTIONAL			
	5BL015	Foreign Language	0-2-0	3	FHSc_DL
	5BL009	Physical Education	0-0-2	1	IPE

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BA026	Algorithmic Graphs Theory	2-2-0	6	DMM
	5BA024	Discrete Probability	2-2-1	6	DTN
	5BI038	Informatics 2	2-2-2	7	DI
	5BN010	Communication Technologies	2-0-2	5	DIN
	5BE002	Microeconomics	2-2-0	6	DMME
2		OPTIONAL			
	5BF016	Practice of Mathematics	0-2-0	1	DMM
	5BL016	Foreign Language	0-2-0	3	FHSc_DL
	5BL010	Physical Education	0-0-2	1	IPE
	5BL044	Physical Education Training Camp 1	0-1-0	2	IPE

Recommended number of credits in the 1st year of study: 60

2nd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BI039	Informatics 3	2-1-2	5	DI
	5BH001	Logical Systems	2-0-2	6	DTC
	5BF017	Mathematical Analysis 1	2-2-1	6	DMM
	5BI025	Assemblers	2-0-2	5	DTN
3		OPTIONAL			
	5BE009	Economy of Enterprise	2-1-0	5	DMME
	5BI045	Graphics in Computers Applications	1-0-3	4	DIN
	5BI033	Spreadsheets	2-0-2	3	DI
	5BE021	Profession: Entrepreneur 1	1-2-0	2	DMME
	5BN013	Basics of Network Theory 1	2-0-2	6	DIN
	5BL017	Foreign Language	0-2-0	3	FHSc_DL
	5BL011	Physical Education 3	0-0-2	1	IPE
	5BL037	Physical Education Training Camp 1	0-1-0	2	IPE

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5UI024	Data Structures 1	2-0-2	6	DTN
	5BA022	Discrete Optimisation	2-0-2	6	DTN
	5BH018	Digital Computers	3-0-1	6	DTC
	5BI006	Basics of Database Systems	2-0-2	6	DI
4		OPTIONAL			
	5BE008	Macroeconomics	2-2-0	5	DMME
	5BE014	Small and Medium Entrepreneurship	2-2-0	6	DMME
	5UI026	Electronic Processing and Documents Presentation	2-0-2	4	DMM
	5BI052	Metaprogramming	2-0-2	5	DST
	5BA008	Numerical Methods	2-0-2	3	DMM
	5BI044	Computers Graphic and Animation	1-0-3	4	DIN
	5BE022	Profession: Entrepreneur 2	1-2-0	3	DMME
	5BA030	Probability and Statistics	2-2-0	6	DTN
	5BL042	Sociology	1-2-0	5	DMT
	5BI048	Techniques of Programming 1	0-0-4	4	DI
	5BL018	Foreign Language 4	0-2-0	3	FHSc_DL
	5BL012	Physical Education 4	0-0-2	1	IPE

Recommended number of credits in the 2nd year of study: 120

3rd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5UA013	Modelling and Simulation	2-0-2	6	DTN
	5BS001	Operational Systems	2-0-2	6	DI
	5US003	Software Engineering	2-0-4	6	DI
5		OPTIONAL			
	5BI031	Database System - Access	2-0-2	4	DI
	5BA017	Data, Information, Knowledge	2-0-2	5	DMME
	5BS005	Identification of Systems	2-0-2	6	DTC
	5UM023	Communication Management	2-2-0	5	DMT
	5BF019	Mathematical Analysis 3	2-1-1	6	DMM
	5BH023	Microprocessors	2-0-2	6	DTC
	5US007	Multimedia Information Systems	2-0-2	6	DTN
	5UA005	Petri Nets	2-0-2	6	DTN
	5BL003	Law 1	2-2-0	6	DMME
	5BH021	Technical Equipment of PC	0-0-2	3	DTC
	5UA017	Queuing Theory	2-0-2	5	DMM
	5BI029	Basics of Programming in WINDOWS	2-0-2	4	DST
	5BN015	Basics of Network Theory 2	2-0-2	6	DIN
	5BL013	Physical Education 5	0-0-2	1	IPE

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BZ001	Bachelor Project	0-0-8	12	G
	5BL040	English Language 1	0-0-0	3	FHSc_DL
6		OPTIONAL			
	5IUE022	Taxes and Budget	2-1-0	5	DMME
	5BS012	Implementation of UNIX-LINUX	2-0-2	6	DMM
	5BS004	Information and Control Systems in Transport	2-0-1	3	DST
	5BI032	Compilers	2-0-2	6	DI
	5BS002	Management Information Systems	2-0-2	6	DMT
	5BA020	Modern Approximate Methods	2-0-2	4	DMM
	5UI014	Computers Graphics	2-0-2	6	DTN
	5BL004	Law 2	2-2-0	5	DMME
	5BL06	Psychology	2-1-0	4	G
	5BI022	Open Source Software	1-0-3	4	DMM
	5BI050	Techniques of Programming 2	0-0-4	4	DI
	5UA002	Game Theory	2-2-0	6	DMM
	5BA010	Scheduling Theory	2-2-0	6	DMM
	5UI002	Reliability Theory	2-0-2	5	DI
	5BI054	Development of Applications for Mobile Equipment	1-0-3	5	DST
	5BL14	Physical Education 6	0-0-2	1	IPE

Minimum number of credits to conclude the Bachelors Programme of study: 180

Compulsory Optional Courses

From the groups of Compulsory Optional Courses student is to choose one group of following courses groups which correspond to his future professional orientation in the Masters Degree Programme. These groups of Compulsory optional course are connected with the Programmes of study in MSc. Degree level due to professional orientation.

Information Systems -Business Informatics, Informatics Tools for Decision Support Systems

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY OPTIONAL	-		
Autumn	5BE007	Finance of Enterprise	2-0-2	6	DMME
		COMPULSORY OPTIONAL			
Spring	5BA006	Modelling and Optimisation	2-0-2	6	DTN
	5BI046	Software Modelling	2-0-2	6	DST

Information Systems – Applied Informatics

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department		
		COMPULSORY OPTIONAL					
Autumn	5US009	Internet and Intranet Application Development	2-0-2	4	DST		
		COMPULSORY OPTIONAL					
Spring	5BI010	JAVA – Language and Development Applications	2-0-2	6	DI		
~r8	5BA006	Modelling and Optimisation	2-0-2	6	DTN		
	5BI046	Software Modelling	2-0-2	6	DST		

Applied Network Engineering

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
Autumn		COMPULSORY OPTIONAL			
	5BN003	Computer Networks 1	2-0-4	6	DIN
	5BN011	Computer Networks 3	2-0-2	6	DIN
		COMPULSORY OPTIONAL			
Spring	5US004	Analysis of Processes	2-0-2	5	DIN
	5BN004	Computer Networks 2	2-0-4	6	DIN

Optional Courses

Following courses are recommended for the students intending to study in Masters Degree Programme

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
Autumn	5BF019	Mathematical Analysis 3	2-2-1	6	DMM
		COMPULSORY OPTIONAL			
Spring	5BA030	Probability and Statistics	2-2-0	6	DMM

Bachelors Degree Programme: COMPUTER ENGINEERING

1 st year					
Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BF001	Algebra	2-2-0	6	DMM
	5BI037	Informatics 1	2-2-2	8	DI
	5BF017	Mathematical Analysis 1	2-2-1	6	DMM
	5BE001	Basics of Economic Theory	2-2-0	6	DMME
	5BF005	Basics of Physics	3-1-1	6	FEE
1		OPTIONAL			
	5BF009	Practice of Mathematics	0-2-0	1	DMM
	5BL015	Foreign Language 1	0-2-0	3	FHSc-DL
	5BI011	Practice of Programming 1	0-0-2	1	DI
	5BL009	Physical Education	0-0-2	1	IPE

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BF004	Electrical Circuits	2-2-0	5	DTC
	5BI038	Informatics 2	2-2-2	7	DI
	5BN010	Communication Technologies	2-0-2	5	DIN
	5BF014	Mathematical Analysis 2	2-2-1	6	DMM
	5BH008	Theory of Automatic Control 1	2-1-1	6	DTC
2		OPTIONAL			
	5BI036	Practice of Programming 2	0-0-2	1	DI
	5BL016	Foreign Language 2	0-2-0	3	FHSc-DL
	5BL044	Physical Education Training Camp 1	0-1-0	2	IPE
	5BL010	Physical Education 2	0-0-2	1	IPE

Recommended number of credits in the 1st year of study: 60

2nd year

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BF007	Electronics	2-0-2	6	DTC
	5BI039	Informatics 3	2-1-2	5	DST
	5BH001	Logical Systems	2-0-2	6	DTC
3		COMPULSORY OPTIONAL			
	5BF019	Mathematical Analysis 3	2-2-1	6	DMM
	5BN003	Computer Networks 1	2-0-4	6	DIN
	5BH009	Theory of Automatic Control 2	2-0-3	6	DTC
	5BS011	UNIX – Development Environment	1-0-3	4	DMM
		OPTIONAL			
	5BI045	Graphics in Computers Applications	1-0-3	4	DIN
	5BI025	Assemblers	2-0-2	5	DTN
	5BE021	Profession: Entrepreneur 1	1-2-0	2	DMME
	5BN013	Basics of Network Theory 1	2-0-2	6	DIN
	5BL017	Foreign Language 3	0-2-0	3	FHSc-DL
	5BL011	Physical Education 3	0-0-2	1	IPE
	5BL037	Physical Education Training Camp 1	0-1-0	2	IPE

From the group of Compulsory optional courses student has to choose min one course

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BA024	Discrete Probability	2-2-1	6	DTN
	5BH002	Measurements	2-0-2	6	DTC
	5BL004	Law 2	2-2-0	5	DMME
	5BH018	Digital Computers	3-0-1	6	DTC
	5BH004	Digital Systems	2-0-2	6	DTC
4		COMPULSORY OPTIONAL			
	5BN004	Computer Networks 2	2-0-4	6	DIN
	5BH022	Elements of Automatic Systems	2-0-2	6	DTC
	5BI006	Basics of Database Systems	2-0-2	6	DI
		OPTIONAL			
	5BI044	Animation in Computers Applications	1-0-3	4	DIN
	5UI026	Electronic Processing and Documents Presentation	2-0-2	4	Dmm
	5BF010	Complex Variable and Integral Transformation	2-1-1	4	DMM
	5BA008	Numerical Methods	2-0-2	3	DMM
	5BE022	Profession: Entrepreneur 2	1-2-0	3	DMME
	5BL042	Sociology	1-2-0	5	DMT
	5BL018	Foreign Language 4	0-2-0	3	FHSc-DL
	5BL012	Physical Education 4	0-0-2	1	IPE

Recommended number of credits in the 2nd year of study: 120

3rd year

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BH005	Electronic Systems	2-0-2	6	DTC
	5BH019	Construction and Technology of Electronic System Production	1-0-3	4	DTC
	5BS001	Operational Systems	2-0-2	6	DI
5		COMPULSORY OPTIONAL			
	5BH013	Microcomputers and their Applications	1-0-3	6	DTC
	5BH023	Microprocessors	2-0-2	6	DTC
	5BI029	Basic Programming in Windows	2-0-2	4	DST
		OPTIONAL			
	5BI007	Algorithms and Computational Complexity	2-0-0	3	DI
	5BI031	Database Systems – Access	2-0-2	4	DI
	5BS005	Identification of Systems	2-0-2	6	DTC
	5UM023	Communication Management	2-2-0	5	DMT
	5US007	Multimedia Information Systems	2-0-2	6	DTN
	5UA005	Petri Nets	2-0-2	6	DTN
	5BN011	Computers Networks 3	2-0-2	6	DIN
	5BL003	Law 1	2-2-0	6	DMME
	5BN015	Basics of Network Theory 2	2-0-2	6	DIN
	5BH021	Technical Equipments of PC	0-0-2	3	DTC
	5US009	Internet and Intranet Application Development	2-0-2	4	DST
	5BL013	Physical Education 5	0-0-2	1	IPE

From the group of Compulsory optional courses student has to choose min one course

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BH0020	Computer Engineering	2-0-4	6	DTC
	5BZ001	Bachelors Project	0-0-8	12	G
	5BL040	English Language	0-0-0	3	FHSc-DL
		COMPULSORY OPTIONAL			
6	5BI010	JAVA – Language and Development Applications	2-0-2	6	DI
	5BH014	Computer Process Control	2-0-3	7	DTC
		OPTIONAL			
	5BS012	Implementation of UNIX - LINUX	2-0-2	6	DMM
	5BS004	Information and Control Systems in Transport	2-0-1	3	DST
	5BI032	Compilers	2-0-2	6	DI
	5BE014	Small and Medium Entrepreneurships	2-2-0	6	DMT
	5BL004	Law 2	2-2-0	5	DMME
	5BL006	Psychology	2-1-0	4	G
	5UI002	Reliability Theory	2-0-2	5	DI
	5BI054	Development of Applications for Mobile Equipment	1-0-3	5	DST
	5BL014	Physical Education 6	0-0-2	1	IPE

From the group of Compulsory optional courses student has to choose courses to obtain 15 credits

Bachelor Degree Programme: MANAGEMENT

1st year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BF001	Algebra	2-2-0	6	DMM
	5BI047	Informatics for Management 1	2-1-1	6	DI
	5BF017	Mathematical Analysis 1	2-2-1	6	DMM
	5BL003	Law 1	2-2-0	6	DMME
	5BE001	Basics of Economic Theory	2-2-0	6	DMME
1		OPTIONAL			
	5BF009	Practice of Mathematics	0-2-0	1	DMM
	5BI011	Practice of Programming 1	0-0-2	1	DI
	5BM021	Presentation Techniques	0-2-0	3	DMT
	5BL015	Foreign Language 1	0-2-0	3	FHSc-DL
	5BL009	Physical Education	0-0-2	1	IPE

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BI040	Informatics for Management 2	2-1-1	6	DI
	5BE014	Small and Medium Entrepreneurship	2-2-0	6	DMT
	5BM010	Management 1	2-2-0	6	DMT
2	5BE002	Microeconomics	2-2-0	6	DMME
	5BE016	Business Economy	3-2-0	6	DMT
	OPTIONAL				
	5BL016	Foreign Language 2	0-2-0	3	FHSc-DL
	5BL010	Physical Education 2	0-0-2	1	IPE
	5BL044	Physical Education Training Camp 1	0-1-0	2	IPE

Recommended number of credits in the 1st year of study: 60

2nd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BA015	Economical Statistics	2-1-1	6	DTN
	5BE005	Financial Accounting	2-2-0	6	DMME
	5BS013	Information Systems of Enterprise	2-0-2	6	DMT
	5UM011	Project Management	2-1-1	6	DMT
3		OPTIONAL			
	5BI045	Graphics in Computers Applications	1-0-3	4	DIN
	5BI033	Spreadsheets	2-0-2	3	DI
	5BL17	Foreign Language 3	0-2-0	3	FHSc-DL
	5BL11	Physical Education 3	0-0-2	1	IPE
	5BL037	Physical Education Training Camp 1	0-1-0	2	IPE

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BE018	Marketing	2-2-0	6	DMT
	5BM016	Operational Management	3-1-0	6	DMT
	5BM014	Human Resource Management	2-2-0	6	DMT
4	OPTIONAL				
	5BI044	Computers Graphic and Animation	1-0-3	4	DIN
	5UI026	Electronic Processing and Documents Presentation	2-0-2	4	DMM
	5BA008	Numerical Methods	2-0-2	3	DMM
	5BI046	Software Modelling	2-0-2	6	DST
	5BL018	Foreign Language 4	0-2-0	3	FHSc-DL
	5BL012	Physical Education 4	0-0-2	1	IPE

Recommended number of credits in the 2^{nd} year of study: 120

3rd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BM013	Quality Management	2-2-0	6	DST
	5BE007	Finance of Enterprise	2-2-0	6	DMME
	OPTIONAL				
	5BI031	Database Systems – MS Access	2-0-2	4	DI
5	5BM017	Management 2	1-2-0	4	DMT
	5BS007	Multimedia Information Systems	2-0-2	6	DTN
	5BH021	Technical Equipments of PC	0-0-2	3	DTC
	5BN019	Basics of Research	0-2-0	3	DMT
	5BL013	Physical Education 5	0-0-2	1	IPE

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5BZ001	Bachelors Project	0-0-8	12	G
	5BL002	Foreign Language 1	0-0-0	3	FHSc-DL
6	OPTIONAL				
0	5BS004	Information and Control Systems in Transport	2-0-1	3	DST
	5II014	Computers Graphics	2-0-2	6	DTN
	5BL014	Physical Education 6	0-0-2	1	IPE

Minimum number of credits to conclude the Bachelors Programme of study: 180

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
	COMPULSORY OPTIONAL				
Autumn	5UE013	Controlling	2-1-0	4	DMME
	5BM015	Supply Management	2-1-0	4	DMT
	5BM023	Marketing Communication	2-2-0	5	DMT
	5BA013	Modelling and Simulation	2-0-2	6	DTN

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY OPTIONAL			
	5UE022	Taxes and Budget	2-0-1	5	DMME
	5BL036	Business Ethics	2-1-0	4	DMT
	5BE020	Financial-Economical Analysis	2-1-1	4	DMME
	5BM018	Quality in Services	2-1-0	4	DM
<u>Carata</u> a	5BE008	Macroeconomics	2-2-0	5	DMME
Spring	5BF014	Mathematical Analysis 2	2-2-1	6	DMM
	5BL038	Politology	2-2-0	4	DMT
	5BL004	Law 2	2-2-0	5	DMME
	5BL006	Psychology	1-2-0	4	G
	5BL042	Sociology	1-2-0	5	DMT

From the group of Compulsory optional courses student has to choose courses, so that to obtain 15 credits in Bachelors Programme of study.

Abbreviations: DMM	- Department of Mathematical Methods
DI	- Department of Informatics
DTC	- Department of Technical Cybernetics
DIN	- Department of Information Networks
DTN	- Department of Transportation Networks
DMT	- Department of Management Theories
DMME	- Department of Macro and Microeconomics
DST	- Department of Software Technology
G	- Guarantee for Programme of Study
FEE	- Faculty of Electrical Engineering
FHSc-D	L - Faculty of Human Science – Department of Languages
IPE	- Institute of Physical Education

www.fri.uniza.sk link: Study - Bachelor study

Master Degree Programme: INFORMATION SYSTEMS

1st year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5II015	Data Structures 2	2-0-2	5	DTN
1	5II007	Database Systems 2	2-0-2	5	DI
	5IN025	Communication Technologies 2	2-0-2	6	DIN
	5IN009	Optimisation of Networks	2-0-2	5	DTN
		COMPULSORY			
		(due to Professional Orientation)			
	5IP001	Project 1	0-2-4	6	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
	5IS008	Architectures of Information systems	2-0-2	5	DIN
2	511008	Discrete Simulation	2-0-2	5	DTN
	5IA002	Theory of Information	2-0-2	5	DMM
		COMPULSORY			
		(due to Professional Orientation)			
	5IP002	Project 2	0-2-4	6	G

Recommended number of credits in the 1st year of study: 60

2nd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department		
		COMPULSORY					
3	5II017	Cryptography and Safety	2-0-2	5	DMM		
5	5IP005	Internship	0-0-0	0	G		
	COMPULSORY						
	(due to Professional Orientation						
	5IP003	Project 3	0-2-4	6	G		

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
4	5IZ001	Diploma Thesis	0-0-20	30	G
	5IL004	English Language 2	0-0-0	3	DL

Minimum number of credits to conclude the form of study: 120

Groups of Compulsory Optional courses from the kernel of the Programme of Study

Applied Informatics

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department			
	COMPULSORY OPTIONAL							
	5II013	Advanced Object Technologies	2-0-2	5	DTS			
Autumn	5IE001	Theory of Enterprise	2-0-2	5	DMME			
	COMPULSORY OPTIONAL							
	5II028	Database Languages	2-0-2	5	DI			
Spring	5II012	Data Mining	2-0-2	5	DI			
	5IS006	Geographic Information Systems	2-0-2	5	DTN			

Business Informatics

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department		
		COMPULSORY OPTIONAL					
A 4	5IE017	Econometrics	2-0-2	5	DMME		
Autumn	5IE015	Finance	2-2-0	5	DMME		
	5II001	Fuzzy Sets and Neural Networks	2-0-2	5	DTN		
	COMPULSORY OPTIONAL						
Samina	5IE010	Accounting and Analysis	3-2-0	5	DMME		
Spring	5II024	Artificial Neural Networks and Soft Computing	2-0-2	5	DMME		

Distributed and Parallel Systems

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department			
		COMPULSORY OPTIONAL						
	5IS007	Distributed Systems	2-0-2	5	DTC			
Autumn	5IS011	HPC and Grid computing	2-0-2	5	DTC			
	5IS013	Developing Standards Open MP and MPI	2-0-2	5	DTC			
	COMPULSORY OPTIONAL							
	5IA006	Mathematical Programming	2-0-2	5	DTN			
Spring	511026	Complexity of Distributed and Parallel Algorithms	2-0-2	5	DTC			

From the group of Compulsory optional courses student has to choose courses, so that to obtain min 15 credits.

Groups of Optional courses

Applied Informatics

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department				
		OPTIONAL							
Autumn	5IS009	Expert Systems	2-0-2	6	DTN				
	5IS011	HPC and Grid computing	2-0-2	5	DTC				
	5IN025	Communication Technologies 2	2-0-2	6	DIN				
	5II032	Design Patterns	2-0-2	5	DI				

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
	5US004	Analysis of Processes	2-0-2	5	DIN
	5IA010	Implementation of Optimization Algorithms	2-0-2	5	DTN
Spring	5IM014	Quality Management – Access and TQM Methods	2-1-0	5	DMT
	5IA008	Metaheuristics	2-0-2	5	DTN
	5IE012	Prognostics	2-0-2	6	DMME
	5IS010	Real Time Systems Programming	2-0-2	5	DI
	5II030	Techniques of Programming 3	0-0-4	4	DI
	5UA02	Game Theory	2-2-0	6	DMM
	5BA010	Scheduling Theory	2-2-0	6	DMM
	5UI002	Reliability Theory	2-0-2	5	DI

Business Informatics

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
Autumn	5IN025	Communication Technologies 2	2-0-2	6	DIN
	5IE005	Managerial Accounting	2-0-2	6	DMME
	5II032	Design Patterns	2-0-2	5	DI
	5II013	Advanced Object Oriented Technologies	2-0-2	5	DI
	5II023	Artificial Intelligence	2-0-2	5	DTN

Semester		OPTIONAL							
	5II003	Database Languages	2-0-2	5	DI				
	5111026	Electronic Processing and Documents							
	501026	Presentation	2-0-2	4	DMM				
Spring	5IA010	Implementation of Optimal Algorithms	2-0-2	5	DTN				
	5IM012	Quantitative Methods of Logistics	2-0-2	5	DMM				
	5IA008	Metaheuristics	2-0-2	5	DTN				
	5IE012	Prognostics	2-0-2	6	DMME				
	5BA010	Scheduling Theory	2-2-0	6	DMM				

Minimum number of credits to conclude the form of study: 120

Distributed and Parallel Systems

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
	5IS009	Expert Systems	2-0-2	6	DTN
Autumn	5IN025	Communication Technologies 2	2-0-2	6	DIN
	5IA009	Mathematical Aspects of Efficient Counting	2-0-2	5	DTC
	511032	Design Patterns	2-0-2	5	DI

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
	5US004	Analysis of Processes	2-0-2	5	DIN
Spring	5IS006	Geographical Information Systems	2-0-2	5	DTN
	5IM014	Quality Management – Access and TQM Methods	2-1-0	5	DMT
	5IE012	Prognostics	2-0-2	6	DMME
	5IS010	Real Time Systems Programming	2-0-2	5	DI
	5BA010	Scheduling Theory	2-2-0	6	DMM
	5UI002	Reliability Theory	2-0-2	5	DI

Master Degree Programme: COMPUTER ENGINEERING

1st year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY OPTIONAL			
1	5IP0P1	Project 1	0-2-4	6	G
	5IH009	Digital Signal Processing 1	2-0-2	5	DTC
	5IH013	Technical Means of Control and Information Systems	2-0-2	5	DTC
	5IH011	Introduction to the Theory of Discrete Systems	2-2-0	6	DTC

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
2	5IH002	Design of the Customer Integrated Circuits	2-0-2	5	DTC
	5IH006	Digital Data Transmission	2-0-2	5	DTC
	5IP0P2	Project 2	0-2-4	6	G

Recommended number of credits in the 1st year of study: 60

2nd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
3	5IN025	Communication Technologies 2	2-0-2	6	DIN
	5IP005	Internship	0-0-0	0	DMT
	5IP0P3	Project 3	0-2-4	6	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
4	5IL004	English Language 2	0-0-0	3	DL
	5IZ001	Diploma Work	0-0-20	30	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY OPTIONAL			
Autumn	5IH007	Adaptive Systems of Automatic Control	2-0-2	5	DTC
	5IS007	Distributed Systems	2-0-2	5	DTCT
	5II017	Cryptography and Safety	2-0-2	5	DMM
	5II013	Advanced Object Oriented Technologies	2-0-2	5	DI
	5II021	Basics of Programming in the Kernel of an Operational System	2-0-2	5	DI

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY OPTIONAL			
Spring	5II012	Data Mining	2-0-2	5	DI
	5IH008	Digital Signal Processing 2	2-0-2	5	DTC
	5IA002	Theory of Information	2-2-0	5	DMM

From the group of Compulsory Optional Courses student must choose courses to fulfil minimum number of credits 15

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department				
		OPTIONAL							
Autumn	5IH015	Applications of the microprocessors implemented into the FPGA devices	2-0-2	6	DTC				
	5II019	Computer Speech Recognition	2-0-2	6	DTC				

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
Spring	5UI026	Electronic Processing and Presentation of Documents	2-0-2	6	DTC
	5BA010	Scheduling Theory	2-2-0	6	DMM
	5IH010	Selected Methods of Signal Compression	2-0-2	6	DTC

Minimum number of credits to conclude the form of study: 120

www.fri.uniza.sk link: Study – Master study

Master Degree Programme: MANAGEMENT

1st year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
1	5IE017	Econometrics	2-0-2	6	DMT
	5IE005	Management Accounting	2-2-0	6	DMME
	5IM021	Marketing Control	2-2-0	6	DMT
	5US003	Software Engineering	2-0-4	6	DI
	5IP0M1	Project 1	0-2-4	6	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
2	5IM026	International Management and Marketing	2-2-0	6	DMT
	5IM022	Systems for Support of Decision-Making	2-0-2	6	DMT
	5IP0M2	Project 2	0-2-4	6	G

Recommended number of credits in the 1st year of study: 60

2nd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
3	5IM027	Logistics	3-1-0	6	DMT
5	5IM027	Organizational Behaviour	2-2-0	6	DMT
	5IP009	Design of Management Systems	0-4-1	6	DMT
	5IM009	Strategic Management	2-0-2	6	DMT
	5IP005	Internship	0-0-0	0	G
	5IP0M3	Project 3	0-2-4	6	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
4	5IL006	Foreign Language 2	0-0-0	3	DL
	5IZ001	Diploma Work	0-0-20	30	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY OPTIONAL			
Autumn	5UM023	Managerial Communication	2-2-0	5	DMT
	5IM011	Management Games and Simulations	1-0-2	5	DMT
	5IM025	Marketing Tools and Applications	2-0-2	5	DMT
	5IM029	Research in Management	2-1-1	5	DMT

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY OPTIONAL			
Spring	5IM014	Complex Quality Management- TQM Methods	2-1-0	5	DMT
	5IM024	Marketing of Services	2-2-0	5	DMT
	5IE012	Prognostic	2-2-0	6	DMME

From the group of Compulsory Optional Courses student must choose courses to fulfil minimum number of credits 15

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
Autumn					
	5IS009	Expert Systems	2-0-2	4	DTN
	5IE015	Finance	2-2-0	5	DMME
	5US009	Internet and Intranet Application Development	2-0-2	4	DST

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
Snring	515008	Architecture of Information Systems	2-0-2	5	DIN
Spring	5IS006	Geographical Information Systems	2-0-2	5	DTN
	5IE006	Capital and Investment Theories	2-2-0	6	DMME
	5IM012	Quantitative Methods of Logistics	2-0-2	5	DMM
	5IM018	Management of Processes	2-2-0	4	DST

Minimum number of credits to conclude the form of study: 120

www.fri.uniza.sk link: Study – Master study

Master Degree Programme: APPLIED NETWORK ENGINEERING

1st year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
1	5IN025	Communication Technologies 2	2-0-2	6	DIN
	5IH017	Interconnected Embedded Systems	3-0-1	6	DTC
	5IH009	Digital Signal Processing 1	2-0-2	5	DTC
	5II021	Basics of Programming in the Kernel of an Operational System	2-0-2	5	DI
	5IP001	Project 1	0-2-4	6	G
		OPTIONAL			
	5IN033	Advanced Connections in Information- Communication Networks	2-0-4	6	DIN

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department		
		COMPULSORY		-			
2	5IN018	Theory of Communication	2-0-2	6	DIN		
	5IP002	Project 2	0-2-4	6	G		
	OPTIONAL						
	5IN020	Advanced Connections in Information- Communication Networks	2-0-5	6	DIN		

Embedded Systems

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department			
	COMPULSORY							
	5IH002	Design of the Customer Integrated Circuits	2-0-2	5	DTC			
2	5IH014	Digital Control	3-1-0	6	DTC			
	5IH012	Techniques of Network Communication	2-0-2	6	DTC			

Network Infrastructure

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department			
	COMPULSORY							
	5IN014	Network Integration	2-0-2	5	DIN			
2	5IN016	Design of Networks 1	2-0-6	6	DIN			
	5IN010	Theory of Information Networks	2-0-2	5	DIN			

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department		
2		OPTIONAL					
	5UI026	Electronic Processing and Presentation of Documents	2-0-2	4	DMM		

2nd year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
3	5IP005	Internship	0-0-0	0	G
	5IP005	Project 3	0-2-4	6	G

Embedded Systems

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department			
	COMPULSORY							
	5IH019	Applied Electronics	2-0-2	6	DTC			
3	5IH023	Programming of Implemented Systems	2-0-2	6	DTC			
	5IH021	Sensors of Non-Electrical Quantum	3-0-1	6	DTC			

Network Infrastructure

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
	COMPULSORY				
	5IN027	Algorithms in Networks	2-0-2	6	DIN
3	5IN031	Optimisation of Convergent Networks	2-0-6	6	DIN
	5IN011	Design of Networks 2	2-0-2	6	DIN

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
	COMPULSORY				
4	5IZ001	Diploma Thesis	0-0-20	30	G
	5IL006	English Language 2	0-0-0	3	DL

Minimum number of credits to conclude the form of study: 120

Master Degree Programme: INFORMATION TOOLS FOR DECISION-MAKING SUPPORT SYSTEMS

1st year of study

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
1	5II015	Data Structures 2	2-0-2	5	DTN
	5II007	Database Systems 2	2-0-2	5	DI
	5IN009	Optimisation of Networks	2-0-2	5	DTN
	5IP0R1	Project 1	0-2-4	6	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
2	510000	Auchite strong of Information Constants	2.0.2	5	DIN
2	515008	Architecture of Information Systems	2-0-2	5	DIN
	5II008	Discreet Simulation	2-0-2	5	DTN
	5IS006	Geographic Information Systems	2-0-2	5	DTN
	5IA006	Mathematical Programming	2-0-2	5	DTN
	5IA008	Metaheuristics	2-0-2	5	DTN
	5IP0R2	Project 2	0-2-4	6	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
3	5II001	Fuzzy Stets and Neural Networks	2-0-2	5	DTN
	5II017	Cryptography and Safety	2-0-2	5	DMM
	5IP005	Internship	0-0-0	0	G
	5IP003	Project 3	0-2-4	6	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		COMPULSORY			
4	5IL004	English Language 2	0-0-0	3	FHSc-DL
	5IM012	Quantitative Methods in Logistics	2-0-2	5	DMM
	5IZ001	Diploma Work	0-0-20	30	G

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
Autumn	COMPULSORY OPTIONAL				
	5IA005	Petri Nets	2-0-2	6	DTN
	5IE001	Theory of Enterprise	2-0-2	5	DMME

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department	
	COMPULSORY OPTIONAL					
Spring	5IA010	Implementation of Optimization Algorithms	2-0-2	5	DTN	
	5IN008	Communication Systems	2-0-2	5	DTN	

From the group of Compulsory Optional Courses student must choose at least one course in each semester

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
Autumn	5IS009	Expert Systems	2-0-2	6	DTN
	5IN025	Communication Technologies 2	2-0-2	6	DIN
	5BI025	Assemblers	2-0-2	6	DTN

Semester	Code	COURSE	HOURS PER WEEK	ECTS	Department
		OPTIONAL			
Spring	511028	Database Languages	2-0-2	5	DT
	5UI026	Electronic Processing and Presentation of Documents	2-0-2	4	DMM
	5IE012	Prognostics	2-0-2	6	DMME
	5BI050	Techniques of Programming 2	0-0-4	4	DI
	5UA002	Game Theory	2-2-0	6	DMM
	5BA10	Scheduling Theory	2-2-0	6	DMM

Minimum number of credits to conclude the form of study: 120

www.fri.uniza.sk link: Study – Master study

Students with excellent results:

Excellent Master Thesis:

Student Name	Title of Thesis	Supervisor
Michal Kvet	Data transformation from the magnetic resonance imaging of the head for 3D visualisation	Prof.Ing. K. Matiaško , PhD.
Antónia Kľučková	Image recognition using neural networks	Prof.Ing. M. Klimo, PhD.
Michal Brezani	Wireless ISP Programmer	Prof.Ing. J. Miček, PhD.
Tomáš Pšenák	Home multimedia centre using DLNA	Assoc.Prof.Ing. E. Kršák , PhD.
Alexandra Bullová	Evaluation of chosen tool effectiveness of labour market active policy in three Slovak regions	Assoc.Prof.Ing. A. Kucharčíková , PhD.
Zdenko Graňák	Propagation support on internet	Mgr. J. Soviar , PhD.
Ladislav Jurák	SIP denial of service attacks	Ing. P. Segeč, PhD.
Samuel Brezani	Layout Manager	Ing. S. Kopinec
Michal Kochláň	Radio Signal Energy Harvesting	Prof.Ing. J. Miček, PhD.
Lenka Kocifajová	Motivation Program and Learning System of Scheidt&Bachmann	Assoc.Prof.Ing. M. Blašková , PhD.
Ján Kubacka	Colouring of graphs with parallel Nešetřil algorithm	Mgr. P. Czimmermann , PhD.
Miroslav Kvaššay	Importance Analysis of Multi-State System in Reliability Engineering	Assoc.Prof.Ing. E. Zaitseva , PhD.
Roman Bednárik	The Proposal of Motivation Program of Employees and Managers in Conditions of IT Company	Assoc.Prof.Ing. M. Blašková , PhD.
Mária Maciaková	A non-profit organisation activity proposal in the area of corporate social responsibility	Ing. E. Tokarčíková , PhD.
Daša Matúšová	Application of Quality Management Methods and Tools in a Manufacturing Business	Assoc.Prof.Ing. J. Král , PhD.
Michal Mruškovič	Design and Implementation of a VoIP System Interconnected with the Company CRM System	Ing. M. Matuška
Michal Paulus	Solutions supporting mechanisms of SIP NAT traversal	Ing. P. Segeč, PhD.
Jakub Berthoty	Software module to read quantity from the project documentation	Ing. M. Mrázek
Katarína Púčková	Business marketing communication strategy	Mgr. J. Soviar, PhD.
Martin Rádik	Strategy Map Creating with Using of The Balanced Scorecard methodology.	Prof.Ing. J. Vodák, PhD.

Veronika Soboňová	The Quality of Informational and Communicational Relations of the Motivating in Strengthening of Employees' High Performance and Loyalty	Assoc.Prof.Ing. M. Blašková , PhD.
Marián Švalec	Control Tool for Advanced Information Board	Ing. T. Gatial
Ján Vresilovič	Generating of versioned relational database schema	Ing. J. Janech , PhD
Jolana Zúbeková	Increasing of the employee's participation rate in corporate social responsibility projects of selected company	Ing. E. Tokarčíková , PhD.

Excellent Bachelors Thesis:

Student Name	Title of Thesis	Supervisor	
Kristína Holbičková	Kristína HolbičkováUsing possibilities of telemarketing of call centre		
Jakub Hrabovský	SIP and IPv6	Assoc.Prof.Ing. P. Segeč , PhD.	
Jana Klučková	Influence of Inequality in Incomes to Consumption and Savings	Ing. J. Dubovec , PhD.	
Jana Kundríková	a Kundríková Quantification of Costs and Revenues from Consumption of Alcoholic Beverages in Slovakia		
Martin Mičiak	Productivity of production inputs in the enterprise	Assoc.Prof.Ing. A. Kucharčíková ,PhD.	
Jozef Pal'a	Intelligent house GUI for mobile devices	Ing. T. Mikluščák	
Marián Polťák	Plotter	Ing. O. Kovář, PhD.	
Ľudmila <mark>Závodská</mark>	Selected components of LEAN manufacturing in small business	Ing. L. Richter	

Students' participation at the Professional Competitions:

Networking Academy Games 2013, Technical University of Košice

Participants:	Ján Janovic	1 st Place in category UNI
	Bc. Ján Hrnko	2 nd Place in category UNI
	Bc. Matej Klotton	3 rd Place in category PT
	Bc. Michal Kormoš	4 th Place in category PT

Competition Starcraft Micro AI Tournament

Participants:	Tomáš Isteník	Category Epholl
	Martin Olešnaník	Category Nixone
	Ján Mokrý	Category IronFist

Red-Bot - Software Robot Competition 2013 supported by Red Hat Company, Brno (CZ)

Participants: Students from Slovakia and Czech Republic - 18 teams

Successful students from the Faculty:

Matej **Perina**, Ján **Janovic** Štefan **Mrázik**. Peter **Orság** Lukáš **Hulata**

International Collegiate Programming Contest CERC 2013, Krakow (PL)

Participants:

Ivana Drábiková ,	Tomáš Isteník,
Martin Olešnaník	Tomáš Kuric,
Matej Papík,	Marek Drevenák

<u>Students</u>

In November 2013, there were at the Faculty in Bachelors degree programme **1038** students, in Masters Degree programme **372** students and **38** doctoral full-time students and **12** doctoral part-time students. An overview of number of students within last five years is on the following tablet:

Number of Bachelor students

Study programme	1 st vear	2nd year	3rd year
Informatics	317	186	191
Computer Engineering	58	25	39
Management	85	64	73
Total	460	275	303
Total		1038	

Number of Master students

Study programme	1 st	and
Information Systems	1 st year 69	2 nd year 109
Annlied Network Engineering	10	17
Applied Network Engineering	18	1/
Computer Engineering	22	29
Management	48	60
Total	157	215
Total	372	

Number of Doctoral full-time students

Study programme		_	
	1 st year	2 nd year	3 rd year
Applied Informatics	8	9	12
Informatics Tools for Decision Making Support System	0	2	0
Management	2	2	3
Total	10	13	15
Total		38	

Apart this number, there are at the present **11 part-time Doctoral students** at the Faculty.

An overview of the candidates for the study, students and graduates at the Faculty in the last five years is illustrated in following graphs:

	2009	2010	2011	2012	2013
Bc.	890	872	996	1011	1038
MSc.	392	363	351	380	372
PhD.	66	67	66	55	49
Total	1348	1302	1413	1438	1459

In June 2013 participated in the Entrance exams **630** candidates for the study at the Faculty. From this number there were **564** successful and **460** students were enrolled. They started in September 2013 their Programmes of study at the Faculty

The survey of graduates within the last 5 years is on the following graphs:











Programme ERASMUS and other international activities of the Faculty

Partner's institution with ERASMUS bilateral agreements in 2013

Hochschule fur Technik und Wirtschaft Dresden (D)

Technische Universität Dresden (D)

Hochschule fur Telekommunikation, Leipzig (D)

JAMK University of Applied Sciences Jyväskylä, School of Information Technology, (FIN)

Seinäjoki University of Applied Sciences, (FIN)

University of Porto (P)

Universitat de les Illes Balears (E)

Mykolo Romerio Universitetas (LT)

University of Zagreb (HR)

University of Debrecen (H)

College of Telecommunications and Posts (BG)

Technical University of Sofia (BG)

Univerzita Karlova v Praze (CZ)

University of Hradec Králové (CZ)

University of Pardubice (CZ)

The State Higher School of Vocational Education in Ciechanów (PL)

Politechnika Lubelska (Lublin University of Technology) (PL)

College of Computer Science and Business Administration in Lomza (PL)

Kielce University of Technology (PL)

West Pomeranian University of Technology, Szczecin (PL)

In the year **2013** followed **30** students in the frame of the programmes ERASMUS and others exchange programmes, the programme of study at the partner's foreigner Universities and Institutions of the Faculty.

Foreign Students at the Faculty in 2013

In the frame of Student Training Agreement with Telecom SudParis Evry, FRANCE 1 student took part in 2013 of two months internship at the Faculty and in the frame of the programmes ERASMUS 2 students from University of Porto, 1 student from University of Zagreb, 2 students from partners Universities in Poland, 1 student from Greece and 2 students fro Czech Republic...

Information Centre

At the Faculty of Management Science and Informatics was created **Information Centre**, which provides service for the study and acquiring of information. Centre is furnished with professional literature and with few efficient computers connected on the Internet. Information Centre provides:

- counselling service for students in composition of Programmes of study
- coordination of students mobility and counselling service about possibility of study on the other universities abroad
- presentation and propagation of the Faculty in its various activities
- library service and coordination of editorial activity
- registration of in tray and out tray (letters, journals, package of books and parcels, ...

Intranet of the Faculty

It was in 1992 when the Intranet of Faculty was created and in the meantime was continuously improving. It came into existence from the needs to process and to make accessible lot of information to students and to pedagogical staff, as well. The intranet of Faculty is a part of University Intranet, which allows access to SANET (Slovak Academic Network).

Conception of Intranet Faculty is based on the fact, that every Department is in possession of the own network, which is connected through ETERNET (10BaseT, 100BaseT or Gigabit Ethernet) to the faculty network. Apart from there are a special segments of this network - research laboratories for multimedia, parallel distributed systems, clusters, database systems, operating systems, e-business, e-learning etc.

There are following information systems at the Intranet of FMSI in service:

- Information about study at the Faculty,
- News, messages,
- Events,
- Economics,
- Personal data, research data and information
- E-learning and distant learning subsystems,
- Study results and
- Assessments

Architecture of INTRANET:



Abbreviations of Departments:

Department of Mathematical Methods	-	DMM
Department of Informatics	-	DI
Department of Macro and Micro economy	-	DMME
Department of Technical Cybernetics	-	DTC
Department of Info Communication Networks	-	DIN
Department of Transportation Networks	-	DTN
Department of Management Theories	-	DMT
Department of Software Technologies	-	DST

Schema of the Faculty Computers network and its connection to the University Network is on the following picture:

